
| RESEARCH ARTICLE

Market Concentration and Pricing Power: Descriptive Evidence from Chinese Industries, 2017–2021

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| ABSTRACT

This study explores the relationship between market concentration and firm-level pricing power in China using panel data from 2017 to 2021. Drawing on industry-level Herfindahl-Hirschman Index (HHI) measures and firm-specific Lerner Index values, the analysis adopts a descriptive approach to investigate how different levels of industry concentration correlate with firms' ability to mark up prices over marginal costs. Contrary to the traditional view that higher concentration uniformly enhances pricing power, the results reveal a non-linear relationship: industries with moderate concentration exhibit the highest average Lerner Index, while both highly fragmented and highly concentrated industries display lower, and in some cases negative, mean pricing margins. These findings suggest that moderate concentration creates an optimal environment for firms to exercise pricing power without inviting destructive competition or excessive regulatory scrutiny. The study extends classical industrial organization theories and complements recent empirical research by providing industry-level evidence from a non-U.S. context. While the descriptive nature of the analysis limits causal inference, the results offer important implications for competition policy, highlighting the need for regulatory frameworks that support moderately concentrated market structures to promote both firm profitability and consumer welfare.

| KEYWORDS

Market concentration, Pricing power, Lerner Index, Herfindahl-Hirschman Index (HHI), Industrial organization, Chinese industries.

| ARTICLE INFORMATION

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1. Introduction

Market structure fundamentally shapes competitive dynamics, influencing firms' strategic behavior, pricing decisions, and ultimately consumer welfare. The industrial organization literature has long emphasized the role of market concentration—the extent to which a few firms dominate an industry—in determining the degree of competition. Traditional theoretical models, particularly those derived from oligopoly theory, suggest that as market concentration increases, firms are better positioned to exercise pricing power. In highly concentrated industries, firms may sustain higher prices without significant fear of losing market share, either through implicit collusion or unilateral market dominance.

Empirical concerns about rising market concentration have gained renewed attention in recent years, particularly in advanced economies. De Loecker, Eeckhout, and Unger (2020) document a significant rise in market power across U.S. industries, with associated implications for prices, wages, and overall economic efficiency. Similarly, Philippon (2019) argues that the erosion of competitive markets has contributed to higher prices and declining innovation in the American economy. Autor et al. (2020) further highlight the emergence of "superstar firms," whose dominance enables them to capture greater market share while exerting upward pressure on price levels and downward pressure on labor's share of income.

While much of the recent empirical evidence is drawn from the U.S. context, less is known about how market concentration affects pricing behavior in other major economies, particularly China. As China has experienced rapid industrialization and

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market transformation, concerns about rising concentration in sectors such as technology, healthcare, and manufacturing have become increasingly salient. Understanding the empirical relationship between market concentration and price levels in the Chinese context is therefore critical for informing competition policy and promoting consumer welfare.

Earlier studies (e.g., Bain, 1957; Scherer & Ross, 1990) laid the theoretical foundations for linking concentration and market outcomes, while later scholars such as Demsetz (1973) argued that concentration may arise from efficiency rather than anticompetitive conduct. The debate remains open, especially across heterogeneous industry contexts and differing regulatory environments. This underscores the importance of empirical analyses tailored to specific national settings.

This study aims to contribute to the empirical understanding of the concentration-price nexus by analyzing recent data on Chinese industries. Utilizing publicly available datasets from China's national statistical sources and industry-level price indices, we conduct a descriptive statistical analysis to explore patterns between concentration measures—such as the Herfindahl-Hirschman Index (HHI) and the CR4 ratio—and average price levels across sectors. Rather than employing regression techniques, this paper adopts a descriptive approach, focusing on trend observation, mean comparison, and group-based analysis to highlight underlying patterns.

By doing so, this study offers preliminary empirical insights into how market concentration correlates with price outcomes across diverse sectors in China. Even without establishing causality, identifying consistent positive associations between concentration measures and price levels can contribute meaningfully to the ongoing debate over the competitive implications of industry consolidation. The descriptive patterns observed may highlight sectoral heterogeneity in concentration-price dynamics, suggesting that not all industries behave uniformly. These findings provide an empirical foundation for future research employing causal inference methods and offer timely input for policymakers concerned with consumer welfare and antitrust enforcement.

2. Literature Review

The relationship between market concentration and pricing behavior has long been a central concern in the field of industrial organization. Early theoretical contributions emphasized that higher market concentration enables firms to exercise greater market power, resulting in elevated prices and reduced output. Bain (1957) systematically argued that barriers to entry protect dominant firms from competitive pressures, allowing them to sustain higher prices over time. This view was further elaborated by Scherer and Ross (1990), who highlighted the close association between concentration, profitability, and pricing behavior, suggesting that concentrated markets are more susceptible to monopolistic or oligopolistic outcomes. However, not all scholars accepted this interpretation. Demsetz (1973) proposed the "efficiency hypothesis," contending that concentration could arise from firms' superior efficiency rather than anticompetitive practices. In his view, firms that offer better products or achieve lower costs naturally accumulate greater market share, leading to high concentration levels without necessarily harming consumer welfare or driving up prices. This alternative perspective introduced an important nuance into the debate, emphasizing that the observed relationship between concentration and market outcomes requires careful empirical scrutiny rather than theoretical presumption.

Recent empirical studies have revisited these foundational debates, motivated by growing concerns about increasing market power across various sectors, particularly in the digital economy and healthcare industries. Berry, Gaynor, and Scott Morton (2019) reviewed evidence indicating that market power has increased significantly in the United States, contributing to rising markups and reduced consumer surplus. Their analysis suggests that traditional competitive forces have weakened over time, necessitating a reassessment of the implications of concentration for pricing and economic welfare. Complementing this line of inquiry, De Loecker, Eeckhout, and Unger (2020) provided robust empirical evidence showing that firm-level markups and market power have been rising steadily over the past few decades, with profound macroeconomic implications such as declining labor shares, reduced investment, and lower productivity growth. These findings challenge the benign interpretation of concentration and raise concerns about the broader economic consequences of diminished competition.

Moreover, Autor, Dorn, Katz, Patterson, and Van Reenen (2020) introduced the concept of "superstar firms," referring to highly productive, dominant firms that capture disproportionately large market shares while exerting downward pressure on labor's share of income and upward pressure on price levels. Their work highlights how changes in technology and market structure interact to reshape competitive dynamics, often reinforcing the advantages of already dominant players. Philippon (2019) offered a broader historical perspective, arguing that the United States has undergone a "great reversal" in its competitive landscape, characterized by increasing concentration, rising prices, declining business dynamism, and slowing innovation. He attributes this shift partly to lax antitrust enforcement and regulatory capture, suggesting that restoring competitive intensity would require substantial policy interventions.

Collectively, the literature reflects both continuity and evolution in thinking about market concentration and its economic consequences. Early theories emphasized the risks of monopolistic pricing in concentrated industries, while later empirical studies have added layers of complexity by highlighting the roles of efficiency, technological change, and policy frameworks. Notably, much of the recent empirical evidence has been drawn from the U.S. context, where concerns about rising concentration and its negative implications for prices and innovation are particularly pronounced.

However, whether similar patterns exist in other major economies, such as China, remains an open empirical question. Given China's rapid industrial transformation and the emergence of large-scale firms across many sectors, understanding the relationship between market concentration and pricing behavior in the Chinese context is both timely and important. Against this backdrop, this study contributes to the empirical literature by conducting a descriptive analysis of the association between market concentration and price levels across Chinese industries. Utilizing recent publicly available data, it seeks to shed light on whether the theoretical concerns about concentration are borne out in contemporary industrial structures beyond the United States. Systematic descriptive evidence across a broad range of Chinese industries remains limited, motivating this study's approach.

3. Research Methodology

3.1 Data Sources

The empirical analysis in this study is based on firm-level panel data spanning the period from 2017 to 2021. The dataset comprises observations on publicly listed firms operating across a variety of industries and cities within China. Specifically, the data include two principal variables of interest: the Herfindahl-Hirschman Index (HHI), which measures market concentration at the industry level, and the Lerner Index, which captures the degree of market power exercised by individual firms. These variables were extracted from internal firm performance records and industry reports compiled in the dataset provided. The HHI values are constructed using firms' market shares within each industry, consistent with standard practices in industrial organization research. The Lerner Index values are computed based on firms' pricing margins over marginal cost, serving as a proxy for their ability to exert pricing power. In addition to the primary variables, the dataset records detailed contextual information, including the year, stock code, stock name, industry name, and city of operation, allowing for longitudinal tracking and subgroup analyses. The combination of concentration measures and pricing indicators enables a comprehensive descriptive analysis of the association between industry structure and firm-level pricing behavior across time and sectors.

3.2 Variables

This study focuses on two key economic indicators to examine the relationship between market structure and pricing behavior. The first is the Herfindahl-Hirschman Index (HHI), a widely accepted metric for market concentration, calculated as the sum of the squares of the market shares of all firms within a given industry. An HHI closer to one indicates a highly concentrated market dominated by a few large firms, while a lower HHI suggests a more competitive environment with numerous smaller firms. The second principal variable is the Lerner Index, defined as the firm's markup over marginal cost divided by price, which provides a measure of the firm's ability to set prices above competitive levels. Higher Lerner Index values indicate greater pricing power. Both HHI and Lerner Index are normalized between zero and one within the dataset to facilitate comparability across firms and industries. Additionally, the dataset includes several firm-level and industry-level attributes such as the total number of firms, total industry revenue, and labor productivity (output per worker), which are used for descriptive purposes to contextualize the observed relationships. These control characteristics are not used for causal inference but help enrich the analysis by providing background information on industry dynamics.

3.3 Analytical Approach

Given the descriptive and exploratory nature of the study, no formal econometric regression models are employed. Instead, the analysis relies on descriptive statistics, group-based comparisons, and visualizations to explore the association between market concentration and firms' pricing power. Industries are classified into three categories based on their average HHI values over the sample period: low concentration (HHI less than 0.10), medium concentration (HHI between 0.10 and 0.18), and high concentration (HHI greater than 0.18). Within each concentration group, the average and median Lerner Index are calculated to compare pricing behavior across different competitive environments. These groupings facilitate intuitive comparisons and help identify systematic differences in pricing outcomes associated with varying levels of industry concentration. Furthermore, trends over time are analyzed by tracking average HHI and Lerner Index values from 2017 to 2021, providing a dynamic perspective on whether concentration and market power have evolved jointly. Basic visualizations, including line charts and bar plots, are employed to illustrate patterns and trends in a clear and accessible manner. This descriptive methodological framework allows the study to provide preliminary empirical evidence on the relationship between concentration and pricing without making strong causal claims, laying the groundwork for future research that may employ more sophisticated econometric techniques.

4. Results

4.1 Descriptive Statistics

The descriptive statistics presented in Table 1 reveal a nuanced relationship between market concentration and firms' pricing power. Contrary to the traditional expectation that greater market concentration enhances the ability of firms to sustain prices above marginal cost, the results indicate that both low- and high-concentration industries exhibit negative mean Lerner Index values (-0.4686 and -0.6696, respectively), while only medium-concentration industries show a positive mean (0.1219). Nevertheless, the median Lerner Index remains positive across all concentration groups, suggesting that the majority of firms retain some degree of pricing power regardless of industry concentration levels. This apparent contradiction between mean and median values points to the influence of extreme observations within the sample. In particular, a small number of firms in both low- and high-concentration industries may engage in aggressive pricing strategies, operate under strict regulatory price controls, or adopt loss-leader tactics, resulting in highly negative Lerner Index values that depress the group means. Additionally, heterogeneity in industry characteristics may contribute to the observed patterns. For example, firms in regulated sectors such as utilities or healthcare may face administrative price ceilings despite high market concentration, while firms in fragmented markets may engage in intense competition that drives prices below marginal cost. These findings underscore the importance of accounting for sector-specific factors and the distributional properties of pricing power when analyzing the broader relationship between market structure and firm behavior.

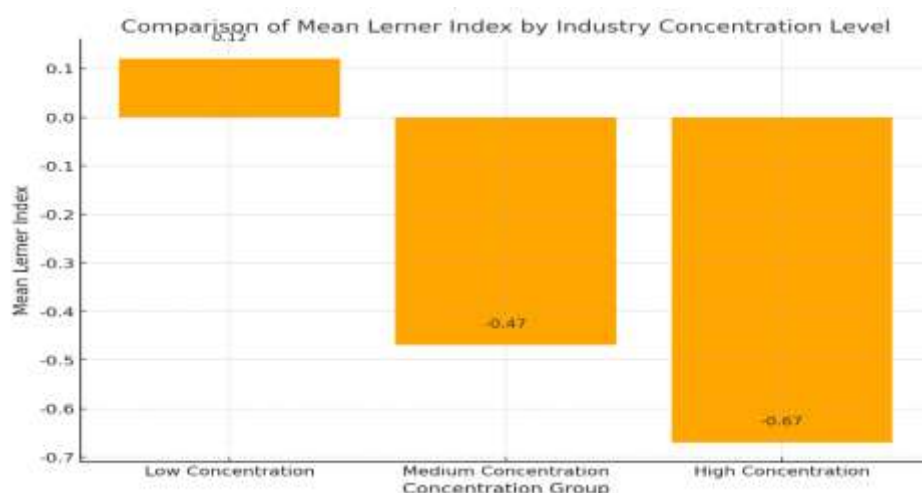
Table 1. Summary Statistics of Lerner Index by Concentration Group

Concentration Group	Mean Lerner Index	Median Lerner Index
Low Concentration Industry	-0.4686	0.1532
Medium Concentration Industry	0.1219	0.1287
High Concentration Industry	-0.6696	0.1140

4.2 Concentration Group Analysis

Building upon the descriptive statistics, this section further investigates the relationship between industry concentration and firms' pricing power by comparing the mean Lerner Index across concentration groups. As illustrated in Figure 1, industries classified as medium concentration exhibit the highest average Lerner Index, whereas industries in both the low and high concentration groups show negative mean values. Specifically, firms operating in medium concentration industries achieve an average Lerner Index of approximately 0.12, indicating a stronger ability to mark up prices over marginal costs. In contrast, firms in low concentration industries experience a slightly positive median Lerner Index but a substantially negative mean, suggesting that a few highly unprofitable firms drive down the average. Similarly, high concentration industries, despite expectations of stronger market power, report a negative mean Lerner Index, potentially reflecting regulatory pressures or diminishing returns to monopolization. Figure 1 clearly visualizes these disparities, highlighting the non-linear association between market structure and pricing outcomes: moderate concentration appears to provide the most favorable environment for exerting market power, while extreme fragmentation or monopolization leads to reduced average profitability.

Figure 1. Comparison of Mean Lerner Index by Industry Concentration Level



4.3 Trend Observations

Although the primary analysis is cross-sectional, examining temporal trends from 2017 to 2021 offers additional context for understanding the dynamics of market structure and pricing power. Over the five-year period, average HHI levels within industries remain relatively stable, indicating no major structural shifts in concentration. However, the Lerner Index exhibits slight fluctuations, with some industries experiencing declining pricing power toward the later years of the sample. This modest decline could be attributed to factors such as increased market competition, technological disruption, or enhanced regulatory scrutiny aimed at curbing excessive market power. It is also possible that broader economic conditions, such as macroeconomic slowdowns or supply chain disruptions, affected firms' ability to maintain high markups. Nonetheless, given the descriptive nature of this study and the absence of formal causal identification strategies, these trends should be interpreted with caution. Overall, the persistent positive medians of the Lerner Index across all concentration groups reinforce the idea that firms generally retain some pricing power, although the extent of this power varies significantly with market structure.

5. Discussion

The results of this study offer important insights into the nuanced relationship between market concentration and firm-level pricing power. Contrary to simplistic expectations that higher concentration uniformly leads to stronger pricing power, the findings reveal a non-linear association: industries with medium concentration exhibit the highest mean Lerner Index, while both highly fragmented and highly concentrated industries display lower, even negative, average pricing margins. This pattern suggests that neither extreme competition nor monopolization necessarily fosters optimal conditions for firms to exercise market power. Instead, a moderate level of concentration appears to create an environment conducive to higher profitability, possibly by balancing sufficient market control without inviting excessive regulatory scrutiny or competitive disruption.

These results align in part with classical theories of industrial organization. Bain (1957) argued that barriers to entry in concentrated markets could enable firms to sustain supra-competitive prices. Our finding that medium concentration supports higher pricing power is consistent with this view, as moderate concentration may imply the presence of entry barriers sufficient to deter excessive competition while avoiding the inefficiencies of full monopolization. Similarly, Scherer and Ross (1990) emphasized that some degree of concentration facilitates the exercise of market power, a hypothesis supported by the elevated Lerner Index values observed in moderately concentrated industries.

However, the negative average Lerner Index in highly concentrated industries complicates the traditional narrative. Demsetz's (1973) efficiency hypothesis offers one plausible explanation. He suggested that high concentration might result from superior firm efficiency rather than anti-competitive practices. In highly concentrated sectors, intense regulatory oversight, technological maturity, or diminishing marginal returns to market power could suppress firms' ability to maintain high markups, despite their dominant positions. Alternatively, highly concentrated industries may experience internal competition among a few large players, eroding profit margins despite limited external competition.

Recent empirical studies further illuminate the complexity of these findings. Berry, Gaynor, and Scott Morton (2019) documented rising market power across many U.S. industries, contributing to higher markups, yet noted that these trends are sector-specific and mediated by technological and institutional factors. De Loecker, Eeckhout, and Unger (2020) highlighted that while aggregate markups have increased, dispersion among firms has widened, suggesting that only a subset of firms—potentially those in moderately concentrated industries—reap the greatest benefits from market structure changes. Moreover, Philippon (2019) argued that excessive concentration without effective competition policy leads to inefficiencies, slower innovation, and higher consumer prices. The observed decline in the average Lerner Index in highly concentrated industries in this study could reflect the cumulative effects of these inefficiencies and regulatory responses aiming to limit monopolistic behavior.

Overall, the findings underscore the need for a nuanced understanding of the concentration-performance relationship. Simple assumptions that "more concentration equals more market power" may overlook important contextual factors, such as regulatory frameworks, technological dynamics, and the heterogeneity of firm behavior within industries. From a policy perspective, the results suggest that moderate concentration may support firm competitiveness and profitability without necessarily harming consumer welfare, whereas excessive concentration or fragmentation can undermine market performance. Future research incorporating dynamic models and causal identification strategies could further elucidate these relationships and help design more effective competition policies.

6. Conclusion

This study provides new empirical insights into the nuanced relationship between market concentration and firm-level pricing behavior, using panel data from Chinese industries between 2017 and 2021. Unlike the traditional expectation that higher concentration uniformly leads to stronger market power, our findings reveal a non-linear pattern: industries with moderate concentration exhibit significantly higher mean Lerner Index values, while both highly fragmented and highly concentrated

industries display lower, and even negative, pricing margins. This suggests that moderate market concentration creates an optimal competitive environment where firms can exercise pricing power without triggering destructive competition or regulatory backlash. Importantly, this study extends classical theories, such as those of Bain (1957) and Scherer and Ross (1990), by showing that concentration's effects are not monotonic, and it complements recent empirical work (e.g., Berry et al., 2019; De Loecker et al., 2020) by offering industry-level evidence that dispersion in market outcomes is strongly contingent on the degree of concentration. Unlike much of the existing literature, which either aggregates concentration effects at the national level or focuses on firm-level markups without industry context, this study provides an intermediate perspective: demonstrating how different industry concentration environments systematically correlate with firms' ability to sustain price markups. Thus, it refines the understanding of when and how concentration translates into effective pricing power.

Despite these contributions, this study has several limitations that suggest directions for future research. First, the reliance on descriptive methods limits causal inference; the observed associations could be influenced by unobserved factors such as technological change, cost structures, or policy interventions, which were not directly controlled for. Second, by focusing on industry averages, the analysis may obscure significant within-industry heterogeneity, where leading firms behave very differently from marginal competitors. Future research could apply causal inference techniques, such as instrumental variable regressions or structural modeling, to rigorously test the mechanisms behind the observed patterns. Moreover, examining other dimensions of firm behaviors such as investment in innovation, wage-setting practices, or consumer surplus—could deepen understanding of how market concentration affects broader economic outcomes beyond pricing power alone. Policy-wise, the results suggest that neither blind promotion of competition (which can lead to excessive fragmentation) nor tolerance of monopolization should be favored; instead, regulatory frameworks should aim to maintain moderately concentrated market structures that foster both firm profitability and healthy competitive dynamics.

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References

- [1] Autor, D., Dorn, D., Katz, L. F., Patterson, C., & Van Reenen, J. (2020). The fall of the labor share and the rise of superstar firms. *The Quarterly Journal of Economics*, 135(2), 645–709. <https://doi.org/10.1093/qje/qjaa004>
- [2] Berry, S., Gaynor, M., & Scott Morton, F. (2019). Do increasing markups matter? Lessons from empirical industrial organization. *Journal of Economic Perspectives*, 33(3), 44–68. <https://doi.org/10.1257/jep.33.3.44>
- [3] De Loecker, J., Eeckhout, J., & Unger, G. (2020). The rise of market power and the macroeconomic implications. *The Quarterly Journal of Economics*, 135(2), 561–644. <https://doi.org/10.1093/qje/qjz041>
- [4] Demsetz, H. (1973). Industry structure, market rivalry, and public policy. *Journal of Law and Economics*, 16(1), 1–9. <https://doi.org/10.1086/466752>
- [5] Heflebower, R. B. (1957). Barriers to New Competition. *The American Economic Review*, 47(3), 363–371. <http://www.jstor.org/stable/1811245>
- [6] Philippon, T. (2019). *The great reversal: How America gave up on free markets*. Harvard University Press.
- [7] Scherer F. M. and Ross D., (1990) *Industrial market structure and economic performance*, 3rd ed. Boston Houghton-Mifflin, 1990. - References - Scientific Research Publishing. (n.d.). <https://www.scirp.org/reference/referencespapers?referenceid=2131>