

AN SCP-BASED ASSESSMENT OF MARKET STRUCTURE AND AIRLINE PERFORMANCE IN POST-PANDEMIC INDONESIA

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ARTICLE HISTORY

Received : 27-01-2026

Revised : 07-02-2026

Accepted : 10-03-2026

KEYWORDS

Aviation Industry, Structure Conduct Performance (SCP), Market Concentration, Capacity Management, Panel Data Analysis.

ABSTRACT

As an archipelagic nation, Indonesia relies on air transportation for connectivity and economic development. Following a pandemic-induced contraction in 2020, the aviation sector recovered substantially during 2022–2024, with domestic and international passenger traffic reaching 83% and 97% of pre-pandemic levels, respectively. This study applies the Structure-Conduct-Performance (SCP) framework to examine relationships among market structure, airline behavior, and industry performance. Using descriptive trend analysis and fixed-effects panel regression (2019–2024), findings reveal a persistent oligopolistic structure. However, operational factors—particularly aircraft utilization and capacity deployment (ASK)—significantly enhance performance at the 1–5% level, whereas market concentration and yields lack statistical significance. Load factor remains influenced by operational efficiency after controlling for fuel prices and GDP growth. These results indicate that post-pandemic recovery is driven primarily by internal operational decisions rather than market structure or macroeconomic conditions. Consequently, aviation policy should prioritize operational efficiency and cost management to strengthen industry resilience. From a social perspective, improving efficiency and capacity management supports affordable air services for remote areas, fostering regional integration, labor mobility, tourism, and inclusive economic growth in Indonesia.

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INTRODUCTIONS

Indonesia's geographical configuration as an archipelagic state comprising more than 17,000 islands across 38 provinces, with a total area of approximately 1.89 million km² (Badan Pusat Statistik, 2023), renders interregional connectivity a fundamental prerequisite for national economic integration, equitable development, and the mobility of

people and goods. Within this context, the air transport sector assumes a strategic function due to its comparative advantages in speed, network reach, and reliability relative to other transport modes. As a consequence, Indonesia exhibits a structurally high dependence on scheduled air services to sustain domestic integration and international linkages.

Prior to the COVID-19 pandemic, the Indonesian aviation industry demonstrated robust expansion. Domestic passenger traffic tripled compared to 2008 levels and peaked in 2018 at approximately 137–138 million passengers across more than one million flights, reflecting strong demand elasticity to income growth and rising mobility. Projections by Boeing (2022) indicate that Indonesia is expected to become one of the fastest-growing aviation markets globally, with potential domestic traffic reaching 390 million passengers annually by 2037. This trajectory underscores the sector's pivotal role in supporting tourism, logistics, and inter-island trade flows.

The onset of the COVID-19 crisis in 2020 constituted an exogenous demand shock of unprecedented magnitude. Mobility restrictions, declining household income, and heightened health-risk perceptions precipitated a sharp contraction in passenger volumes and a decline in the aviation sector's contribution to national GDP. Airlines were compelled to implement operational downsizing, fleet rationalisation, and financial restructuring measures to preserve liquidity and solvency. The restructuring process of Garuda Indonesia in 2022 exemplifies the scale of adjustment required to restore financial sustainability.

During the 2022–2024 recovery phase, passenger demand rebounded substantially, approaching pre-pandemic levels, while national economic growth stabilised at around 5 percent. Nevertheless, recovery in traffic volumes did not automatically translate into full operational or financial normalisation. Market dynamics shifted, with capacity discipline becoming a dominant strategic response amid uncertainty and elevated cost pressures. The entry of new carriers such as Super Air Jet and Pelita Air Service introduced additional competitive tension, even though the industry continues to exhibit oligopolistic characteristics consistent with industrial organisation theory.

In an oligopolistic market structure, competition extends beyond price-setting behaviour to encompass strategic capacity decisions, fleet deployment, and network configuration. Available Seat Kilometres (ASK) serve as a key managerial control variable, directly influencing cost structure, asset utilisation, and risk exposure. In the post-pandemic environment, airlines have tended to prioritise cautious capacity expansion to mitigate demand volatility and cost uncertainty. Consequently, performance assessment cannot rely solely on revenue-based indicators; operational efficiency metrics such as load factor provide a more precise measure of capacity utilisation and cost recovery. Persistently low load factors on thin routes increase the probability of route suspension and reduce overall profitability, as fixed operating costs remain largely inflexible.

Beyond structural and strategic determinants, industry performance is also shaped by exogenous macroeconomic variables. Economic growth functions as a proxy for aggregate travel demand, whereas aviation turbine fuel prices constitute a major component of operating expenditure. Exchange rate fluctuations further affect maintenance, leasing, and insurance costs, given their dollar-denominated nature. These external factors, although beyond managerial control, significantly influence strategic conduct and operational outcomes.

While prior literature has examined market concentration and efficiency in isolation, comprehensive post-pandemic analyses integrating market structure, firm conduct, and operational performance remain limited in the Indonesian context. Accordingly, this study applies the Structure Conduct Performance (SCP) framework to evaluate the relationship between market concentration, airline strategic behaviour, and operational performance proxied by load factor during the 2022–2024 recovery period. By combining descriptive industry analysis with panel data regression techniques, this research contributes empirically grounded insights into post-pandemic industrial dynamics and formulates evidence-based policy implications for regulators and industry stakeholders.

LITERATURE REVIEW

Within the classical paradigm of the Structure Conduct Performance (SCP) framework as formulated by Joe

S. Bain (1956), market structure constitutes the primary determinant of firm conduct, which subsequently shapes measurable market performance. The original SCP model posits a predominantly one-directional causal sequence structure influences conduct, and conduct determines performance although later developments acknowledge potential feedback mechanisms and the role of exogenous factors (Lipczynski et al., 2017). In this context, structure encompasses observable industry characteristics such as the number and relative size of firms, entry barriers, product differentiation, and vertical integration, while conduct refers to strategic decisions including pricing, capacity setting, investment, cooperation, and merger activity. Performance reflects economic outcomes such as profitability, efficiency, service quality, and growth.

Applying this framework to the airline industry, load factor is conceptualised as an operational performance indicator rather than merely a demand outcome. In a capital-intensive industry characterised by high fixed costs and capacity indivisibilities, performance is highly sensitive to utilisation rates. Therefore, seat occupancy (load factor) represents an efficiency-based measure of performance consistent with the SCP tradition, as it reflects how effectively firms transform structural conditions and strategic decisions into operational outcomes.

From a structural perspective, market concentration commonly proxied by the Herfindahl–Hirschman Index (HHI) captures the degree of dominance by large carriers and the intensity of competition. In accordance with the SCP hypothesis, higher concentration may reduce competitive pressure, potentially weakening incentives for aggressive pricing or capacity optimisation. However, structural advantages associated with larger market share—such as network economies, hub dominance, and bargaining power may enhance demand capture and improve load factors. Entry barriers, particularly those related to capital requirements, slot allocation, and fleet acquisition, are reflected in the Minimum Efficient Scale (MES). A higher MES implies that firms must operate at substantial scale to achieve cost efficiency, thereby reinforcing structural concentration and influencing strategic capacity decisions.

Consistent with SCP theory, these structural conditions shape airline conduct. In oligopolistic markets, firms engage in strategic behaviour not only through pricing but also through non-price instruments such as capacity discipline, fleet utilisation, route allocation, alliance formation, and service differentiation. Available Seat Kilometres (ASK) represent a core conduct variable, as capacity decisions directly influence market supply. Excessive capacity relative to demand leads to overcapacity, downward pressure on yields, and reduced load factors. Conversely, disciplined capacity management aligned with demand conditions supports higher utilisation rates. Aircraft utilisation further represents a behavioural dimension affecting productivity and cost efficiency.

Pricing behaviour, reflected in passenger yield, also falls within the conduct dimension. In markets characterised by price-sensitive demand, fare increases may reduce passenger volumes and consequently lower load factors, particularly when substitutes or competing carriers are available. Thus, conduct variables operationalise the mechanism through which structural characteristics translate into performance outcomes.

Beyond internal industry dynamics, SCP analysis recognises the role of exogenous determinants. Macroeconomic growth, measured by Gross Domestic Product (GDP), represents a demand-side condition influencing passenger purchasing power and travel propensity. Fuel prices and exchange rate movements constitute supply-side cost conditions affecting airlines' operating expenditures and strategic responses. Government policies such as competition regulation, fiscal incentives, and crisis-related subsidies may directly influence structure (e.g., merger approval, entry regulation) or conduct (e.g., pricing rules, capacity restrictions), thereby indirectly shaping performance.

Accordingly, in line with the original SCP hypothesis, this study conceptualises load factor as the performance variable determined by (i) structural indicators such as HHI and MES, (ii) conduct variables including ASK, aircraft utilisation, and yield, and (iii) external supply–demand conditions such as GDP growth and fuel prices. While recognising the possibility of dynamic feedback effects, the empirical specification maintains the classical causal ordering from structure to conduct and ultimately to performance, consistent with the foundational SCP framework.

H1: There is a significant joint effect of market structure and firm conduct variables on airline performance, as measured by load factor.

H2: There is a significant effect of Herfindahl–Hirschman Index (HHI) on airline load factor

H3: There is a significant effect of scale efficiency (MES) on airline load factor

- H4:** There is a significant effect of aircraft utilization on airline load factor
- H5:** There is a significant effect of available seat kilometers (ASK) on airline load factor
- H6:** There is a significant effect of passenger yield on airline load factor
- H7:** There is a significant effect of economic growth (GDP) on airline load factor
- H8:** There is a significant effect of aviation fuel prices on airline load factor

In this study, the principal structural variables comprise Hirschman-Herfindhal Index (HHI) and minimum efficient scale (MES), while firm conduct is represented by capacity provision (Available Seat Kilometers), fleet utilization, pricing behavior (yield). In addition, macroeconomic conditions and cost environments captured by GDP growth and aviation fuel prices are incorporated to account for external demand and cost shocks that influence airline group strategic responses (Lipczynski et al., 2017). The analytical framework underpinning this study is presented in Figure 1.

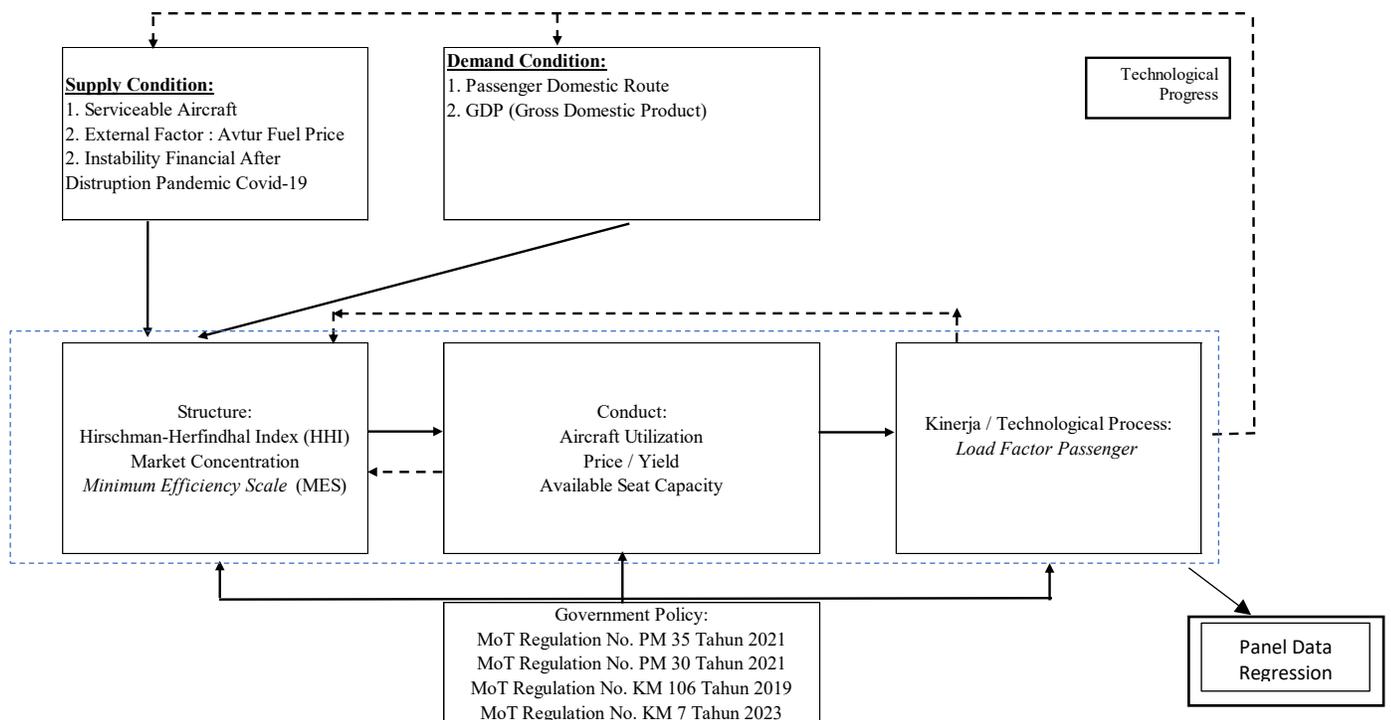


Figure 1. Research Framework

METHODS

This study uses an empirical quantitative approach to analyse the relationship between market structure, company behaviour, and the performance of the Indonesian aviation industry within the Structure–Conduct–Performance (SCP) framework. The data used is non-confidential secondary data from the Directorate General of Civil Aviation, airline financial reports, industry statistics, and macroeconomic data from BPS. The research period covers 2019–2024 to represent pre-pandemic conditions, the COVID-19 pandemic period, and the industry recovery phase. The unit of analysis is set at the airline group level to reflect strategic coordination in capacity allocation, fleet

utilisation, pricing, and network planning, while minimising bias due to capacity or traffic transfers between airlines within a group.

Table 1. Research Variables and Measurements

Variable Group	Variable	Proxy/Measurement
Industry Performance	Load Factor (LF)	RPK / ASK
Market Structure	Herfindahl–Hirschman Index (HHI)	Square of airline market share
	Concentration Ratio (CR4)	Total market share of the four largest airlines
	Minimum Efficient Scale (MES)	Minimum output at the lowest average cost
Company Behaviour	Fleet Utilization	Ratio of aircraft flight hours to total fleet capacity
	Available Seat Kilometers (ASK)	Total available seats multiplied by distance travelled
	Yield	Revenue per passenger-kilometre
Control Variables	GDP growth	Annual GDP growth rate
	Jet fuel prices	Aviation fuel prices

As shown in Table 1, this study uses several key variables representing market structure, company behaviour, and industry performance.

Table 2. Analytical Approach

Analysis Stages	Method	Technique /Model	Purpose of Analysis
Preliminary Analysis	Descriptive Trend Analysis	Descriptive statistics	Identify patterns of change in market structure, capacity, and industry performance between periods.
Main Analysis	Panel Data Regression	Pooled OLS	Provide preliminary estimates of the relationships between research variables.
		Fixed Effects (FE)	Control for differences in fixed characteristics between airlines.
		Random Effects (RE)	Estimate random variation between observation units.
Model Selection	Statistical Test	F-test, LM, Hausman	Determine the most appropriate panel model specification.
Robustness Test	Standard Error Correction	Driscoll–Kraay	Correcting for heteroscedasticity, autocorrelation, and cross-dependency.
Hypothesis Testing	Final Model	Selected panel with robust errors	Testing the influence of market structure and company behaviour on industry performance (load factor).

As shown in Table 2, this study applied descriptive trend analysis to identify industry dynamics, followed by panel data regression, model selection using statistical tests, and robust error correction to ensure the reliability of the estimation results.

RESULTS

Trend Analysis Post-Pandemic Market Restructuring and Performance Dynamics

The 2019–2024 industry trajectory provides strong empirical support for the Structure–Conduct–Performance (SCP) framework employed in this study. The pandemic shock triggered a structural realignment of the Indonesian airline market, characterized by increased concentration and reinforced entry barriers. Market concentration increased substantially during 2020–2022, while CR4 remained within the 72–84% range, confirming a persistently oligopolistic structure. The Minimum Efficient Scale (MES) fluctuated between 50–68%, indicating sustained scale-based entry barriers. In capital-intensive industries such as aviation where high fixed costs and economies of density dominate cost structures, as emphasized by Doganis (2019) such consolidation is consistent with crisis-induced rationalization.

However, the post-pandemic adjustment diverges from the conventional SCP prediction that higher concentration necessarily reduces output or facilitates pricing power. Instead, the conduct dimension reveals disciplined capacity management. By 2024, industry ASK recovered to approximately 88% of its 2019 level, indicating incomplete capacity restoration. In contrast, aircraft utilization rebounded more rapidly, surpassing pre-pandemic efficiency levels in several major groups. Yield recovery remained more subdued, averaging approximately 83% of its 2019 benchmark, suggesting that airlines prioritized demand stimulation and load optimization over aggressive fare escalation. Performance indicators further confirm this pattern. Load factor recovery was stronger than capacity recovery: by 2024, average load factor exceeded its 2019 level by approximately +7.7%, despite ASK not yet fully normalizing. This asymmetry indicates that performance improvement was driven primarily by supply rationalization and operational efficiency gains rather than structural dominance alone.

Panel Regression Results

A panel data regression analysis was conducted to assess the effects of market structure, operational, cost, and macroeconomic variables on airline load factor over the period 2019–2024. Prior to estimation, classical regression assumption tests were performed, including assessments of multicollinearity, heteroskedasticity, and serial correlation, to ensure the reliability of the estimated coefficients. Based on the multicollinearity diagnostics, the Minimum Efficient Scale (MES) variable was excluded from the final model specification due to its strong correlation with the Herfindahl–Hirschman Index (HHI). To preserve the structural interpretation imposed by the SCP framework and avoid redundancy among market structure proxies, MES was removed while retaining HHI as the primary indicator of market concentration.

This modeling decision is also consistent with the structural characteristics of the airline industry, which is widely recognized as highly regulated and capital-intensive, with significant entry barriers that are already reflected in market concentration measures. Consequently, the final specification maintains theoretical coherence while ensuring econometric robustness. The fixed effects approach is considered more appropriate than the random effects alternative, as model selection tests indicate superior statistical fit

Based on the Hausman test results ($\chi^2 = 49.68$; $p < 0.01$), the Fixed Effects model was selected as the preferred specification. The test results yield a chi-square statistic of 49.68 with 6 degrees of freedom and a p-value 5.46×10^{-9} . Since the p-value is well below the 5% significance level, the null hypothesis is rejected, confirming that the Fixed Effects model is the most appropriate specification. This result indicates a significant correlation between individual-specific effects and the regressors, implying that the Random Effects estimator would be biased and inconsistent. In other words, individual-specific characteristics such as airline are fixed over time and systematically affect the dependent variable.

The empirical model was estimated using a fixed effects specification to control for time-invariant airline-specific heterogeneity. To address potential cross-sectional dependence, serial correlation, and heteroskedasticity inherent in airline panel data, Driscoll–Kraay robust standard errors were applied. Minimum Efficient Scale (MES) was excluded from the final specification due to severe multicollinearity, as indicated by Variance Inflation Factor (VIF) values exceeding the conventional threshold of 10 and its strong correlation with the Herfindahl–Hirschman Index (HHI). Similarly, alternative concentration measures such as CR4 were not included, since they are constructed

from the same market share components as HHI and would introduce redundancy. Accordingly, HHI was retained as the sole proxy for market structure to ensure model parsimony and econometric stability. The dependent variable was load factor, while the explanatory variables included Hirschman-Herfindhal Index (HHI), minimum efficient scale (MES), available seat kilometers (ASK), aircraft utilization, yield, fuel prices, and gross domestic product (GDP). The regression results are reported in Table 1.

Table 1. Regression Panel Data Result with Driscoll–Kraay standard errors

Variable	Est. Coefficient	Std. Error	t-value	p-value	Remarks
HHI	0.0637	0.2886	0.2207	0.8256	Insignificant
Utilization	0.0122	0.0052	2.3187	0.0216	Significant (5%)
ASK	0.0476	0.0163	2.9212	0.004	Significant (5%)
Yield	-11.5×10^{-6}	7.7×10^{-6}	-1.4905	0.138	Insignificant
GDP	0.0104	0.0198	0.5264	0.5993	Insignificant
FuelPrice	0.0556	0.0225	2.4754	0.0143	Significant (5%)

R-Squared: 0,3709
Adj. R-Squared: 0,3137
F-statistic: 16,2127, p-value: 1,2544e-14

This model shows satisfactory overall performance, with an R-squared value of 0.3709 and a statistically significant F-statistic ($p < 0.001$), indicating that the explanatory variables collectively provide meaningful explanatory power for the variation in airline load factors. Although market structure variables, Hirschman-Herfindhal Index (HHI) do not show a statistically significant relationship with load factors, these results have important implications for social connectivity and public service performance in the post-pandemic aviation sector. The absence of a strong structural effect suggests that industry consolidation alone does not automatically improve passenger accessibility or service availability. Instead, the recovery of seat occupancy rates and route utilisation appears to depend more on airline operational practices that directly affect service frequency, route sustainability, and schedule reliability. These findings aligned with Lipczynski et al. (2017) that market structure is understood to influence performance indirectly by shaping firms' strategic behaviour and competitive conduct, rather than exerting a direct causal effect on performance outcomes.

The strong influence of operational variables on load factor performance highlights the central role of human capital, organisational learning, and managerial capabilities in post-pandemic recovery. Increased aircraft utilisation reflects not only technical efficiency, but also better coordination between flight crews, maintenance teams, schedulers, and ground operations personnel. Similarly, effective management of Available Seat Kilometres (ASK) requires analytical skills, demand forecasting capabilities, and adaptive planning capacity within airline organisations. These findings suggest that strengthening professional training, operational decision-making skills, and digital planning capabilities are essential for improving service performance and passenger accessibility during the recovery phase (Belobaba et al., 2015; Doganis, 2019; Wensveen, 2018; Chen et al., 2023; IATA, 2020).

The limited role of macroeconomic growth and price variables in explaining load factor performance indicates that aggregate economic recovery does not automatically translate into improved air transport accessibility for the public. This suggests that passenger mobility recovery depends more on the availability of operational services and route management than on income growth alone. On the other hand, the positive impact of fuel prices reflects the tendency of airlines to optimise routes and capacity allocation, which can improve efficiency but also carry social

risks if connectivity to peripheral or low-passenger areas is reduced. Therefore, balancing operational efficiency with inclusive connectivity objectives remains a critical policy challenge in the post-pandemic aviation sector (Button, 2010; Button, 2020; Pamungkas & Suhadak, 2017; ICAO, 2019; IATA, 2020)

Macroeconomics, represented by GDP, does not contribute significantly to load factor, indicating that aggregate economic recovery does not automatically translate into individual airline occupancy rates. This is consistent with the findings, which emphasise that operational flexibility and capacity management are the main determinants of load factor during the post-pandemic recovery phase (Belobaba et al., 2015; Button, 2020; Chen et al., 2023; IATA, 2020). Overall, the findings indicate that post-pandemic performance recovery in the Indonesian aviation industry is more influenced by airline operational behaviour than by market structure or macroeconomic conditions. From a broader societal perspective, this means that improvements in the reliability of air transport, connectivity, and service accessibility are highly dependent on strengthening internal operational governance and managerial capabilities within airlines. The Structure–Behaviour–Performance (SCP) Framework is therefore supported not only as an economic model, but also as a policy-oriented framework that links organisational behaviour to the quality of public services in the aviation sector (Lipczynski et al., 2017; Carlton & Perloff, 2015).

Managerial Implication

The findings of this study provide important insights into the recovery and competitive strengthening of the airline industry in the post-COVID period. The pandemic constituted a structural shock that simultaneously suppressed demand, disrupted mobility patterns, and forced airlines to reassess operational and strategic priorities. Based on the Fixed Effects estimation within the Structure–Conduct–Performance (SCP) framework, the results indicate that airline performance, measured by load factor, is driven less by pricing adjustments or market-wide expansion and more by disciplined operational conduct and adaptive capacity management.

aircraft utilization demonstrates positive and statistically significant effect that imply performance gains are more effectively achieved through optimizing the deployment of existing fleets rather than through structural expansion. Airlines that maximize daily aircraft utilization can improve load factors without assuming the financial and operational risks associated with fleet growth. Post-pandemic recovery strategies should therefore prioritize reductions in ground time, tighter aircraft rotation scheduling, and the alignment of departure schedules with peak demand windows. Productivity gains can be realized through improved fleet management while maintaining strict maintenance standards and safety oversight. Selective use of night-time operations on high-demand routes, subject to regulatory and crew constraints, may further strengthen performance at relatively low incremental cost.

The strong negative relationship between Available Seat Kilometers (ASK) and load factor underscores the importance of demand-based capacity discipline. Capacity expansion that is not aligned with realized demand weakens seat occupancy and erodes operational efficiency. Rather than pursuing network growth strategies centered on market presence, airlines should adopt adaptive capacity management supported by continuous monitoring of booking curves, pick-up rates, and short-term load factor forecasts. Frequency adjustments, seasonal scaling, and route-level optimization allow ASK to respond dynamically to market conditions, thereby minimizing overcapacity risk and improving cost efficiency per seat.

Positive association between fuel prices and load factor suggests that cost pressure acts as a mechanism enforcing operational discipline rather than directly stimulating demand. In periods of rising fuel costs, airlines tend to rationalize networks, consolidate frequencies, and allocate capacity more selectively, resulting in improved seat occupancy despite adverse cost conditions. These findings imply that uniform fare increases are not necessarily the most effective response to fuel price shocks, as they may suppress demand among price-sensitive segments. More effective responses involve differentiated pricing strategies, subclass fare management, and demand-responsive adjustments combined with capacity realignment.

The absence of a statistically significant effect of yield further reinforces the conclusion that pricing alone is not the primary instrument for improving load factor. Although yields increased during the recovery phase, they appear to function mainly as a complementary adjustment mechanism within a broader operational strategy. Revenue optimization is therefore better pursued through ancillary revenue development, service bundling, and passenger mix management. In this context, existing fare regulation does not appear to have constrained load factor recovery, suggesting that the current level of pricing flexibility has allowed airlines to adjust commercially without undermining seat occupancy performance.

Because operational conduct emerges as the dominant determinant of performance, strengthening managerial capability and analytical competence becomes a structural priority for long-term resilience. From a policy and education perspective, this highlights the importance of investing in aviation human resource development and institutional capacity. Continuous professional training, digital operations management education, and applied analytical skill development can enhance decision-making quality and operational adaptability. Collaboration between airlines, aviation authorities, and higher education institutions is therefore essential to align curricula with post-pandemic operational challenges. Such integration supports not only industry competitiveness but also broader societal objectives, including regional connectivity, workforce capability enhancement, and sustainable aviation development. From a policy and education perspective, these findings highlight the importance of strengthening aviation human resource development and institutional capacity. Investment in continuous professional training, digital operations management education, and applied analytical skills for airline personnel can improve decision-making quality and operational resilience. Furthermore, collaboration between airlines, aviation authorities, and higher education institutions is crucial for developing curricula that align with post-pandemic operational challenges. Such integration not only supports industry competitiveness but also broader social objectives, including equitable regional connectivity, workforce skills enhancement, and sustainable aviation development (Belobaba et al., 2015; Lipczynski et al., 2017).

CONCLUSION

This study examines the post-pandemic dynamics of the Indonesian aviation industry through the Structure–Conduct–Performance (SCP) framework using panel data for the period 2019–2024. The findings indicate that the industry operates within an increasingly concentrated oligopolistic market structure following pandemic-induced consolidation. However, operational performance is determined primarily by corporate conduct rather than by structural concentration alone.

Post-pandemic recovery has been driven by efficiency-oriented operational strategies. Airlines that optimise fleet utilisation, enforce capacity discipline, and align Available Seat Kilometres (ASK) with realised demand achieve higher load factors and stronger operational performance. Strategic emphasis has shifted from aggressive network expansion toward capacity optimisation and productivity enhancement, resulting in a more resilient and operationally disciplined industry structure.

Fuel prices improve airline performance by strengthening operational efficiency. Rising fuel costs compel airlines to rationalise route networks, consolidate frequencies, and prioritise high-demand markets, thereby increasing seat occupancy rates. Cost pressure functions as a disciplinary mechanism that enhances capacity allocation efficiency and reinforces load factor performance. In contrast, yield and GDP do not exert a decisive influence on load factor during the recovery phase, confirming that internal operational adjustments outweigh pricing strategies and macroeconomic growth effects.

By 2024, load factor reached 82 percent, reflecting a strong recovery based on productivity gains rather than traffic expansion. The industry exhibits a clear efficiency–scale trade-off, whereby airlines prioritise operational optimisation over rapid growth in passenger volume. These results reinforce the SCP framework by demonstrating that corporate conduct serves as the primary transmission channel linking market structure to performance outcomes.

From a policy perspective, sustaining competitiveness requires strengthening operational governance, capacity management discipline, and strategic adaptability. Regulatory oversight should extend beyond sanction-based enforcement toward quality assurance and compliance-oriented supervision. Aviation inspectors can play a strategic role in monitoring tariff transparency on dense routes, ensuring adherence to service standards, and verifying consistency between published schedules and actual capacity deployment. Such an approach promotes market discipline while safeguarding service reliability and consumer protection.

Future research should incorporate firm-level financial indicators, route-level profitability analysis, and digital transformation strategies to provide a more comprehensive assessment of long-term structural competitiveness and industry transformation in the aviation sector.

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