

The Discussion on the Airport Privatization in India

Abstract

After the implementation of economic liberalization in the 1990s, the Government of India (GoI) started to deregulate the airport authorities. The deregulation of airports and the private sector participation in airport modernization have increased air passengers, customs, and aircraft movements. The increment of air passengers, aircraft movement, and customs **has** resulted in the urgency to develop and upgrade airport services. The year 2006 marked an important time to commercialize and privatize Indian airports. A PPP model (Public Private Partnership) has been implemented in several airports. There remain several challenges and constraints for PPP airports. This paper looks at the background regulation of the airport development, its characteristics, and the challenges of privatization.

Keywords: Airport Privatization, Public Private Partnership, Concession, Economic Regulation

JEL Codes :O20, L91, L32, L33

1. Introduction

In every country the airport sector is an essential transport (Junior, Hollaender, Mazzanati, & Bortoletto, 2021). Airports support the movements of goods and people across countries (Bagler, 2008). The airport operates the business in aeronautical and non-aeronautical components (Gillen & Mantin, 2014). The efficient development and success of airport regulation studies are emphasized (Kumar, Dash, & Sahu, 2018; Chourasia, Jha, & Dalei, 2021).

India has a history of airport development since 1912. The GoI was operating the airport and airline-related business under the direction of Civil Aviation. Concerning the growth of air passengers and providing efficient services, the GoI realized to fulfill the budgetary constraints in airports. Until 1994 airlines and airports were dominated by the government and there were restrictions for the private sector to involve in development and management (Wang, Zhang, & Zhang, 2018).

Firstly, India built a government organization Airports Authority of India, AAI, in 1995. The establishment of AAI became a base for the regulatory and institutional development of the airports (Barde, Pantelias, & Zerjav, 2016). To date, there exist 486 airports, airstrips, military-owned air bases, and flying schools under the AAI (Chakraborty S. , Ghosh, Sarker, & Chakraborty, 2022). AAI website 2020, there are 153 regularly operated airports, and 123 airports have scheduled commercial flights. Additionally, (Airports Council International, 2018), has forecasted more than 22

billion air passengers by 2040. To fulfill the demand for air transport, the AAI has planned to construct 100 more airports and heliports by 2024 (Iyer & Thomas, 2021). It has been estimated that the investment of Indian rupees was 420-450 billion (US \$ 5.99-6.41 billion) in fiscal year FY 18-23 (IBEF, 2022). To date, there have been not fully privately operated and privatized airports in India (Phuyal, 2023), and academic research is very few. Therefore, comprehensive research in the Indian context assessing airport privatization, its regulations, and problems is important to understand the challenges and the scenarios of airport privatization.

2. Review of Literature

Privatization means the shifting of ownership, operation, and managerial authorities of public assets and services from the government or public organizations to private companies (Poole & Fixler, 1987). Until the 1980s, airports were state-owned entities and traditionally operated (Adler & Liebert, 2014; Martimort, Pommey, & Pouyet, 2022). After the privatization of British Airports Authority in Gatwick, Heathrow, and Stansted of the United Kingdom, the trend of airport privatization has increased worldwide.

Several governments have appealed for private funding to build the efficiency of airport operations. In 2020, approximately 20 percent of airports were privatized (Belsie, 2023). Airport privatization is always a controversial and increasingly important theme in policy studies. The method of privatization is vivid. Similarly, ample experiments have been conducted in the airport privatization process defining the relationships relating airport regulators, investors, and management (Carney & Mew, 2003). The investment in the airport is concerned with the passengers increasement (Dörnberg, 2008). The private sector participation in the airport sector is a multifunctional marketing enterprise (Freestone, Baker, & Stevens, 2011). The operation mechanism of the airport is an increasingly competitive market and is commercially oriented.

The airport demonstrates its economics capacity doing the business on aeronautical and non-aeronautical components (Brito, Oliveira, & Dresner, 2021). The aeronautical and non-aeronautical components require more investment with adequate private sector participation in operation, management, and development (Engel, Fischer, & Galetovic, 2018). The privatized airports showed financial self-sufficiency and airports didn't need to rely on government finance (Tsunoda, 2023). In this way, airports started to show socioeconomic values and norms. Regarding the importance of socioeconomic norms and values, it has been argued that airport privatization should be evaluated by socioeconomic norms. To practice privatization models, such as trade sale, share flotation, concession, management contracts, project finance privatization, Build, Operate and Transfer, BOT, etc. are practiced (Carney & Mew, 2003).

The airport markets in emerging countries are in a premature stage. The premature markets could uplift by the reformation of policies. According to the market maturity curve the policies in airport

privatization, India possesses in low and in sophisticated area (Deloitte, 2006).

3. Research Methodology

This research is based on an explanatory approach. It has synthesized several works in literature. A doctrinal method is used. Several research papers are discussed based on qualitative methods of gathering information. The websites of the Airports Authority of India, World Bank dataset, GoI reports, Airport Economic Regulatory Authority (AERA) Annual reports, and scientific journals are thoroughly used.

4. Background: Airports in India

Airports have traditionally been owned and managed as government entities (Zhang & Czerny, 2012). In India, Ministry of Civil Aviation (MoCA) is a nodal ministry that operates all airlines and airport-related businesses (Krishnan, 2021). The objective of the MoCA is to ensure the orderly growth of civil air transport in India. Until the late 1980s, civil airports were fully functioning under the GoI. Some of the airports were operated by the Indian armed forces. As a first step of deregulation, the GoI started to provide permissions to private sectors to provide taxi services. At the time, the mega airports in New Delhi, Trivandrum, Madras, Calcutta, and Bombay did operation under the IAAI (Indian Numbered Acts, 1971), domestic airports operated under National Airport Authority, NAA (AAI, 1985). The airport infrastructure was demanding an additional investment, but the investment was not provided as a necessity. Therefore, to provide safety and adequate services, the GoI started to welcome the investments of the private sector. To deregulate civil aviation the GoI has merged international and national airports under one authority. It formulated the AAI Act of 1994, and the IAAI and NAA merged on April 1st, 1995, forming AAI (ICAO, 2013). AAI is a government organization. AAI is to serve and monitor the civil aviation operation and management (Paulose, 2013). AAI has the authority to control and decide the private sector participation in airport business. The major functions of AAI are to control traffic and to provide communication navigation services (Francina, Selvavinayagam, & Elavarasan, 2020).

Table 1: The development of several acts and the establishment of the Authorities

Sector	Relevant Act	Establishment of Regulatory Authority
Airports	Aircraft Act, 1934 Aircraft Rules Act, 1937 Air Corporation Act, 1953 (Nationalized airlines) International Airport Authority Act, 1971 Air Carriage, 1972 Anti-Hijacking Act, 1982 National Airport Authority, 1986 AAI Establishment Act, 1994 Rules on Carrying of Dangerous Goods Act, 2003 Greenfield Airport Policy, 2008 AERA Act, 2008	Establishment of Civil Aviation 1911 Establishment of International Airports Authority of India 1972 Establishment of the Ministry of Civil Aviation of India Establishment of the Directorate General of Civil Aviation (DGCA) Establishment of AAI 1995 Establishment of the Bureau of Civil Aviation Security (BCAS) Establishment of the Airport Economic Regulation Authority (AERA), 2008

Source: Compiled by the Author

Since 1932 the business of civil air transport started in India. Tata Sons was the first private company established to provide the air services. Indian National Airways began operations with light single-engine aircraft for the carriage of mail (Prasada, 1956). In 1953 air services were nationalized (Saraf, 1989). Several acts like, Aircraft Act, of 1934, the Aircraft Rules Act, of 1937, the Air Corporation Act, of 1953, the Carriage by Air Act, of 1972, and the Anti-Hijacking Act, of 1982 were enacted and are the essential policies modernizing Indian airports and aviation. Additionally, the development of several commercialization and privatization policies in the 1970s, 1980s, and 1990s have contributed to the emergence of private sectors in market competition (Phuyal M. 2024) (Castro & Lohmann, 2014; Shrestha, 1993). As mega airports face increasing congestion and environmental challenges the GoI introduced the Greenfield Airports (GFA) policy in 2008 providing a framework for the construction and commissioning of new airports. The GoI has approved 21 Greenfield airports across the country (MoCA, 2023).

5. The establishment of airport-related authorities

This section begins with a discussion of established authorities and their characteristics. This section ends with a summary of the airport governance scenario of India.

5.1 Airports Authority of India and the Characteristics

The AAI is a governing body of airport and airline services in India. It was established in 1995. AAI has been actively involved in modernizing and expanding India's airport infrastructure to accommodate the growing demand for air travel. This includes the development of new Greenfield and Brownfield airports and the expansion of existing airports. AAI is also focused on the safety and security of passengers. It also works with other government agencies or regulatory bodies to enforce aviation safety standards. AAI provides navigation services to international overflying traffic through its five oceanic controls after installing a network of VOR/DVOR. In addition, AAI is also responsible for research and development activities to improve aviation technology and infrastructure. Currently, environmental initiatives such as eco-friendly airports, and smart airports are also in the planning of GoI.

Table 2: Number of Operational airports(Phuyal M. 2024)

International Airports			Domestic Airports		
1.	AAI (Including Delhi, Mumbai, and Nagpur)	21	1.	AAI Operational	55
2.	AAI Civil Enclaves	3	2.	AAI Civil Enclaves Operational	20
3.	JV/State	5	3.	AAI Non-Operational	25
Total International Airports		29	4.	AAI Civil Enclaves Non-operational	3
	Custom Airports		5.	JV/State/ Private Operational	11
1.	AAI	6		Total Domestic Airports	114
2.	AAI Civil Enclaves (Defense Airports)	4			
	Total Customs Airports	10		Total Airports (AAI& JV/State/Pvt) Intl+Dom	153

Source:AAI (2020)

Table 2 summarizes the number of operational airports in India. According to the AAI website, 2020 the operating airports in India number 29 in International, 114 in domestic, and 10 in customs services. In addition, India also has hundreds of unused airports, also called 'ghost airports'(Phuyal M. 2024) (Bhattacharya, 2018). AAI is responsible for the operation and management of several airports. The capital allocation is done by the central government and has been inefficient. The GoI also lacks resources to sufficiently upgrade and maintain facilities. Therefore, the GoI is welcoming private sector investments to uplift nonoperational and unused airports as well as privatizing international airports. However, to date, India does not have any fully privatized airports.

5.2 Airport Governance

Governance means that one authority or entity governs or controls another entity. Airport governance refers to the structure and management of airports, including the policies, regulations, and decision-making processes that govern the operation. Ample dimensions exist to govern an airport that together constitute an airport's governance structure. After the economic liberalization in the 1990s, the move to private governance was slower than other public industries. To date, India has not opted for full privatization of airports. It has opted for partial and promoted partnerships in public and private operations. Using the developed airport governance models, airports in India have implemented a public majority model for all international airports, and a full public model for domestic airports, including regional and local airports. Since 2006, there has been a shift in the governance of operated airports. In international airports, the GoI operates with private investors, and in domestic airports, there are private players in operation and management. The current airport governance models are explained in Table 3.

Table 3: The current situation of airport governance

Categories	Basic facilities	Parking Facility	Building facilities	Air traffic control
Public-Private Partnership (PPP) Model Airports	Private Company owns and operates.	Private Company owns and operates	Private Company owns and operates	National or State Government (AAI)
AAI-owned and operated	Government	Government	Government	Government (AAI)
Public and State Governments	Central and State	Central and State	Central and State	Central and State (AAI)

Source: Compiled by the author

Table 3 shows the categories, and the key components practiced in the governance of the Indian airports. In the PPP model airports, the basic facilities include aeronautical infrastructure such as taxiways, runways, aprons, and strips, which are used for the landing and takeoff of aircraft built by private enterprises. The building facilities include non-aeronautical infrastructure such as hotels, parking, and shopping areas. Models of airport management elucidate the types of airport management models prevailing in India. International airports have PPPs in the form of BOO, BOT, and JV. In India, there is not fully privately governed airport. The principal motivation for engaging a firm to run an airport is to increase the airport's economic viability, by increasing its revenues and decreasing its costs (Poole, Jr, 1997).

5.4 Airports Economic Regulatory Authority

The Economic Regulatory Authority (AERA) was established in 2008 (Singh, Dalei, & Raju, 2015). In the development and restructuring of airports, AERA permits development fees for private airports (George, 2015). The investments are offered through the joint venture (JV) route. As a result, Kochi, Hyderabad, and Bangalore are in Greenfield investments (Aniyeri & Nadar, 2016). The function of the authority is to analyze tariffs, fix the development fees, and monitor the performance, quality of services and reliability. Under the AERA Act and economic regulatory principles, India has recommended an international example in the economic regulatory approaches.

Regulatory Approach Adopted in India

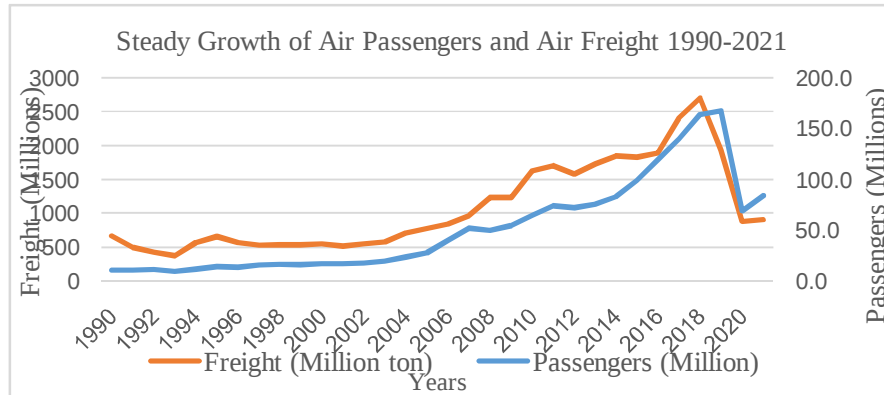
The practiced regulatory approach and its functions are discussed below.

- **Price Cap Regulation:** Price Cap Regulation is a common formula for a privatized airport and has been practiced in Indian PPP airports (Adler, Forsyth, Mueller, & Niemeier, 2015). The airport regulator controls the prices charged by the firm, instead of the firm's earnings and determines an annual price cap formula (RPI-X or CPI-X).
- **Rate of Return Regulation:** Rate of Return regulation is an important regulation for private enterprises to return capital employed. In the process, the regulated company files a tariff in an agreed test period. The private company calculates operating costs, capital employed, and cost of capital which helps to determine the level of tariff (Beesley & Littlechild, 1989).
- **Light Touch Regulation:** The least amount of market distortions light-handed regulation is adopted. This policy helps in accounting for the impact of unexpected factors in price setting that helps to reduce the volatility of profit and the risk of firm failure.

5.5 Development of Indian airports and Traffic growth in the Years 1990-2021

Since 1995, several private carriers were allowed to operate scheduled services. Indian airlines started to operate both domestic and international flights, connecting major cities within the country and serving international destinations. Major cities such as Delhi, Mumbai, Chennai, and Bangalore are related to international and domestic flights. Private carriers also started to be established. For example, Jet Airways, and Deccan were established in 2003, similarly in 2005 and 2007 GoAir, SpiceJet Indigo, and JetLite were launched (Yu, Zhang, Zhang, Wang, & Cui, 2019). Low-cost carriers, such as Indigo, Air India, SpiceJet GoAir, and Vistara started the operation. The aviation industry has started to count as one of the growing industries in India. The development of the Indian aviation industry has been a remarkable journey marked by significant growth and transformation (Shome & Verma, 2020).

Fig 1: Performance of air passengers and freight since 1990-2020



Source: World Bank (2021)

Fig 1 shows that there has been a constant increase in air passengers and air cargo from 1990 to 2018. The market consistently accomplished twofold digit traveler development in passengers and freight. In the years 2009 and 2019 it has increased 12% in BYDE, Build Yearly Development Rate, notwithstanding the liquidation (Sutare & Rathod, 2022). This is due to increased affordability, a wide range of flight options, and improved infrastructure. Similarly, the emergence and success of low-cost carriers such as IndiGo, SpiceJet, and GoAir contributed significantly to the democratization of air travel in India. Indian airlines continued to expand their international routes, connecting major Indian cities to destinations across Asia, North America, the Middle East, and European countries. The FDI policy allowed foreign airlines to invest in Indian carriers, and reforms aimed at improving the ease of doing business in the aviation sector. The initiation of schemes such as Ude Desh Ka Aam Naagrik, UDAN 2015 has improved regional air connectivity (MoCA, 2021). AAI is contributing 5% of the GDP and it has created 4 million jobs for Indians (IBEF, 2023). Additionally, Indian civil aviation is predicted to be the third-largest civil aviation market by 2024 (Thummala & Hiremath, 2022).

6.0 Privatization of International Airports and its Characteristics (1999-2006)

According to the AERA Concession Agreements website, the AAI has practiced the first phase of privatization in the following airports. In the first phase of PPP implementation, most of the airports were in Operation Management Development and Agreement (OMDA) agreement with AAI, and the concession period was for 30 years. Cochin International Airport is considered a successful PPP implementation in financing, land acquisition, mobilizing resources, and dealing with the regulatory authorities (Varkkey & Raghuram, 2001). Kempegowda International Airport became the first Greenfield airport established on a PPP model for a 60-year concession period. The private promoters hold 74% of the stake. The Anchorage Infrastructure Investments Holdings Limited: 43.64% FIH Mauritius Investments Limited 10.36% and Siemens Projects Ventures 20% and on the

public side 26% (the government of Karnataka state Industrial and Infrastructure Development Corporation Limited 13% and the AAI 13%). Similarly, the Indira Gandhi International Airport (IGIA) was handed over to GMR in 2006. IGIA is ready for 109 million passengers and targeted for world's second busiest airport after Hartsfield-Jackson Atlanta International Airport in the United States (Travelli & Kumar, 2023). To date, 100% privatization in the airport sector is not permitted. For this reason, Public Private Partnerships, the PPP model has emerged. The first private sector participation through a PPP model was started at Cochin International Airport in 1994 at Kochi (Kashiramka, Banerjee, Kumar, & Jain, 2016). Subsequently, the mega airports Mumbai International Airport, and Dr. Babasaheb Ambedkar International Airport at Nagpur started to modernize through the PPP Joint-Venture (JV) model.

Table 3: First Phase of Airport Privatization

No	Name of Airport/Location	Year of Privatization	Status and Modality	Owned by
1	Kempegowda International Airport, Bengaluru	2004	Operational BOOT	Bangalore International Airport Limited (BIAL)
2	Cochin International Airport, Kochi	1999	Operational BOT	Cochin International Airport Limited (CIAL)
3	Indira Gandhi International Airport, Delhi	2006	Operational BOT	Delhi International Airport Limited (DIAL)
4	Rajiv Gandhi International Airport, Hyderabad	2004	Operational BOOT	GMR Hyderabad International Airport Limited (GHIAL)
5	Chhatrapati Shivaji Maharaj International Airport, Mumbai	2006	Operational BROT	Mumbai International Airport Limited (MIAL)

Source: AAI (2020)

After the successful implementation of private sector involvement in airports (table 3), Chennai, Hyderabad, Kolkata, Mumbai, New Delhi, and Bengaluru, which have concentrated on providing good airport service quality (ASQ) in different passenger categories (Prakash & Barua, 2016).

6.2 Second Phase of Airport Privatization and the Characteristics

In the second phase of airport privatization the Union Cabinet on 08.11.2018 had accorded in Principle approval for leasing out six more airports to the Adani International Airport Limited (AIAL) enterprises, namely, a) Ahmedabad, b) Lucknow, c) Mangaluru, d) Guwahati, e) Jaipur, and f) Trivandrum, for operation and development through PPP (MoCA, 2021; AAI, 2022). Adani

Enterprises leased six airports in the PPP model for 50 years of concession.

Table 4: Second Phase of Airport Privatization 2020

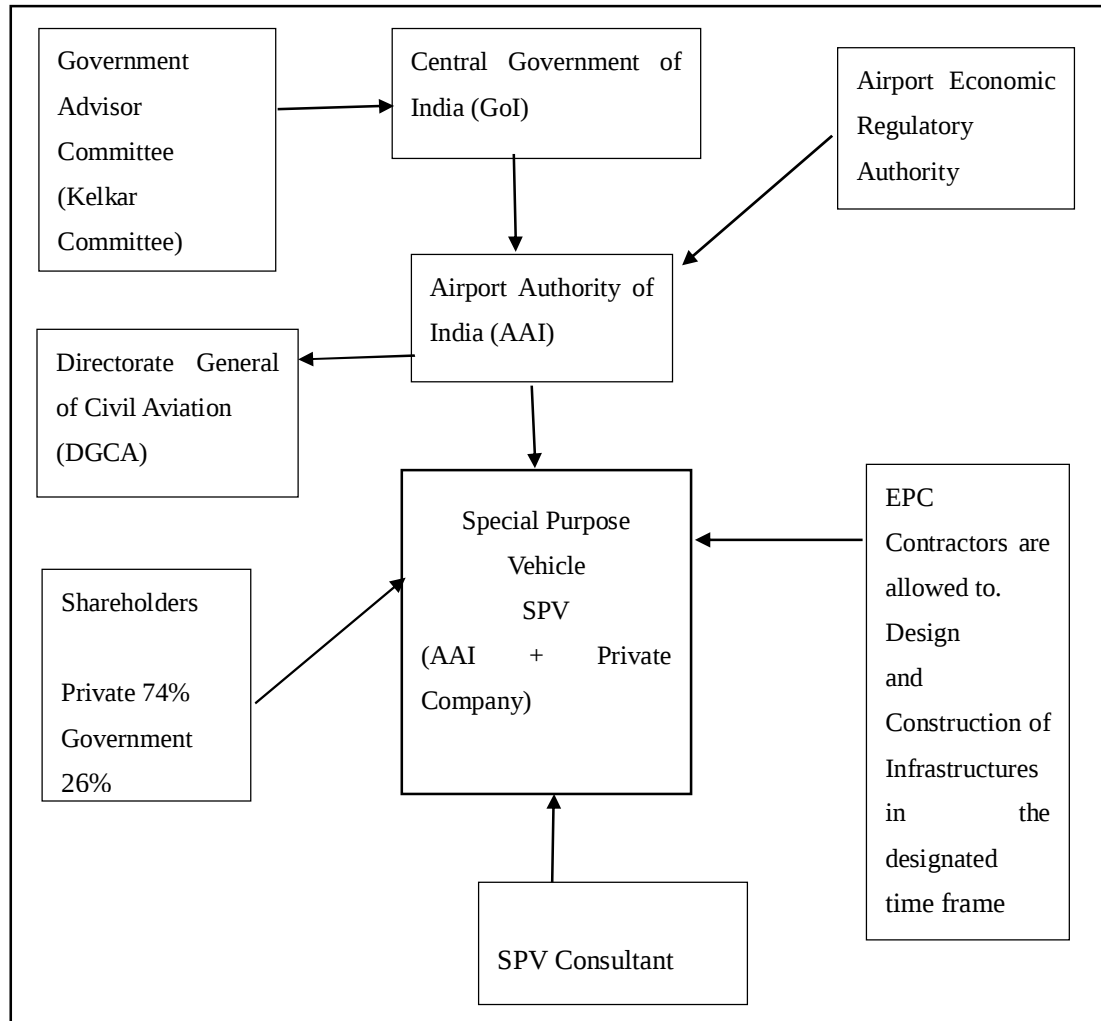
No	Name of Airports and Location	Years of Privatization	Status	Owned by
1	Ahmedabad International Airport (Ahmedabad)	2020	Operation	Adani Ahmedabad International Airport Limited
2	Chaudhary Charan Singh International Airport (Lucknow)	2020	Operation	Adani Lucknow International Airport Limited
3	Mangaluru International Airport (Mangaluru)	2020	Operation	Adani Mangaluru International Airport Limited
4	Lokpriya Gopinath Bordoli International Airport (Guwahati)	2021	Operation	Adani Guwahati International Airport Limited
5	Jaipur International Airport (Jaipur)	2021	Operation	Adani Jaipur International Airport Limited
6	Thiruvananthapuram International Airport (Trivandrum)	2021	Operation	Adani Thiruvananthapuram International Airport Limited

Source: AERA (2023)

6.3PPP framework followed by AAI

The government recognized bringing airport infrastructure to world class. The participation of public and private sectors in several models was identified as a preferred route. Hence the PPP model is adopted in several years. The major airports Delhi, Mumbai, Cochin, Bangalore, and as the first phase of airports followed the following framework Fig 2.

Fig 2: PPP Framework



Source: Compiled by the Author

In Fig 2, SPV stands for special purpose vehicle a joint venture (JV) company for a certain period of construction, operation, and management of airports. Air Traffic control is done by GoI AAI due to national security. The GoI does not interrupt the design, construction, or completion unless it is a national emergency. Concession agreements allow the SPV to develop, construct, operate, and maintain the airport for a designated time frame. The land acquisition is managed by the state or central government. According to the private equity private sector is allowed to invest 74% of the investment, and the rest of the 26% is from the public sector. The airport's performance is evaluated

by monitoring through the passenger survey in the Global Airport Monitoring Survey Standards IATA. The GoI is still learning the mode of airport privatization concerning infrastructure provisions. It has experimented with BOO, BOT, DBFO, Lease, and other several models with 30 years and 50 years of concessions. While increasing the airport privatization activities AAI retains few responsibilities in construction and operation.

SWOT of Airport PPP activities in India

Strengths	Weaknesses
Growing the number of world standard airports. Helps to expand domestic and international destinations. Airports could focus on maximization of commercial revenues. FDI up to 100% has been approved for the Greenfield airport which helps to invite an amount of foreign currency in India. Less interference of AAI in operation management and development. Domestic private developers are emphasized and promoted. Helps in the improvement of customer satisfaction.	Underinvestment and overinvestment in airport infrastructure. Airport charges (User fee) may increase in privately involved airports. Conflicts may evolve in operation, management, and decision-making with the AAI and private enterprises. Transparency and Accountability of private enterprises. Long-term concession 30 to 60 years and 50 to 100 years.
Opportunities	Threats
Airports revenues will help to increase the GDP of India. Airports are starting to be commercial and could be more attractive for private sectors to invest in.	Winning the bid in six airports by private enterprises may lead the Indian airport industry to monopoly practice. Private enterprises may affect AAI in government decisions in operation and management. Operating risks, Labor Union Risks, Political risks.

6 Summary Conclusion

This research paper reviewed the regulation and privatization of Indian airports. Since the establishment of the first aviation in 1912, India has developed steadily in air passengers and air customs. In the year 1990s economic liberalization implemented airport deregulation policies which resulted in the adoption of a regulatory approach in airports. Except for the COVID-19 pandemic,

the increment of the number of passengers and customs is satisfactory. The discussed PPP way of airport privatization of this study is not a new study. In the year 2006, it practiced PPP in five major airports. In 2020 the number of PPP airports increased by six numbers. However, the price control monitoring system was not concluded in this research paper. Further, the effectiveness of PPP airports in India, and a transparent policy implication in price control and revenue check should be implemented.

References

- AAI. (1985). *The National Airports Authority Act*. New Delhi: The Gazette of India, No 64.
- AAI. (2022). *Annual Report 2021-22 Spurring Infrastructure Development Transforming Civil Aviation*. New Delhi: Airports Authority of India.
- Adler, N., & Liebert, V. (2014). Joint impact of competition, ownership form and economic regulation on airport performance and pricing. *Transportation Research Part A*, 64, 92-109. <http://dx.doi.org/10.1016/j.tra.2014.03.008>.
- Adler, N., Forsyth, P., Mueller, J., & Niemeier, H. M. (2015). An economic assessment of airport incentive regulation. *Transport Policy*, 41, 5-15. <https://doi.org/10.1016/j.tranpol.2015.03.008>.
- AERA. (2023). *Concession Agreements*. New Delhi-110003: Airports Economic Regulatory Authority of India.
- Airports Council International. (2018, 9 18). *Privatization has proven successful in developing airport infrastructure to cope with traffic growth*. Retrieved from <https://aci.aero/2018/09/18/privatization-has-proven-successful-in-developing-airport-infrastructure-to-cope-with-traffic-growth/>
- Aniyeri, R., & Nadar, C. R. (2016). *A dissect of Indian airport*. 41613-41630: International Journal of Current Research, 8(11).
- Bagler, G. (2008). Analysis of the airport network of India as a complex weighted network. *Physica A: Statistical Mechanics and its Applications*, 387(12), 2972-2980. <https://doi.org/10.1016/j.physa.2008.01.077>.
- Barde, T., Pantelias, A., & Zerjav, V. (2016). Assessment of Airport Performance in India. *RICS COBRA 2016 The construction, Building and Real State Research Conference of the Royal Institution of Chartered Surveyors 20-22 September 2016*. Toronto, Canada: COBRA 2016.
- Beesley, M. E., & Littlechild, S. C. (1989). The Regulation of Privatized Monopolies in the United Kingdom. *The RAND Journal of Economics*, 20(3), 454-472.
- Belsie, L. (2023). *Privatizing Infrastructure: Evidence from Airports*. Available at: <https://www.nber.org/digest/20231/privatizing-infrastructure-evidence-airports>. Accessed on

03 October 2023: National Bureau of Economic Research.

- Bhattacharya, S. (2018). *Yojana: Giving Wings to Small Town India*. YOJANA .
- Brito, I. R., Oliveira, A. V., & Dresner, M. E. (2021). An econometric study of the effects of airport privatization on airfares in Brazil. *Transport Policy*, 114, 338-349. <https://doi.org/10.1016/j.tranpol.2021.10.015>.
- Carney, M., & Mew, K. (2003). *Journal of Air Transport Management*, 9, 221-232. [https://doi.org/10.1016/S0969-6997\(03\)00003-6](https://doi.org/10.1016/S0969-6997(03)00003-6).
- Castro, R., & Lohmann, G. (2014). Airport branding: Content analysis of vision statements. *Research in Transportation Business & Management*, 10, 4-14. <http://dx.doi.org/10.1016/j.rtbm.2014.01.001> .
- Chakraborty, S., Ghosh, S., Sarker, B., & Chakraborty, S. (2022). An integrated performance evaluation approach for the Indian international airports. *Journal of Air Transport Management*, 88, 101876. <https://doi.org/10.1016/j.jairtraman.2020.101876>.
- Chourasia, A. S., Jha, K., & Dalei, N. N. (2021). Development and planning of sustainable airports. *Journal of Public Affairs*, 21(1), 1-9. <https://doi.org/10.1002/pa.2145>.
- Deloitte. (2006). *Closing the Infrastructure Gap: The Role of Public-Private Partnership*. New York: The World Bank.
- Dörnberg, A. v. (2008). Airport Privatization and Takeover- Creating Value for all Stakeholders? In R. Conrady, & M. Buck, *Trends and Issues in Global Tourism 2008* (pp. 47-60). Berlin, Heidelberg: Springer. https://doi.org/10.1007/978-3-540-77798-4_4.
- Engel, E., Fischer, R., & Galetovic, A. (2018). The joy of flying: Efficient airport PPP contracts. *Transportation Research Part B: Methodological*, 114, 131-146. <https://doi.org/10.1016/j.trb.2018.05.001>.
- Francina, J. V., Selvavinayagam, K., & Elavarasan, R. (2020). A Study on Operations of Airport Service with Special Reference To Chennai Airport. *ICTACT, Journal of Management Studies*, 6(3), 1276-1282, DOI: 10.21917/ijms.2020.0179.
- Freestone, R., Baker, D., & Stevens, N. (2011). Managing airport land development under regulatory uncertainty. *Research in Transportation Business & Management*, 1, 101-108, doi:10.1016/j.rtbm.2011.05.006.
- George, M. (2015). Development Fee in India Airports - A Case Study . *Journal of Air Law and Commerce*, 80(1), 18-52, <https://scholar.smu.edu/cgi/viewcontent.cgi?article=1038&context=jalc>.
- Gillen, D., & Mantin, B. (2014). The importance of concession revenues in the privatization of airports. *Transportation Research Part E: Logistics and Transportation Review*, 68, 164-177. <https://doi.org/10.1016/j.tre.2014.05.005>.
- Havrylyshyn, O., & McGettigan, D. (1999). Privatization in Transition Countries: Lessons of the

First Decade. *Economic Issues*, 18.

- IBEF. (2017a, 2). Retrieved from Available at: <https://www.ibef.org/download/Airports-February-2017.pdf> Accessed on August 06 2023.
- IBEF. (2022, 5 24). *Indian Aviation Industry*. Retrieved from <https://www.ibef.org/industry/indian-aviation#:~:text=According%20to%20WTTC%2C%20India%20ranked,facilities%20and%20infrastructure%20at%20airports.>
- IBEF. (2023, 2). *Rise of the Indian Aviation Market*. Retrieved from Available at: <https://www.ibef.org/download/Indian-Aviation-Market.pdf>. Accessed on November 2, 2023.
- ICAO. (2013). *Case Studies on Commercialization, Privatization and Economic Oversight of Airports and Air Navigation Services Providers India*. Retrieved from Air Transport Bureau, Economic Analysis and Policy (EAP) Section: Available at: <https://www.icao.int/sustainability/CaseStudies/India.pdf>. Accessed on October 03, 2023.
- Indian Numbered Acts. (1971, 12 8). *International Airports Authority Act 1971*. Retrieved from Available at: http://www.commonlii.org/in/legis/cen/num_act/iaaa1971396/. Accessed on 6 October 2023.
- Junior, A. C., Hollaender, P. S., Mazzanati, G. V., & Bortoletto, W. W. (2021). Efficiency drivers of international airports: A worldwide benchmarking study. *Journal of Air Transport Management*, 90, 101960. <https://doi.org/10.1016/j.jairtraman.2020.101960>.
- Kashiramka, S., Banerjee, R., Kumar, A., & Jain, P. K. (2016). Efficiency Analysis of Airports in India in a Changing Environment. *Journal of Transport Economics and Policy*, 50(4), 384-403.
- Kim, H. b., & Shin, J. H. (2001). A contextual investigation of the operation and management of airport concessions. *Tourism Management* 22(2), 149-155. [https://doi.org/10.1016/S0261-5177\(00\)00037-6](https://doi.org/10.1016/S0261-5177(00)00037-6).
- Krishnan, L. R. (2021). Privatisation of Commercial Airports in India: Carry Over Legacy, A Nightmare Managing The People Agenda. *Journal of the International Academy for Case Studies*, 27(4), 1-9.
- Kumar, A., Dash, M. K., & Sahu, R. (2018). Performance Efficiency Measurement of Airports: A Comparative Analysis of Airports Authority of India and Public Private Partnership. *International Journal of Strategic Decision Sciences*, 9(2), 19-37. <https://doi.org/10.4018/IJSDS.2018040102>.
- Martimort, D., Pommey, G., & Pouyet, J. (2022). Optimal regulation design of airports: Investment incentives and impact of commercial services. *Transportation Research Part B*, 164, 25-44. <https://doi.org/10.1016/j.trb.2022.07.008>.
- MoCA. (2021). *Annual Report 2020-21*. New Delhi: Ministry of Civil Aviation Government of

- India. Available at: <https://www.civilaviation.gov.in/sites/default/files/AR-Eng-2020-21.pdf>.
- MoCA. (2021). *UDAN Ude Desh Ka Aam Nagarik*. Rajiv Gandhi Bhawan, Block B, Safdarjyng Airport Area, New Delhi-110003: Ministry of Civil Aviation.
- MoCA. (2023, 7 24). *In- Principle approval to set up 21 new Greenfield Airport in Country* . Retrieved from Release ID 1942034: Available at: <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1942034>.
- Paulose, D. (2013). Risks and Strategies for a Build-Own-Operate International Airport Project in India. *International Journal of Risk and Contingency Management*, 2(1), 1-17.
- Phuyal, M. (2023). Understanding the Indian Way of Airport Privatization: Case of Indira Gandhi International Airport, Delhi. *Open Journal of Social Sciences*, 11(6), 237-254. <https://doi.org/10.4236/jss.2023.116017>.
- Poole, Jr, R. W. (1997). Privatization: A New Transportation Paradigm. *The Annals of the American Academy of Political and Social Science*, 553, 94-105.
- Poole, R. W., & Fixler, R. W. (1987). Privatization of Public-Sector Services in Practice: Experience and Potential. *Journal of Policy Analysis and Management*, 6(4), 612-625.
- Prakash, C., & Barua, M. K. (2016). A Robust Multi-Criteria Decision-Making Framework for Evaluation of the Airport Service Quality Enablers for Ranking the Airports. *Journal of Quality Assurance in Hospitality & Tourism*, 17(3), 351-370. <https://doi.org/10.1080/1528008X.2015.1096753>.
- Prasada, S. (1956). Indian Airlines Corporation. *Indian Journal of Public Administration* , 34-49, <https://doi.org/10.1177/0019556119560106>.
- Rathore, H., Nandi, S., & Jakhar, S. K. (2020). The future of Indian aviation from the perspective of environment-centric regulations and policies. *IIMB Management Review*, 32, 434-447. <https://doi.org/10.1016/j.iimb.2020.11.003>.
- Saraf, D. N. (1989). Public Utility Services with Special Reference to Air Services and the Consumer. *Journal of the Indian Law Institute*, 31(2), 136-153.
- Shome, S., & Verma, S. (2020). Financial Distress in Indian Aviation Industry: Investigation Using Bankruptcy Prediction Models. *Eurasian Journal of Business and Economics*, 13(25), 91-109. <https://doi.org/10.17015/ejbe.2020.025.06>.
- Shrestha, H. B. (1993). *International Air Law Conventions and Domestic Air Law of Nepal: A Comparative Study*. Montreal : McGill University.
- Singh, D. P., Dalei, N. N., & Raju, T. b. (2015). Airport Privatization and Economic Regulation: An Indian Experience. *International Journal of Multidisciplinary Research and Development*, 2(5), 414-418.
- Sutare, N., & Rathod, V. (2022). A Study on Impact of COVID-19 Pandemic on Air Cargo Industry of India. *Journal of the Maharaja Sayajirao University of Baroda Science & Technology*,

56(8), 219-226.

- Thummala, V., & Hiremath, R. B. (2022). Green Aviation in India: Airline's implementation for achieving sustainability . *Cleaner and Responsible Consumption*, 7, 1-11. <https://doi.org/10.1016/j.clrc.2022.100082>. .
- Travelli, A., & Kumar, H. (2023, 11 2). No Nation in the World is Buying More Planes Than India. Here's Why. *The New York Times*, pp. Available at: <https://www.nytimes.com/2023/11/02/business/india-aviation.html> Accessed on November 2,2023.
- Tsunoda, Y. (2023). Airport concession revenue sharing and entry deterrence. *Economics of Transportation*, 33, 1-11. <https://doi.org/10.1016/j.ecotra.2022.100300>.
- Varkkey, B., & Raghuram, G. (2001). Public Private Partnership in Airport Development- Governance and Risk Management Implications from Cochin International Airport Ltd. *Indian Institute of Management Ahmedabad*, 1-29.
- Wang, K., Zhang, A., & Zhang, Y. (2018). Key determinants of airline pricing and air travel demand in China and India: Policy ownership and LCC competition. *Transport Policy*, 63, 80-89. <https://doi.org/10.1016/j.tranpol.2017.12.018>.
- Yu, H., Zhang, Y., Zhang, A., Wang, K., & Cui, Q. (2019). A comparative study of airline efficiency in China and India: A dynamic network DEA approach. *Research in Transportation Economics*, 76, 1-12. <https://doi.org/10.1016/j.retrec.2019.100746>.
- Zhang, A., & Czerny, A. I. (2012). Airports and airlines economics and policy: An interpretive review of recent research. *Economics of Transportation*, 1 (1-2), 15-34. <https://doi.org/10.1016/j.ecotra.2012.08.001>.
- Phuyal M. Reviewing Airport Privatization: An Experience of India. Available at SSRN 4746651. 2024 Mar 3.