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Philippine Air Transport Infrastructure: State, Issues, Government Strategies

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Abstract

The air transport sector is important in facilitating economic growth and development. In a country made up of more than 7,000 islands, air transportation serves as the fastest mode of connectivity within the country and the rest of the world. The direct impact of the air transport sector to Philippine GDP may appear small at 0.61 percent in 2019; but its enabling role for high-value industries such as trade, manufacturing and tourism justifies the need to prioritize this sector. Having sufficient, well-functioning and efficient air transport infrastructure is necessary to ensure maximum benefits to the economy. The country's air transport infrastructure, however, suffers from capacity and technical capability constraints. While the government recognizes the need to improve the country's air transport infrastructure through the provision of new airports, and improving existing facilities and technical capabilities, time is crucial and huge investments are needed to catch up with the burgeoning demand for air travel.

Keywords: air transport sector, air transport policy, airports

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Philippine Air Transport Infrastructure: State, Issues, Government Strategies

Kris A. Francisco and Valerie L. Lim

1. Introduction

Air transport plays an essential role in an economy by encouraging trade, supporting tourism, creating employment opportunities and fostering growth. Having an efficient air transport infrastructure and an enabling air transport sector is important for a developing country such as the Philippines, where tourism is a major contributor to the economy and a provider of employment opportunities to the population. The Philippines is considered to have some of the busiest airports in Asia, with a notable growth in tourist arrivals from domestic and international markets. With the dramatic increase in air travel in recent years, the ability of the country's air transport infrastructure to accommodate this increase in demand is put into question. In this study we aim to assess the current state of the country's air transport infrastructure and review government plans and programs seeking to improve the performance of the air transport sector. Using secondary data and previous literature, we discuss prevailing issues and challenges constraining the growth of the sector and put forward some useful policy recommendations.

2. Air transport sector: Global contribution

The air transport sector provides a rapid global transport network that is essential in the conduct of business and trade activities (Air Transport Action Group 2020). Prior to the COVID-19 pandemic, the estimated global economic impact of the sector is $3.5 trillion, including direct, indirect and catalytic impacts of the sector. According to a report[1], the air transport sector supports 4.1 percent of global GDP; a contribution so large that it could match the GDP of Indonesia or the Netherlands. In 2019, airlines carried a total of 4.5 billion passengers and 61 million tonnes of freight. Jobs in the sector are on average, 4.3 times more productive than other jobs because of the ability of the air transport sector to induce catalytic effects due to the opening of markets and spread of knowledge[2]. A total of 87.7 million jobs were supported by air transport sector in 2019. Table 1 shows that most of the direct employment provided by the sector is located in the Asia-Pacific region.

Table 1. Direct employment by air transport, by region

Africa	440,000
Asia-Pacific	4,200,000
Europe	2,700,000
Latin America and Caribbean	722,000
Middle East	595,000
North America	2,700,000

Source: Air Transport Action Group 2020

[1] Air Transport Action Group 2020. Aviation: Benefits Beyond Borders
[2] Ibid.

3. Contribution to Philippine economy

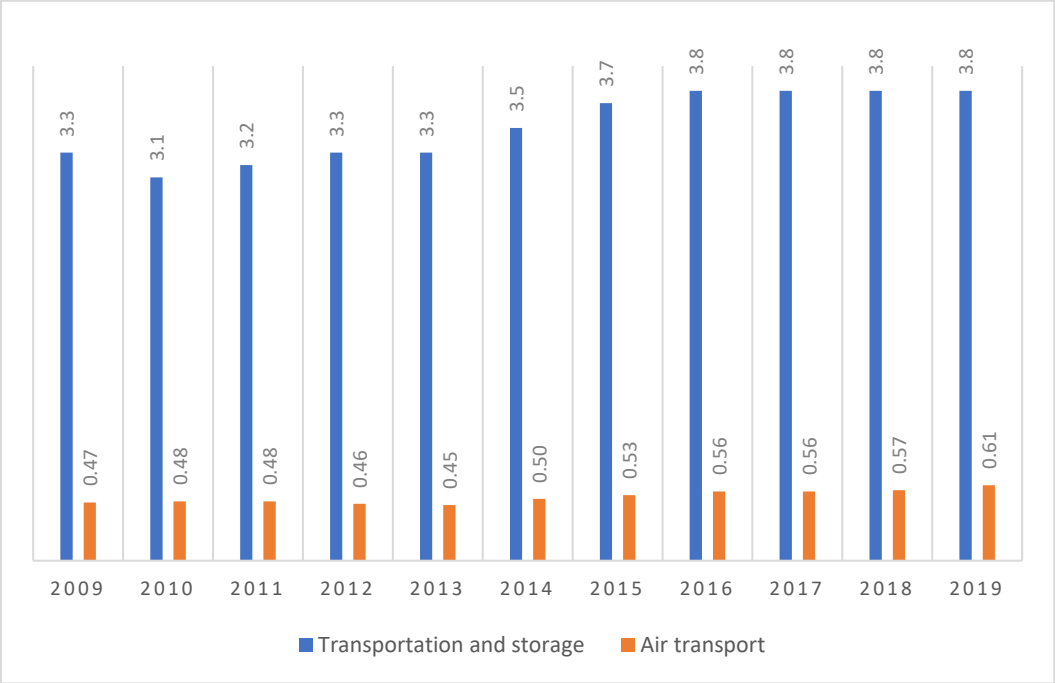
The contribution of the air transport sector to the Philippine economy may appear small at first glance (Figure 1); but taking into account the indirect role of the sector in facilitating economic activities within the country, enlarges this contribution to a whole host. The study of Yu et al. (2019) demonstrates the heavy dependence of the Philippine economy on the services provided by the air transport sector. They traced the backward linkages to many important sectors such as construction, land transportation, communication and storage, finance, private services, manufacturing and trade, agriculture, fisheries and forestry, mining and quarrying, electricity gas and water, among others. Generally, they revealed that output multiplier for the air transport sector is 2.46, placing the sector on the list of top contributors to economic output. The sector was also found to generate the highest indirect tax revenue for the government with indirect tax multiplier of 0.08. Moreover, it performs well in creating jobs for the population; with 2 jobs created for every 1 million public investments in the sector.

Perhaps, the most notable role of the air transport sector is that it acts as a fundamental support to the country's tourism industry. According to the data presented by the United Nations World Tourism Organization (UNWTO), 98 percent of tourist arrival in 2019 is through air transfer. This role is valuable as the tourism sector is a big contributor to the Philippine economy, both in terms of value and employment. The value added of tourism industries in 2019 is as follows: accommodation and services for visitors at 16. 2 percent, food and beverage serving services at 25.3 percent, and transport services at 17.0 percent[3]. The sector also employed a total of 5.7 million workers in 2019, covering 13.5 percent of the country's total employment[4].

[3] Data from Philippine Statistics Authority OpenSTAT Tourism Database, accessed on December 29, 2022.

[4] Based on 2019 Philippine Tourism Satellite Accounts Report.

Figure 1. Percent share to Philippine Gross Domestic Product



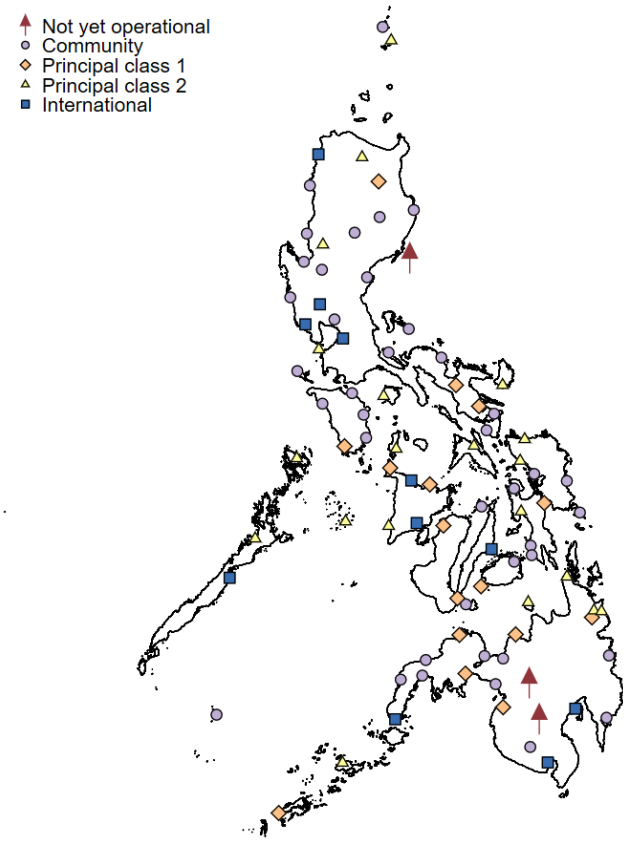
Source: Philippine Statistical Authority

4. Supply and demand for air travel in PH

A well-functioning and efficient air transport infrastructure is necessary to continue the air transport sector's facilitating role in the conduct of global trade and tourism. Presently, the Philippines records a total of 90 national airports as shown in Figure 2; wherein 8 are international airports, 21 are classified as Principal class 1, 20 are classified as Principal class 2, 38 are community airports and 3 airports are not yet operational[5]. Majority of these airports, 42, located in Luzon while 22 and 26 of these are located in Visayas and Mindanao, respectively. The specific list containing the names of the airports are shown in Appendix 1.

[5] International airports are those with border control facility that are used for international flights. Principal class 1 airports are used for domestic flights serving jet aircraft that have at least 100 passengers. Principal class 2 airports are used for domestic flights serving propeller aircraft/jet that are smaller than those in Principal class 1 and accommodates more than 19 but less than 100 passengers. Community airports are those used for general aviation aircraft.

Figure 2. Airports in the Philippines



Luzon	42
Visayas	22
Mindanao	26

National airports	**90**
International	8
Principal class 1	21
Principal class 2	20
Community	38
Not yet operational	3

Source: Department of Transportation

International	Airport with border control facility used for international flights.
Principal class 1	Airports used for domestic flights serving jet aircraft (ex. B737 and A320) that have at least 100 passengers.
Principal class 2	Airports used for domestic flights serving propeller aircraft or jet aircraft smaller than in Principal class 1, which have below 100 but more than 19 passengers.
Community	Airports used for General aviation aircraft.

Over recent years, airport utilization has generally increased among the country's top airports. As exhibited in Figure 3, the Ninoy Aquino International Airport (NAIA) remains as the most popular choice for passengers, accommodating almost 50 million passengers in 2019 from less than 30 million passengers in 2010. The Mactan, Davao and Clark international airports have also experienced a significant rise in number of passengers.

Figure 3. Top 20 airports by passengers, 2010-2019

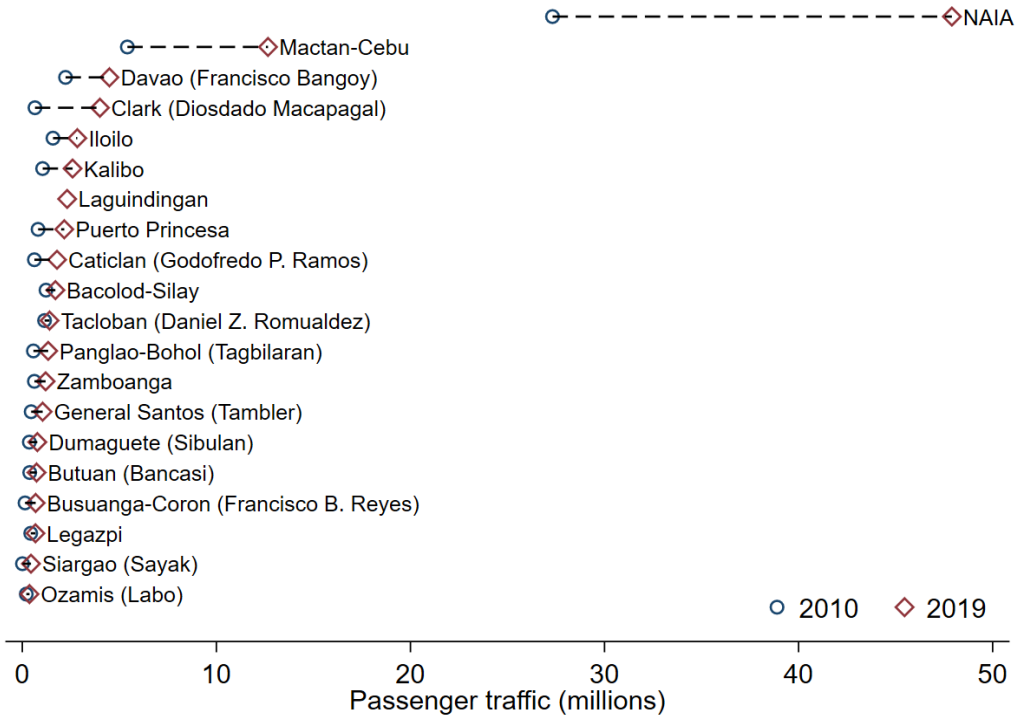
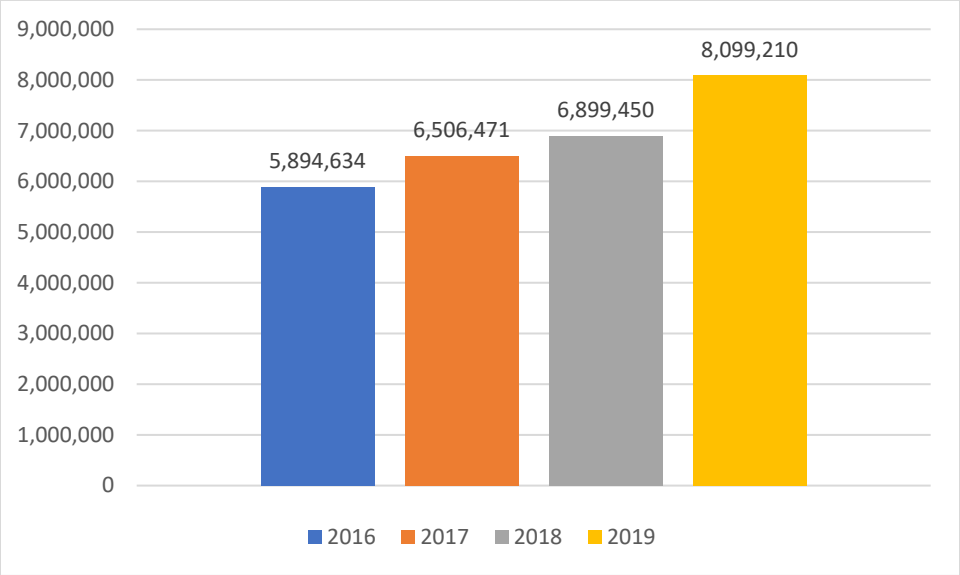


Figure 4. International visitor arrival by air



Source: Philippine Statistics Authority, Department of Tourism

International visitor arrivals have reached 8 million in 2019; wherein 61% of these entries where through the country's capital, Metro Manila. Cebu is the second most popular destination for air arrivals and Kalibo, Aklan is third on the list (Table 2). Data from the Department of Tourism (Table 3) indicates that visitors from Korea covered 23 percent share of arrivals via air in 2018. International travelers from Korea, China and the United States, together, make up a little over 50 percent of international visitors in the country.

Table 2. Air arrivals, by port of entry (2019)

TOTAL arrivals	**8,099,210**	*(% share)*
Manila	5,087,896	*61.59*
Cebu	1,683,945	*20.38*
Kalibo	772,501	*9.35*
Clark	436,235	*5.28*
Palawan	66,665	*0.81*
Davao	36,662	*0.44*
Bohol	11,367	*0.14*
Iloilo	3,939	*0.05*

Source: Department of Tourism

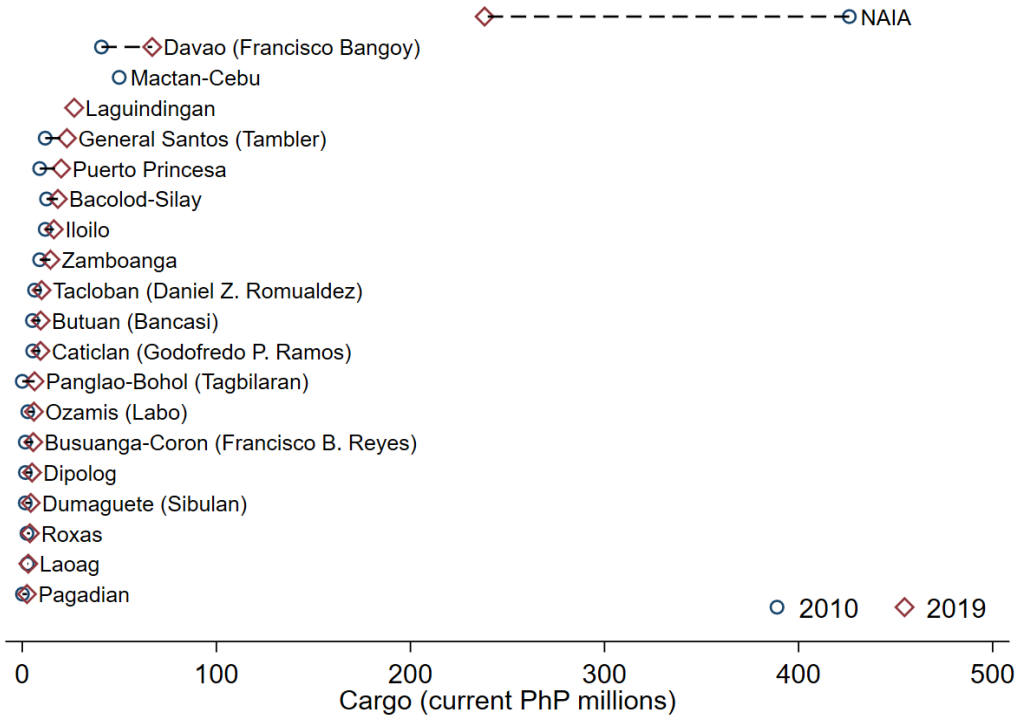
Table 3. Visitor arrivals by air based on country of residence, 2018

Continent	Country	No. of visitors	% (share)
East Asia	Korea	1,585,784	*23.0*
East Asia	China	1,135,077	*16.5*
America	U.S.A.	1,025,429	*14.9*
East Asia	Japan	629,969	*9.1*
Oceania	Australia	277,142	*4.0*
East Asia	Taiwan	234,998	*3.4*
North America	Canada	223,854	*3.2*
Northern Europe	United Kingdom	195,865	*2.8*
Asia (ASEAN)	Singapore	171,514	*2.5*
Asia (ASEAN)	Malaysia	140,407	*2.0*
East Asia	Hong Kong	111,433	*1.6*
Total visitor arrivals by air		**6,899,450**	

Source: Department of Tourism

Cargo traffic in top airports has similarly increased from 2010 to 2019. The Ninoy Aquino International airport received and transported over $400 million peso worth of cargoes in 2019. The Francisco Bangoy international airport in Davao is also a popular gateway for cargos in the Mindanao area.

Figure 5. Top 20 airports by cargo, 2010-2019



5. Projected growth of air transport sector

Despite the global impact of the COVID-19 pandemic on air transport sector, it is expected to bounce back and grow even bigger in the upcoming years. Based on the projections of Oxford Economics[6], airline passenger traffic could reach up to 8.2 billion in 2038. The sector is also expected to spur around 143 million jobs and $6.3 trillion equivalent in economic activities. These projections, however, will depend greatly on changes in trade policies, immigration and political factors.

The Philippines, in particular, is part of regional groups where growth in air travel is anticipated. Asia-Pacific for instance, is expected to see a 4.2 percent increase per year over the next 20 years (Table 4). This region holds 37 percent share of global passenger traffic, with a recorded 1.7 billion passengers in 2018. The Oxford Economics forecasts a 72 percent increase in jobs in air transport sector and tourism in the Asia-Pacific region by 2038 compared to that of 2018. The contribution of these sectors to the region's economy is also expected to increase by 120 percent at $2.1 trillion. Air travel in developing countries, meanwhile, will continue to increase by 3.8 percent annually over the next 20 years (Table 3). Jobs in the air transport sector and tourism will also rise by 67 percent more than the 2018 figure, at 93 million jobs. Gross domestic product contribution from the air transport and tourism sectors of developing countries will reach $1.7 trillion.

[6] Air Transport Action Group 2020. Aviation: Benefits Beyond Borders

Table 4. Global projection for the air transport sector, by regional group

Region	Total passengers in 2008 (in million)	Share of global passenger traffic (in %)	Projected annual growth rate for international traffic, 2018-2038
Africa	115	2.5	3.4
Asia-Pacific	1,700	37.0	4.2
Europe	1,200	25.9	2.1
Latin America and Caribbean	356	7.7	3.2
Middle East	192	4.2	4.1
North America	1,000	22.7	2.1
APEC	2,700	59.0	3.3
European Union 27	903	19.6	2.1
Small island states	40	0.9	3.4
Developing countries	2,000	43.4	3.8
OECD economies	2,500	54.7	2.5
Least-developed countries	56	1.2	3.8
Landlocked developing countries	51	1.1	3.6

Source: Oxford Economics

Forecast for individual countries in Table 5 show that the Philippines should expect an almost 56 percent increase in airline passengers in a span of 8 years. By 2027, the country's airport infrastructure should be able to accommodate around 88.3 million annual passengers.

Table 5. Global projection for the air transport sector of select countries

	Airlines	Airports	Passengers, in millions (2019)	Flights (2019)	Forecast passengers (2027)
China	57	238	654.6	4,959,100	1,037
Hong Kong SAR	6	1	36.6	178,100	80.3
Chinese Taipei	6	12	36.6	248,000	79.7
Indonesia	26	129	111.6	1,017,000	239.7
Japan	23	79	152.2	1,140,700	216.6
Malaysia	10	34	55.7	448,400	106.3
Philippines	12	46	49.1	335,800	88.3
Singapore	5	2	33.8	185,100	79.4
South Korea	10	16	76.8	396,824	127.6
Thailand	11	32	80.9	523,800	139.5
United States	133	631	960.9	9,514,800	1,012

Source: Oxford Economics

6. Prevailing issues and challenges

The imminent increase in demand for air travel in the coming years, accentuates the urgent need to ramp-up investments in the air transport sector. However, the Philippines' air transport sector is beset with issues and challenges that are acting as barriers to growth. In this section, we categorized the issues into four main discussions related to capacity, technical capability, quality and institutional environment.

Capacity. The Ninoy Aquino International Airport, being the country's premiere airport is faced with problems related to congestion because the current capacity is unable to adjust to the increasing demand of air travelers and aircrafts. Yu et al. (2019) noted that in 2016, the Ninoy Aquino International Airport accommodated around 39.6M passengers, which is way beyond its maximum capacity of 35M passengers annually. Prior to this, a JICA study in 2011 already pointed out the capacity constraints of NAIA and labeled it as a pressing issue for both the government and private sector. Aside from passenger congestion, NAIA also suffers from runway congestion due to the layout and configuration of runaway and taxiway. JICA also noted that one of the reasons for aircraft congestion in NAIA is due to the concentration of flights between 0700 to 1600 (core operational hours). To relieve the congestion, the government limited the aircraft movement in NAIA to only 40 flights per hour.

Technical capability. Related to the congestion problem, many of the provincial airports in the country do not have night-rating facilities, forcing airlines to schedule their domestic flights only during daytime (Rodolfo 2017). As of 2020, the Department of Transportation website reports that only 22 out of the 90 national airports have night-rating facilities. Six other airports (Cauayan, Dipolog, Bicol (New Legazpi), Pagadian, San Jose (Mindoro)) are scheduled to be fitted with night-rating facilities. Another issue raised by IATA in 2016 is the weak technical capability of airports in the Philippines. Runway utilization in NAIA for instance is sub-optimized due to factors such as air traffic management issues; vectors and delays; lack of radar; non-standard air traffic control procedures; poor en-route communications; safety concerns for ground operations.

Quality. Currently, comparative statistics on the quality and capacity of airports in the Philippines indicate a huge gap with that of neighboring countries. Among the countries included in Table 6, the Philippines appear to receive the lowest score on Aviation infrastructure, which is based on indicators related to flight availability and the quality of hard infrastructure utilized domestic and international flights.

Table 6. Indicators on airport infrastructure for select countries

	Airlines	Airports	Passengers, in millions (2019)	Flights (2019)	Aviation infrastructure score	Connectivity ranking	Airport accessibility
China	57	238	654.6	4,959,100	4.3	5=[207]	73%
Hong Kong SAR	6	1	36.6	178,100	5.6	11=[197]	100%
Chinese Taipei	6	12	36.6	248,000	3.9	28=[69]	N/A
Indonesia	26	129	111.6	1,017,000	3.9	34=[158]	79%
Japan	23	79	152.2	1,140,700	4.8	12=[195]	99%
Malaysia	10	34	55.7	448,400	4.6	28=[169]	98%
Philippines	12	46	49.1	335,800	3.2	27=[170]	94%
Singapore	5	2	33.8	185,100	5.5	12=[195]	100%
South Korea	10	16	76.8	396,824	4.6	9=[200]	100%
Thailand	11	32	80.9	523,800	4.6	16=[189]	88%
United States	133	631	960.9	9,514,800	5.9	1=[218]	96%

Source: Oxford Economics 2020

Notes: 1/ - 1–7 score from the World Economic Forum Travel and Tourism Competitiveness Report 2019, based on the quality of the aviation infrastructure, using indicators such as available seat kilometers, the number of departures, airport density and the number of operating airlines, as well as the quality of air transport infrastructure for domestic and international flights. Higher is better.

2/ ICAO Air Transport Bureau 2018 analysis ranking each country based on the number of countries and territories that can be easily reached from it by air, with the actual number of countries or territories that can be reached directly or with one stop in square brackets ([ ])

3/ ICAO iStars Database percentage of a country's population within 100 kilometers of either an international airport or of a domestic airport with at least one regular to an international airport, the global average for all countries being 74.41%

Institutional environment. The provision of good-quality and well-functioning air transport infrastructure is highly affected by its institutional environment. Like other sub-sectors of transport sector in the Philippines, the institutional environment for air transport sector is in need of an overhaul. The study of Rodolfo (2017) pushes for (1) coherence and convergence among government agencies responsible for airport development and their implementation; and suggests to (2) separate regulatory and developmental functions of agencies in the sector. Furthermore, an earlier study of the World Bank in 2009 study highlighted the need for an integrated system for planning, budgeting, building and operating transport infrastructure in the Philippines. The ADB (2012) likewise noted the limited coordination among agencies responsible for transport infrastructure in the country, resulting to fragmented transport development and lack of seamless connectivity among different modes of transportation.

7. Government plans and strategies

The prevailing challenges faced by the air transport sector is highly recognized in the Philippine Development 2017-2022. As a general strategy for the country, the government is keen on increasing infrastructure spending of up to 5 percent of the GDP to induce growth and development to the economy. However, there were unprecedented challenges brought by the COVID-19

pandemic that constrained the government's financial capability to continue the implementation of infrastructure programs and projects. An updated Philippine Development Plan was released, which presented the following strategies for the air transport sector:

Improve the operational efficiency of airports and address constraints to optimal capacity utilization. Government strategies targeting the decongestion of the Greater Capital Region will be pursued. The plan is to build a new international airport. In the meantime, facilities at the Ninoy Aquino International Airport, including runway capacity will be improved. A railway system between Clark International Airport and Manila will be developed to provide fast and direct access to commuters.

Implement an optimal airports system strategy to expand airport capacities at pace with growing demand. Provincial airports will be improved; community airports will be upgraded to standard Principal Class 2 to accommodate commercial flights and improve connectivity to tourist destinations. Aeronautical Lighting System and Instrument Landing System will be installed in provincial airports with appropriate facilities to enable night-time operations. Airport facilities and equipment will also be modernized especially in the Visayas and Mindanao islands.

Support the role of airports in spurring local tourism development and new growth centers. In support of local tourism development, primary airports will be established in tourism clusters identified by the Department of Tourism. A hub-and-spoke model will be followed in air development in regional areas and island provinces with natural and cultural tourism sites. The role of airports in inducing growth of new centers and smart cities will be explored by forging mixed-used developments in Northern and Central Luzon areas.

Strengthen and rationalize air transport regulations, policies, and protocols and modernize facilities to enhance air passenger experience. The private sector will be tapped as a government partner in pursuing development and construction projects for airport infrastructure, in the aim of enhancing passenger experience. The private sector is known to have the financial capacity, operational efficiency and technological advantage. On the government side, regulatory functions of agencies in the air transport sector will be strengthened and streamlined.
Table 7 shows that there are currently 13 airport infrastructure projects among the general infrastructure flagship projects of the National Economic Development Authority. Table 8 provides a more specific list of airport projects currently pursued by the government, in partnership with the private sector and ODA donors.

Table 7. Airport Infrastructure Flagship Projects

Year	Flagship Projects	Airports
2017	75	6
2018	75	7
2019	75	6
2020	104	12
2021	119	13

Source: NEDA

Table 8. Revised List of Infrastructure Flagship Projects (IFPs), as of 12 May 2021

No.	Project Title	Implementing Agency	Total Project Cost (in PHP million)	Funding Source	Sector
Completed [1]					
*	Sangley Airport	DOTr	1,436.20	GAA	Transport and Mobility
*	Clark International Airport Expansion Project Phase 1	DOTr/ BCDA	14,972.00	PPP	Transport and Mobility
Ongoing projects for completion by 2021					
5	General Santos Airport	DOTr	1,096.00	GAA	Transport and Mobility
6	Bicol International Airport Development Project (New Legazpi)	DOTr	4,798.00	GAA	Transport and Mobility
Ongoing projects for completion by 2023 and beyond					
38	M'lang Central Mindanao Airport	DOTr	2,600.00	GAA	Transport and Mobility
61	New Manila International Airport	DOTr	735,654.00	PPP (Unsolicited)	Transport and Mobility
Pipeline [3]					
92	New Bohol (Panglao) International Airport	DOTr	3,791.00	PPP (Unsolicited)	Transport and Mobility
98	Laguindingan Airport	DOTr	45,751.00	PPP (Unsolicited)	Transport and Mobility
103	Iloilo International Ariport	DOTr	4,881.80	PPP (Unsolicited)	Transport and Mobility
104	Davao International Airport	DOTr	50,745.21	PPP (Unsolicited)	Transport and Mobility
105	Bacolod-Silay International Airport	DOTr	12,115.30	PPP (Unsolicited)	Transport and Mobility
106	Kalibo International Airport	DOTr	5,513.21	PPP (Unsolicited)	Transport and Mobility
112	Ninoy Aquino International Airport	DOTr	107,534.29	PPP (Unsolicited)	Transport and Mobility

[1] Includes projects which are already partially open and projects for inauguration by July 2021.
[2] This project component will be completed by Q4 2021.
[3] Projects still completing government approvals.

Source: NEDA
Note: The projects marked * below were part of previous lists of IFPs approved in 2017, 2019, and 2020, and are not considered part of the current list because they have already been completed. All projects completed before the next revision are no longer included in the succeeding list.

8. Policy developments

Latest government policies aimed at improving the institutional environment in the air transport sector is listed in Table 9. Unfortunately, bills seeking to streamline the conflicting roles/powers of government agencies in the sector have not yet been signed into law. The filing of these bills nevertheless, signifies the willingness to reform the sector.

Table 9. Government infrastructure policies for air transport sector, as of 14 June 2021

Policy	Description	Bill Reference	Note	Implemented
Philippine Airports Authority	The bill seeks to create the Philippine Airports Authority which will handle the regulation and operation of airports. The planned devolution aims to delegate the operating powers of the CAAP as well as abolish the authorities managing international airports, namely the Manila International Airport Authority, Clark International Airport Corporation, Subic Bay Metropolitan Department Airport Department, and the Mactan-Cebu International Airport Authority.	SB 1490, HB 7976	Approved by committee	
Civil Aviation Authority of the Philippines (CAAP) charter amendments	The bill seeks to address the deficiencies in the supervision and management of the Philippine civil aviation industry and to strengthen CAAP as an agency. Significant amendments in the bill include: increasing the term of the director general to 7 years, exemption of CAAP from the salary standardization law, and enhanced fiscal autonomy.	No Senate Bill filed, HB 8700	Approved by committee	
Open Skies Policy EO No. 29, s. 2011	Liberalizes international airports other than the Ninoy Aquino International Airport by allowing more foreign carriers to fly and bring in more tourists. Included are: Clark, Cebu, Davao, Iloilo. NAIA not included because of congestion.			March 14, 2011

9. Conclusion and recommendation

The essential role played by the air transport sector in Philippine economy qualifies the sector to receive special attention from policymakers. While we are on the right path in identifying priority projects related to improving the improving the capacity and technical capability of our airports, as well as enhance network connectivity of different airports, policymakers should also recognize the importance of time, as the current investments in air transport infrastructure may still be inadequate to respond to the projected increase in demand for air travel.

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Appendices

Appendix 1. Airports by classification, by location, as of May 2019

International	Principal Class 1	Principal Class 2	Community	
Clark*	Butuan	Antique	Alabat	Jomalig
Davao	Cagayan	Baguio	Allah Valley	Lingayen
General Santos	Cotabato	Basco	Bagabag	Lubang
Iloilo	Dipolog	Busuanga	Baler	Maasin
Kalibo	Dumaguete	Calbayog	Bantayan	Malabang
Laoag	Laguindingan	Camiguin	Bulan	Mamburao
Mactan, Cebu*	Legazpi	Catarman	Biliran	Mati
NAIA*	Naga	Caticlan	Bislig	Ozamis
Puerto Princesa	Pagadian	Cuyo	Borongan	Palanan
Subic*	Roxas	Jolo	Cagaya de Sulu	Plaridel
Zamboanga	San Jose	Marinduque	Calapan	Pinamalayan
	Silay	Masbate	Catbalogan	Rosales
	Tacloban	Ormoc	Cauayan	San Fernando**
		Romblon	Daet	Siocon
		Sanga-Sanga	Hilongos	Siquijor
		Siargao	Iba	Sorsogon
		Surigao	Ipil	Ubay
		Tandag	Iligan	Vigan
		Virac	Itbayat	Wao (operational)
			Liloy	Wasig

Source: Philippine Statistics Authority, Civil Aviation Authority of the Philippines
* Airport Authority
** BCDA-PPMC