

Revenue Diversification Strategies and Financial Sustainability of Indian Airports

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Abstract— Airports in India have historically depended on aeronautical charges — landing, parking, and passenger service fees — as their primary source of revenue. However, the volatility of aeronautical income, regulatory constraints on tariff-setting, and rising capital expenditure requirements have pushed airport operators toward diversifying revenue through non-aeronautical streams such as retail, duty-free, real estate, advertising, and cargo services. This paper examines the revenue structure of Indian airports, reviews existing literature on non-aeronautical revenue generation and privatization, and analyzes the strategies adopted by major Indian airports to achieve financial sustainability. The study finds that while non-aeronautical revenue has grown substantially since the introduction of the public-private partnership (PPP) model, Indian airports still lag behind global counterparts in per-passenger commercial yield. The paper concludes with policy recommendations for enhancing revenue diversification across metro, tier-II, and tier-III airports.

Keywords— Revenue Diversification; Financial Sustainability; Indian Airports; Non-Aeronautical Revenue; Airport Privatization

INTRODUCTION

Airports function as critical nodes of economic infrastructure, and their financial health has a direct bearing on national connectivity, trade, and tourism. Traditionally, airport revenue has been categorized into two broad streams: aeronautical revenue, derived from airline and passenger-related charges regulated by statutory authorities, and non-aeronautical (or non-aero) revenue, generated from commercial activities within airport premises. In India, the Airports Authority of India (AAI) has historically managed the majority of the country's airports, but since 2006, a phased privatization process has transferred

management of key metro and regional airports to private consortia under the PPP model.

This shift has intensified the focus on revenue diversification. Aeronautical charges in India are subject to regulation by the Airports Economic Regulatory Authority (AERA), which limits the pricing flexibility of operators. Non-aeronautical revenue, by contrast, is largely unregulated, giving airport operators far greater latitude to develop commercial strategies. Given that non-aeronautical revenues have remained at 25-30 per cent of total revenues in India compared to more than 50 per cent globally, there exists considerable scope for growth. This paper investigates the strategies through which Indian airports are attempting to close this gap and examines the implications for long-term financial sustainability.

LITERATURE REVIEW

The academic and industry literature on Indian airport revenue diversification has expanded considerably over the past decade, paralleling the growth of the privatized airport sector.

Research synthesizing multiple studies on this theme notes that airport revenue management can be enhanced by maximizing advertising business, improving leasing policies, encouraging transparency, avoiding ad hoc decisions, and using IT-enabled services to better manage revenue contracts. The same body of work observes that, with the exception of a few major hubs, the ratio of aeronautical to non-aeronautical income at most Indian airports remains skewed toward aeronautical sources, underscoring the uneven pace of diversification across the sector.

Studies focusing on regional and non-major airports highlight infrastructural constraints on diversification. Research on

airline support facility space allocation found that within the AAI network, aeronautical revenue accounts for roughly 84 percent of aggregate revenue, while non-aeronautical streams contribute only about 16 percent, and demonstrated through goal programming that optimized land allocation for fuel stations, ground service equipment, and hangars could meaningfully improve both space utilization and revenue outcomes.



Fig. 1. Classification of aeronautical and non-aeronautical revenue sources at Indian airports

Industry analysis from the Centre for Aviation (CAPA), reported by the Moodie Davitt Report, documents the scale of recent growth, noting that total non-aeronautical revenue generated across Indian airports (excluding Cochin) grew by more than 340 percent over a five-year period, rising from roughly INR 4.9 billion to INR 21.6 billion. The same analysis emphasizes that airports must segment their retail and commercial customer base and design differentiated strategies based on evolving traveler behavior, and points out that shopping is consistently identified as the preferred in-airport activity among Indian travelers, suggesting retail expansion aligns with existing consumer behavior rather than requiring behavior change.

Econometric work on regional airport performance draws attention to the financial distress underlying much of the AAI network. This research cites reporting indicating that over 90 percent of airports operated by the AAI ran at a loss in fiscal year 2016–17, and that 102 of 137 AAI-managed airports collectively recorded losses of over INR 1,646 crore in fiscal year 2018–19. The study argues that regional airports, being underutilized due to limited infrastructure and demand, must fundamentally rethink their business strategy to achieve sustainability.

Comparative and qualitative research on non-aeronautical revenue drivers has used expert consultation methods to

identify structural themes. One qualitative study involving aviation-sector experts concluded that four broad themes — regulation, business models, products, and customers — jointly influence non-aeronautical revenue generation, reinforcing the view that diversification is not purely a commercial exercise but is shaped by regulatory design as well.

Sector-specific reporting on commercial performance illustrates how diversification outcomes vary by airport. Industry data shows that non-aeronautical income per passenger at Delhi airport rose from Rs 235 in 2017–18 to Rs 299 in 2018–19, while at Mumbai it rose from Rs 215 to Rs 240 over the same period; in contrast, Bengaluru's per-passenger commercial revenue remained flat at around Rs 151, and Hyderabad's declined from Rs 148 to Rs 135, largely attributed to disruption from ongoing terminal expansion works. This variation illustrates that infrastructural investment cycles can temporarily suppress commercial yield even at otherwise well-performing airports.

More recent rating-agency data extends this comparison internationally. According to ICRA, cited in industry reporting, major PPP airports in India earned an average of \$4.3 per passenger from non-aeronautical sources in 2023–24, compared with \$7.2 to \$15.9 per passenger at major global airports, though this gap is expected to narrow as non-aero revenues at Delhi and Mumbai are projected to reach around \$7 per passenger in coming years, driven by growth in duty-free sales, premiumization of retail, and improved yields from advertising, parking, and rentals.

Research focused on smaller airports adds further texture to the tier-II/III picture. A study on North-Eastern Region airports found that digital solutions such as online parking reservations, prepaid lounge access, and app-based retail ordering represent low-cost, effective methods for smaller airports to raise non-aeronautical income, and that such diversification enhances not only revenue but also passenger satisfaction and local employment.

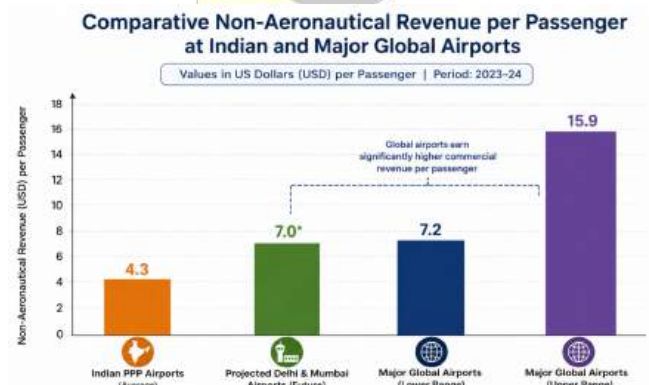


Fig. 2. Comparative non-aeronautical revenue per passenger at Indian and major global airports

Turning to the structural dimension of privatization, reviews of India's PPP airport history trace its evolution and consequences. One review notes that 15 airports currently operate under the PPP model across greenfield and brownfield investment categories, while surveying the challenges and constraints associated with this framework. Another SSRN-hosted review records that six airports were privatized through the PPP route by Adani Enterprises in 2020, with 21 further airports in the privatization pipeline as of that writing. A legal-industry analysis of India's concession history distinguishes two generations of PPP structuring, observing that the first generation of concessions, exemplified by Delhi and Mumbai, adopted a revenue-sharing model under which private operators shared a specified percentage of gross revenue with AAI, while subsequent bidding rounds shifted to a per-passenger fee model that offered greater predictability but reduced AAI's direct exposure to airport growth. The same analysis notes that high revenue-sharing commitments under the first-generation model can strain project economics and pressure operators to maximize both aeronautical and non-aeronautical income.

Collectively, the literature converges on several points: non-aeronautical revenue is the primary lever available for financial sustainability given regulatory limits on aeronautical tariffs; the PPP model has been the principal vehicle for unlocking this revenue at India's largest airports; and a substantial gap remains between metro airports, regional AAI-operated airports, and international benchmarks.

OBJECTIVES OF THE STUDY

- To examine the composition of aeronautical and non-aeronautical revenue across Indian airports
- To review documented strategies for revenue diversification adopted by Indian airport operators
- To compare the financial performance of privatized (PPP) airports with AAI-managed airports
- To identify barriers to achieving long-term financial sustainability at Indian airports
- To propose strategic recommendations for enhancing non-aeronautical revenue generation

RESEARCH METHODOLOGY

This study adopts a descriptive and analytical research design based on secondary data. Data has been drawn from peer-reviewed journal articles, industry reports (including CAPA and ICRA analyses), sector publications, and government/regulatory sources such as AAI annual reports and AERA disclosures. The literature was synthesized qualitatively

to identify recurring themes in revenue diversification strategy, supplemented by illustrative quantitative data on per-passenger commercial revenue across major Indian airports. Given the applied, industry-data-dependent nature of the subject, the study does not employ primary survey or econometric estimation but instead synthesizes existing quantitative findings reported in the literature.

Revenue Structure of Indian Airports

Airport revenue in India is broadly divided into two categories, summarized below.

Revenue Category	Components	Regulatory Status	Approximate Share (AAI Network)
Aeronautical Revenue	Landing charges, parking charges, passenger service fee, navigation charges	Regulated by AERA	~84%
Non-Aeronautical Revenue	Retail, duty-free, food & beverage, advertising, car parking, real estate/leasing, cargo, lounges	Largely unregulated	~16%

At major PPP airports, this ratio shifts considerably in favor of non-aeronautical income due to active commercial development, though it still trails global benchmarks, as shown below.

Airport / Region	Non-Aero Revenue per Passenger (approx.)	Period
Delhi (DIAL)	Rs 235 → Rs 299	2017-18 → 2018-19
Mumbai (MIAL)	Rs 215 → Rs 240	2017-18 → 2018-19
Bengaluru (BIAL)	Rs 151 (flat)	2017-18 – 2018-19
Hyderabad (HIAL)	Rs 148 → Rs 135	2017-18 → 2018-19
Indian PPP Airports (avg.)	\$4.3 per passenger	2023-24
Major Global Airports (avg.)	\$7.2 – \$15.9 per passenger	2023-24

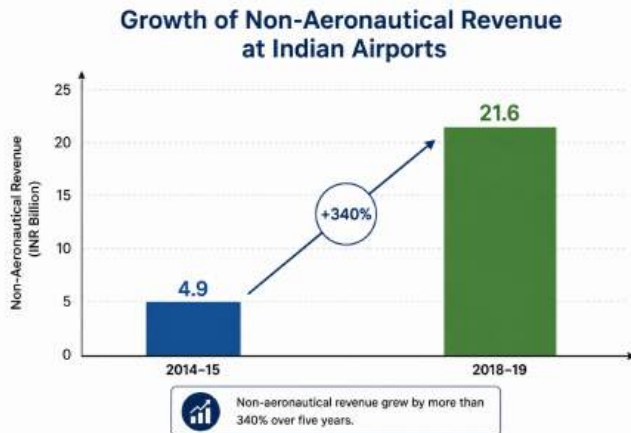


Fig. 3. Differentiated revenue-diversification strategies for metro, tier-II, and tier-III airports

Revenue Diversification Strategies

Indian airport operators have pursued several distinct strategies to diversify revenue beyond core aeronautical charges:

Retail and Duty-Free Expansion — Premiumization of retail space and expansion of duty-free zones, particularly at international terminals, has been identified as a major growth driver, with projections tied to a strong uptick in the duty-free segment and premiumization of retail outlets.

Real Estate and Land Monetization — Airports possess large land banks that can be leveraged for cargo complexes, hotels, business parks, and logistics hubs. Studies on land allocation optimization found potential for substantial gains in both space utilization and associated revenue at non-major airports.

Advertising and Sponsorship — In-terminal advertising remains an underexploited but scalable non-aeronautical revenue stream, repeatedly cited in the literature as a lever for improvement.

Digital and Ancillary Services — At smaller and regional airports, low-cost digital interventions such as online parking reservations, prepaid lounge access, and app-based retail ordering have been identified as effective, scalable revenue tools that do not require major capital investment.

Cargo and Logistics Development — Expansion of dedicated cargo terminals, particularly relevant for airports geographically positioned near trade corridors, offers a further avenue for non-passenger-dependent income.

Public-Private Partnership Restructuring — The shift from revenue-sharing to per-passenger fee concession models, and subsequently to asset monetization frameworks under national infrastructure pipelines, reflects an evolving policy approach to how private capital and commercial upside are structured at Indian airports.

CASE STUDIES OF MAJOR INDIAN AIRPORTS

Delhi and Mumbai airports, privatized in 2006 under revenue-sharing concessions, represent the earliest and most mature examples of diversification, with both showing consistent year-on-year growth in non-aeronautical income per passenger. Bengaluru and Hyderabad, both greenfield PPP airports, illustrate how capital expenditure cycles (terminal expansion) can temporarily depress non-aeronautical yield even while underlying commercial capacity is being built. The 2018 privatization of six additional airports — Lucknow, Ahmedabad, Jaipur, Mangaluru, Thiruvananthapuram, and Guwahati — approved by the Union Cabinet, along with the 2020 award of six more airports to Adani Enterprises, mark a second wave of privatization intended to replicate metro-airport commercial strategies across a broader base of mid-sized airports.

CHALLENGES TO FINANCIAL SUSTAINABILITY

Despite growth in non-aeronautical revenue, several structural challenges persist. AAI-managed regional airports continue to operate at a loss, with the vast majority reporting deficits in recent fiscal years. Regional airports in particular suffer from low passenger density, seasonal traffic variation, and underdeveloped commercial infrastructure, limiting their ability to replicate metro-airport diversification strategies. Additionally, dependence on domestic passenger spending, which is typically lower than international passenger spending, constrains the growth potential of non-aeronautical yield at airports with predominantly domestic traffic. Regulatory uncertainty around aeronautical tariff-setting also indirectly affects overall project economics, particularly under revenue-sharing concession structures where high bid commitments can strain operator finances.

DISCUSSION

The evidence suggests that financial sustainability at Indian airports is increasingly a function of non-aeronautical revenue performance rather than aeronautical income alone. Metro airports operating under PPP have demonstrated the clearest gains, aided by higher international passenger volumes, greater capital access, and more sophisticated commercial strategies. However, the persistent gap between Indian and global per-passenger commercial yield indicates substantial headroom for further development, particularly in premium retail, duty-free

expansion, and real estate monetization. For AAI-managed regional airports, the priority appears to be different: rather than replicating metro-style retail models, low-cost digital ancillary services and targeted infrastructure investment in cargo and general aviation facilities may offer a more realistic path to reducing dependence on aeronautical revenue.

CONCLUSION

Revenue diversification has become central to the financial sustainability of Indian airports, driven by regulatory constraints on aeronautical pricing and rising infrastructure investment needs. While privatized metro airports have made significant progress in growing non-aeronautical income, a considerable gap remains relative to global peers, and the majority of AAI-managed regional airports continue to face financial distress. Future sustainability will depend on tailored strategies: continued commercial sophistication at large hub airports, and targeted, low-cost digital and infrastructural interventions at smaller and regional airports. Ongoing shifts in India's PPP framework, including movement toward asset monetization models, are likely to shape how revenue diversification unfolds across the sector over the coming decade.

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