



The Civil Aviation Authority of Thailand

# STATE OF THAI AVIATION INDUSTRY, 2019

Aviation Economics Division  
Aviation Industry Promotion Department  
The Civil Aviation Authority of Thailand

# OVERVIEW

## Thai Aviation Industry in 2019



Passengers

165  
million



Flights

1.06  
million



Freight

1.43  
million tons



Routes

67 382  
Domestic International



38 Airports

5 Air Navigation Service Providers (ANSP)



43 Air Operator Licenses (AOL)



26 Air Operator Certificates (AOC)





679  
Aircraft

Commercial Aircraft  
Personal Aircraft  
Ultralight Aircraft

370

245

64



254  
Maintenance  
Units

225

29

Other Countries

Thailand



17

Approved Training Organisations (ATO)

14

2

1

14 Aviation Training Institute Certificates

2 Air Traffic Control Training Institute Certificates

1 Ground Engineer Training Institute Certificate

4

Language Proficiency Testing Centers (LPTC)



10,549  
Personnel Licenses

966

3,808

2,243

2,578

427

527

PPL

CPL

ATPL

AML

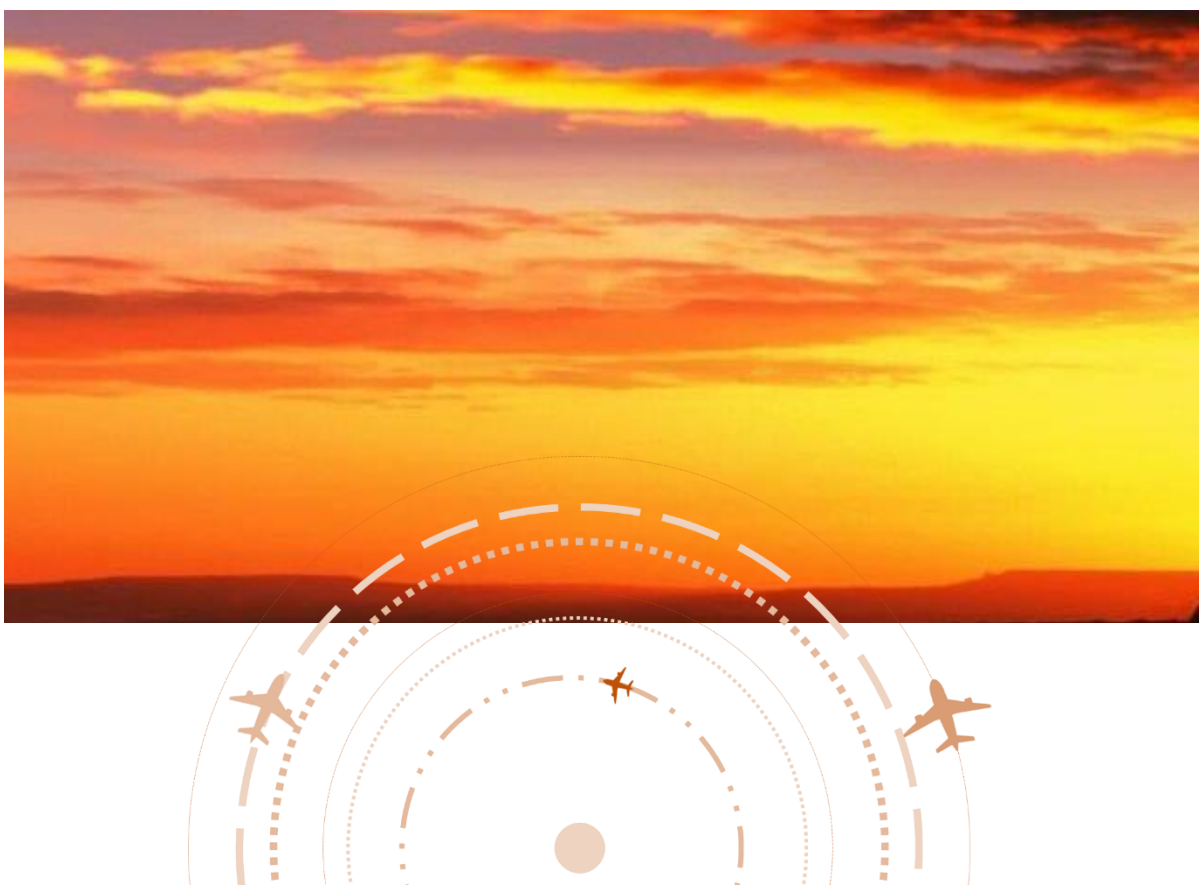
ATC

FOO



## Executive Summary

The compound annual growth rate of Thai air transport over the past 10 years (2010 – 2019) was 11.4 percent with an average annual growth rate of international passengers of 10.8 percent and average annual growth rate of domestic passengers of 12.1 percent. In 2019, there was a total of 165 million passengers which increased by only 1.8 percent compared to the previous year. Total passengers in 2019 consisted of 89 million international passengers which increased by 7.2 percent and 76 million domestic passengers which decreased by 3 percent compared to the previous year and is considered the first domestic passengers decline in 10 years. Considering the proportions of domestic and international passengers in 2019, there were consistent with an average growth rate of flights over 10 years of 9.8 percent per year which consisting of an international flight growth of 9.7 percent per year and domestic flight growth of 9.8 percent per year. In 2019, there was a total of 1.06 million flights which decreased by 2.7 percent from the previous year due to the airlines reduced their domestic flights and increased the number of seats on international routes. As a result, the number of domestic flights decreased by 6.89 percent from the previous year. Considering the air freight volume of Thailand during this period, an overall average volume of air freight growth was 0.8 percent per year. The total volume of air freight in 2019 was 1.49 million tons, showing a 7.9 percent decrease compared to the previous year, most of which were international air freight at Suvarnabhumi Airport.





## TREND GROWTH of Thai Aviation Industry



### Airline Operator Group

Currently, there is a total of 43 air operator license holders, consisting of 19 scheduled air operators, 19 non-scheduled air operators and 5 aerial work operators. Of these, 23 operators have international air operator certificates and 4 operators have domestic air operator certificates. Considering the number of aircraft used in aviation, there is a total of 843 aircraft registered with the Thai nationality mark (HS). Most of them are commercial aircrafts and most of which are A320 model manufactured by Airbus Company Limited and B737 model manufactured by Boeing Company Limited because these models are commonly used by low-cost airlines and some full-service airlines.

### Airport Operator Group

The airports under the responsibility of Airports of Thailand Public Company Limited showed the highest proportion of passengers, representing 87% of the total number of passengers. As for domestic routes, Don Mueang Airport showed the highest number of passengers and flights of 23.5 million passengers and 1.63 hundred thousand flights, respectively in 2019. The airports with the highest growth rate were Khon Kaen Airport and Suvarnabhumi Airport. For international routes, Suvarnabhumi Airport showed the largest number of international passengers of 53.6 million passengers and highest number of international flights of 2.91 hundred thousand flights. And, Mae Fah Luang Chiang Rai Airport showed the highest growth rate in terms of the number of passengers and flights.



### Related Industries

- **Maintenance, Repair and Overhaul (MRO) Industry**

In 2019, CAAT has approved 254 MRO units in 40 countries around the world, out of 29 units are located in Thailand.

- **Original Equipment Manufacturer (OEM)**

During 1992 – 2019, there was a total of 33 operators in the OEM industry that were licensed under the Factory Act B.E. 2535 (1992).

- **Approved Aviation Schools and Language Proficiency Testing Centers for Personnel**

At present, Thailand has several aviation schools and language proficiency testing centers which have been certified by CAAT, including 14 aviation training institute certificates, 2 air traffic control training institute certificates, 1 ground engineer training institute certificate and 4 certificates for language proficiency testing center for license holders.

- **Aviation Medicine**

There are 3 civil aviation medical centers for the issuance or the renewal of Class 1-4 Medical Certificates, 4 civil aviation medical examination centers for the examination for the Class 1-4 Medical Certificate Renewal Examination and for Class 2 and 4 Medical Certificate Examination. There is a total of 46 medical examiners and senior medical examiners appointed by CAAT.

- **Air Navigation Service Providers in Thailand**

There are 5 aviation navigation service providers in Thailand which are (1) Aeronautical Radio of Thailand Limited, (2) Royal Thai Navy, (3) Department of Meteorology, (4) Office of the Permanent Secretary for Transport and (5) The Civil Aviation Authority of Thailand.



## Factors Affecting the Growth of Thai Aviation Industry in 2019

- Overview of global air transport
- Global economic growth
- Thai economic growth
- Tourism forecast
- Reinforcing factors for investment and privileges
- Return to international safety standards
- Major government projects and infrastructure capacity expansion plans



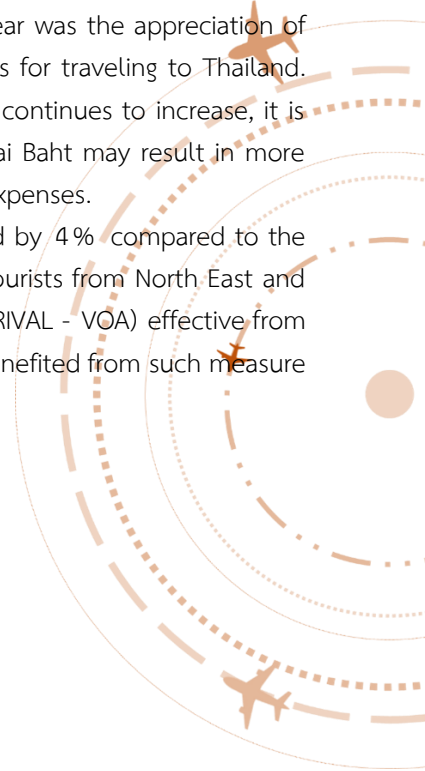


Before the COVID-19 pandemic, the International Civil Aviation Organization (ICAO) had forecasted that the passenger transport volume or Revenue Passenger Kilometers (RPK) over a period of 20 years from 2015 to 2035 (B.E. 2558 – 2578) would grow at 4.3% per year, and, over a period of 30 years from 2015 to 2045 (B.E. 2558-2588), would grow at 4.1% per year. In the period of 20 years, Southeast Asia is estimated to have an average growth of 5.3% on domestic routes and 5.4% on international routes.

The International Monetary Fund (IMF) revealed that the global average gross domestic product (world output) in 2019 grew at a rate of 2.9%, showing 0.7% expansion decline compared to the previous year. Considering the countries with the highest number of tourists visiting Thailand, it was found that the growth rate of these countries was higher than the global average growth rate. This was due to the impact of protectionist policies of the United States and India. The growth rate was only 4.8%, showing a 2% decrease compared to the previous year due to a significant slowdown in domestic demand, etc.

For Thai economy, the Fiscal Policy Office reported that the Thailand's overall economy expanded by 2.5% in 2019, which significantly decelerated from 4.1% expansion in 2018, due to a slowdown in external demand and a slow recovery in domestic demand. However, the key factor affecting air travel in the previous year was the appreciation of Thai Baht resulting in an increase in the foreigners' expenses for traveling to Thailand. However, the number of passengers and international flights continues to increase, it is therefore possible that the impact of the appreciation of Thai Baht may result in more Thai tourists deciding to travel abroad on the basis of lower expenses.

In terms of tourism, the number of tourists increased by 4% compared to the previous year. This is because of the increasing number of tourists from North East and South Asia regions, thanks to fee waiver measure (VISA ON ARRIVAL - VOA) effective from 6 November 2018 to 30 April 2020. The top 5 countries benefited from such measure were China, India, Taiwan, Maldives and Ethiopia.







The positive factors for investment in the previous year showed an increasing trend. According to the World Bank's Ease of Doing Business Score, Thailand, rated with a score of 81.50 points, was ranked 21 among 190 countries worldwide showing an improvement by 6 ranks from 2018. In 2019, 16 investment projects in the aviation industry were approved with the total investment value of 23,808 million baht. Although there was one project less than a year before, the total investment value was 2,521 million baht.

In May, ICAO officials carried out a Full Coordinated Validation Mission in Thailand. The Effective Implementation (EI) score of Thailand increased to 65.83%, which is 60.00% higher than the standard set by ICAO. This indicates that Thailand's civil aviation safety standards are in line with the average standards of other Member States.

In the previous year, the government has carried out the projects supporting the growth of the aviation industry as it is one of the New S-curve industries, such as the projects related to the capacity enhancement of airports in Thailand, National Airspace and Air Navigation Master Plan 2019, projects and measures to promote the of aircraft parts manufacturing and aircraft maintenance industries, etc.

## Forecast of Thailand's air transport trends in 2020

### analysis of the impact of the COVID-19 pandemic



The COVID-19 pandemic has a significant impact on global air transport, including Thailand, where international air travel has started to suffer since late February. In April, a temporary ban on all international flights to Thailand was announced in order to temporarily ban passenger flights from flying to Thai airports. This has resulted in a sharp decline in the number of passengers and international flights. Thai air transport experienced the worst hit of the year in June. The domestic air transport of Thailand has started to suffer since the Emergency Decree on Public Administration in Emergency Situations was issued on 26 March 2020, resulting in the lowest number of passenger and domestic and international flight volumes in April. However, the situation has been resolving after the airlines resumed their flights in May.

Taking into account the impact of COVID-19 pandemic above, CAAT has estimated the number of passengers in two cases, which are the base-case scenario and worst-case scenario. Assuming that the factors determining the seat capacities of airlines, entry restrictions of the country, passenger confidence in the COVID-19 pandemic situation, and the impact of social distancing measure, etc., including forecasts of international agencies such as ICAO, International Air Cargo Association (IATA), and Airports Council International (ACI), the estimates show that, in the base case scenario, the total number of passengers will be 65.59 million, showing a 60.26% decrease compared to the previous year, consisting of 34.64 million international passengers and 30.95 million domestic passengers. And for the worst-case scenario, the total number of passengers will be 53.45 million, showing a 67.62% decrease compared to the previous year, consisting of 27.09 million international passengers and 26.35 million domestic passengers.

## Table of Contents

Executive Summary .....	0
<b>Chapter 1 Growth of Thai aviation industry .....</b>	<b>1</b>
Overview of air transport in Thailand .....	1
Growth of Thai aviation industry.....	4
1. Operators and aircraft in Thailand.....	4
2. Airports offering public services in Thailand .....	8
Market share analysis of Thai airlines' air passenger transport.....	13
1. Market share of Thai airlines on domestic routes .....	13
3. Market share of service on international routes by region.....	20
4. Market share analysis of passenger air transport classified by route .....	26
Related industries .....	30
1. Maintenance, Repair and Overhaul (MRO).....	30
2. Original Equipment Manufacturer (OEM).....	31
3. Flying training school certification and aviation language proficiency testing center (LPC).....	32
4. Aeromedical .....	33
5. Air Navigation Service Providers in Thailand .....	34
6. Personnel licenses .....	35
<b>Chapter 2 Factors Affecting the Growth of Thai Aviation Industry in 2019 .....</b>	<b>36</b>
1. Overview of global air transport in 2019 .....	36
2. Global economic growth .....	39
3. Thai Economic Growth.....	41
3.2 Nominal wages.....	42
3.3 Oil Prices.....	42
3.4 Foreign exchange rates .....	43
4. Growth in number of foreign tourists .....	43
5. Application for investment promotion in aviation industry .....	45



5.1 Ease of doing business score.....	45
5.2 BOI promoted projects .....	45
6. The Civil Aviation Authority of Thailand meet International Standards .....	46
7. Government policies and airport capacity development projects .....	47
7.1 Projects related to capability development of airports in Thailand.....	47
7.2 National Airspace and Air Navigation Master Plan 2019 .....	47
7.3 Projects and measures to promote the manufacturing of aircraft parts and aircraft maintenance .....	48
<b>Chapter 3 Forecasts of Thai air transport trends in 2020 due to the impact of COVID-19 epidemic .....</b>	<b>49</b>
1. Impact on Thailand's air transportation.....	49
2. Forecasts of the impact of COVID-19 epidemic in the international aviation organizations' view	50
3. Estimated number of passengers in 2020 .....	51
Appendix.....	55
Number of scheduled flights for each route and airport in Thailand in 2019.....	56
HHI Index and airlines providing services on each domestic rout .....	78
List of air operator license (AOL) holders .....	83

## Table of Figures

<b>Figure 1</b> Overall number of passengers across the country during 2010–2019 .....	1
<b>Figure 2</b> Overall flight growth during 2010–2019 .....	2
<b>Figure 3</b> Overall air freight volume during 2009 - 2019 .....	3
<b>Figure 4</b> Number of operators granted civil aviation business license.....	4
<b>Figure 5</b> Number of operators granted air operator certificate.....	5
<b>Figure 6</b> Number of aircraft registered with Thai Nationality Mark (HS) .....	6
<b>Figure 7</b> Number and proportion of commercial aircraft registered with Thai Nationality Mark (HS).....	6
<b>Figure 8</b> Number of registered ultralight aircraft (U).....	7
<b>Figure 9</b> Number of applicants for controlling and launching of unmanned aerial vehicle and those who have granted with a certificate of registration for controlling and launching drone in Thailand during 2016 – 2019 .....	7
<b>Figure 10</b> Number of commercial service airports in Thailand and proportion of users classified by airport regulatory agencies .....	8
<b>Figure 11</b> Overview of top 10 busiest airports with highest number of passengers and proportion of services .....	9
<b>Figure 12</b> Top 10 busiest airports with highest number of passengers and flights classified by domestic and international travel.....	10
<b>Figure 13</b> Top 10 countries of destination with highest air freight volume.....	11
<b>Figure 14</b> Top 10 scheduled airlines with highest air freight volume .....	12
<b>Figure 15</b> Proportion of passenger transport services on scheduled domestic routes classified by the type of airline.....	13
<b>Figure 16</b> Comparison of highest and lowest fare per kilometer per seat of full-service and low-cost airlines on highly competitive domestic routes.....	16
<b>Figure 17</b> Comparison of the average highest and lowest fare per kilometer per seat of full-service and low-cost service on highly competitive domestic routes .....	17
<b>Figure 18</b> Growth rate of passengers, seats and average ticket price .....	18
<b>Figure 19</b> Market share of Thai airlines providing passenger transport services on scheduled international routes.....	19
<b>Figure 20</b> Proportion of passenger transport services on scheduled international routes classified by type of airline.....	19
<b>Figure 21</b> International passenger destination share at regional and national level.....	20

<b>Figure 22</b> Proportion of passenger transport services on scheduled international routes classified by nationality of airline (Thai vs. other nationalities).....	20
<b>Figure 23</b> Proportion of passenger transport on scheduled international routes classified by nationality of airline and top 15 airlines with highest proportion of international passenger transport.....	21
<b>Figure 24</b> Market share of passenger transport on scheduled international routes between Thailand and Southeast Asia region .....	22
<b>Figure 25</b> Market share of passenger transport on scheduled international routes between Thailand and Northeast Asia region.....	22
<b>Figure 26</b> Market share of passenger transport on scheduled international routes between Thailand and South Asia region.....	23
<b>Figure 27</b> Market share of passenger transport on scheduled international routes between Thailand and Europe region .....	23
<b>Figure 28</b> Market share of passenger transport on scheduled international routes between Thailand and Middle East region.....	24
<b>Figure 29</b> Market share of passenger transport on scheduled international routes between Thailand and Australia region.....	24
<b>Figure 30</b> Market share of passenger transport on scheduled international routes between Thailand and Africa region .....	25
<b>Figure 31</b> Market share and ranking of airlines providing passenger transport services on scheduled Chinese routes .....	26
<b>Figure 32</b> Market share of passenger transport on Chinese routes classified by nationality of airline and type of service .....	26
<b>Figure 33</b> Market share and ranking of airlines providing passenger transport service on ASEAN routes.....	27
<b>Figure 34</b> Market share of passenger transport on ASEAN routes classified by nationality of airline and type of service .....	27
<b>Figure 35</b> Market share and ranking of airlines providing passenger transport service on scheduled Japanese routes .....	28
<b>Figure 36</b> Market share of passenger transport on scheduled Japanese routes classified by nationality of airline and type of service.....	28
<b>Figure 37</b> Market share and ranking of airlines providing passenger transport service on scheduled Indian routes .....	29
<b>Figure 38</b> Market share of passenger transport on scheduled Indian routes classified by nationality of airline and type of service .....	29



<b>Figure 39</b> Operators in MRO industry certified by the Civil Aviation Authority of Thailand in 2019 .....	30
<b>Figure 40</b> Issuance of personnel license by the Civil Aviation Authority of Thailand .....	35
<b>Figure 41</b> Overview of global air transport in 2019.....	36
<b>Figure 4 2</b> Global revenue passenger kilometers and forecasts of revenue passenger kilometers during 1995-2045 (B.E. 2538-2588).....	38
<b>Figure 43</b> Nominal wages in ASEAN and China. ....	42
<b>Figure 44</b> Overview of aircraft fuel prices during 2018 - 2019.....	42
<b>Figure 45</b> USD exchange rates to Thai Baht during 2018 - 2019.....	43
<b>Figure 46</b> Number of passengers on Thailand-China and Thailand-India flights.....	44
<b>Figure 47</b> Comparison of effective implementation between Thai and global average.....	46
<b>Figure 48</b> Comparison of air transport during January-April between 2019 and 2020 .....	49
<b>Figure 49</b> Forecasts of the impact in the international aviation organizations' view.....	50
<b>Figure 50</b> Estimated international passenger volume of Thailand in 2020. ....	52
<b>Figure 51</b> Estimated domestic passenger volume of Thailand in 2020 .....	53
<b>Figure 52</b> Estimated total passenger volume of Thailand in 2020.....	54

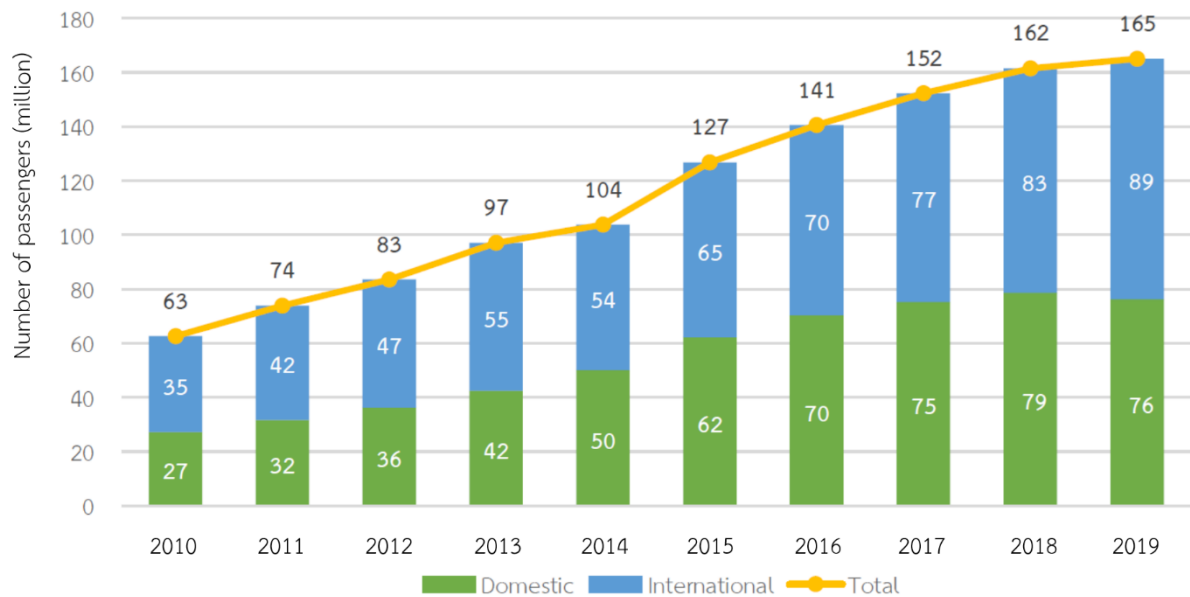
## Table of Tables

<b>Table 1</b> Number of domestic routes based on the competitive nature of the market .....	14
<b>Table 2</b> Operators in the OEM industry that have been licensed under the Factory Act B.E. 2535 (1992) during 1992 – 2019.....	31
<b>Table 3</b> Number of aviation school and and language proficiency testing center certificates.....	32
<b>Table 4</b> Hospitals or infirmaries appointed by the Civil Aviation Authority of Thailand.....	33
<b>Table 5</b> Air navigation service providers in Thailand certified by the Civil Aviation Authority of Thailand..	34
<b>Table 6</b> GDP growth rate during 2018-2019 .....	39
<b>Table 7</b> Thai economic data during 2018-2019.....	41
<b>Table 8</b> Statistics of foreign tourists visiting Thailand during 2018-2019 .....	43
<b>Table 9</b> Statistics of aviation industry projects under the process of approval during 2015 - 2019.....	45
<b>Table 10</b> Major airport development projects .....	47
<b>Table 11</b> Estimated international passenger volume of Thailand in 2020.....	52
<b>Table 12</b> Estimated domestic passenger volume of Thailand in 2020.....	53
<b>Table 13</b> Estimated total passenger volume of Thailand in 2020 .....	54

## Chapter 1 Growth of Thai aviation industry

### Overview of air transport in Thailand

**Figure 1** Overall number of passengers across the country during 2010–2019

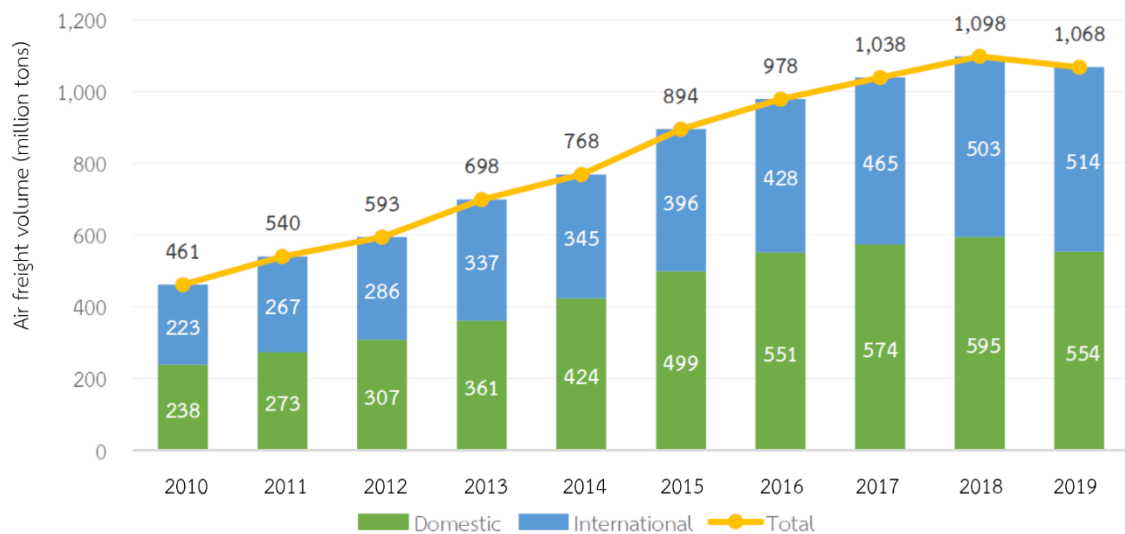


Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited  
Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

According to statistics of overall number of passengers across the country over the past 10 years (2010 - 2019), the number of passengers of Thailand has increased steadily every year since 2010 with the compound annual growth rate (CAGR) of all passengers of 11.38% during 2010-2019, consisting of the compound annual growth rates of international and domestic passengers of 10.77% and 12.13%, respectively. However, the number of passengers since 2016 has grown at a slower rate. Especially in 2019 which had a total of 165 million passengers, consisting of 88.82 million international passengers which increased by 7.16% from 2018, and 76.25 million domestic passengers which decreased by 3.02% from the previous year. This is the first decline in domestic passengers in 10 years. Considering the proportion of domestic and international passengers, it was found that in 2019, the proportions of domestic and international passengers accounted for 46.19% and 53.81%, respectively.



**Figure 2** Overall flight growth during 2010–2019

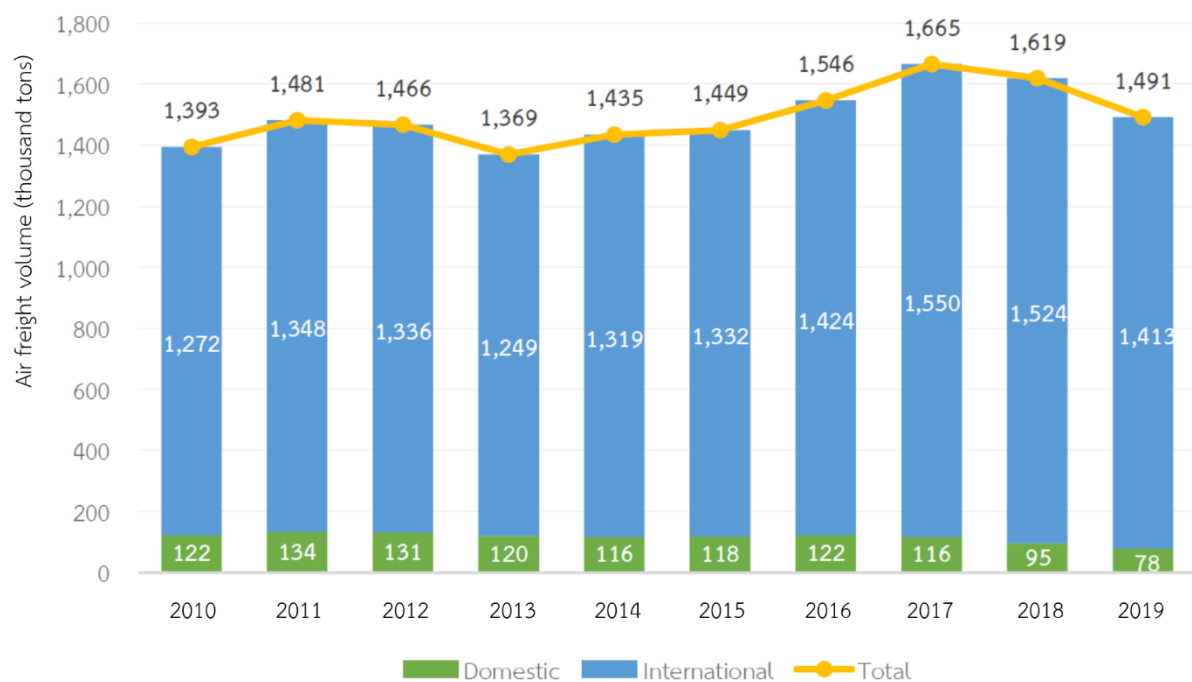


Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited

Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

Figure 2 shows the overall flight growth of Thailand over the past 10 years (2010 - 2019). It can be observed that the compound annual growth rate of flights (CAGR) was 9.83%, consisting of international and domestic flight growth rate of 9.72% and 9.78%, respectively. The increase in flight volumes was in line with the growth in number of passengers. In 2019, the total number of flights was 1.06 million flights which decreased by 2.72% from the previous year due to a domestic flight decline of 553,876 flights, representing 6.89% decrease from the previous year. This was a result of changes in services provided by the low-cost airlines which used more of their aircraft used on domestic routes to serve on the international routes, resulting in an increase in international flights to 513,952 flights or increased by 2.18% from the previous year.

**Figure 3** Overall air freight volume during 2009 - 2019



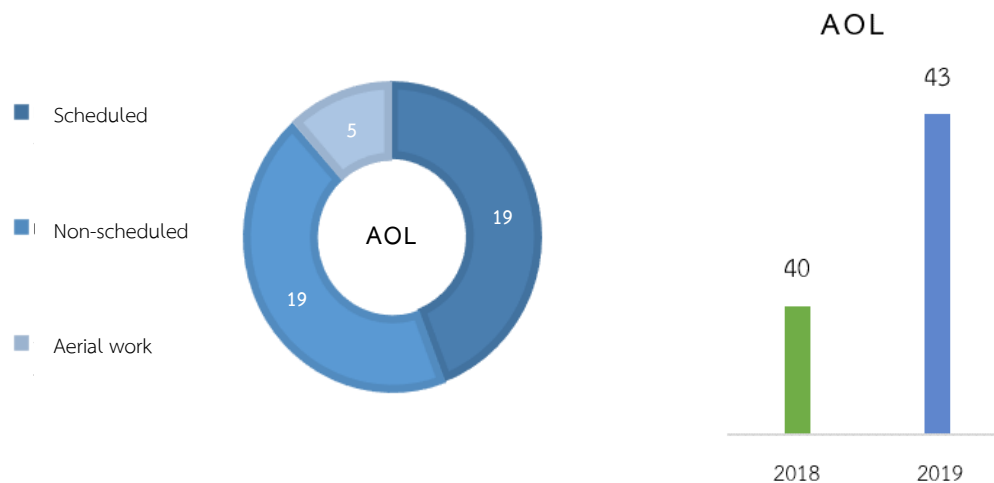
Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited  
 Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

Figure 3 shows the overall air freight volume of Thailand over the past 10 years (2010 – 2019). It can be observed that the growth of air freight volume of Thailand showed a steady downward trend with the compound annual growth rate of air freight volume (CAGR) of 0.76%, most of which were international air freight at Suvarnabhumi Airport. In 2019, the international air freight volume was 1.41 million tons which decreased by 7.30% from the previous year. Similarly, the domestic air freight volume decreased to only 77,828 tons which decreased by 17.97% from the previous year. This decrease in domestic air freight volume was in line with the decrease in domestic flight volume. In addition, the world economy and appreciation of Thai Baht also had direct impact on international air freight volume, resulting in significant decrease in overall air freight volume in 2019.

## Growth of Thai aviation industry

### 1. Operators and aircraft in Thailand

**Figure 4** Number of operators granted with civil aviation business license



Source: Economic Supervision Department, The Civil Aviation Authority of Thailand, information as of 31 December 2019.

In 2019, there was a total of 43 air operator license (AOL) holders, consisting of 19 scheduled air operators<sup>1</sup>, 19 non-scheduled air operators<sup>2</sup> and 5 aerial work operators<sup>3</sup>. There were more 5 new operators compared to the previous year as follows:

- (1) 2 scheduled commercial air transport operators
  - Jet Asia Airways Company Limited
  - Thai Express Air Company Limited
- (2) 1 non-scheduled commercial air transport operator
  - Thai Summer Airways Company Limited
- (3) 2 aerial work operators
  - AG Global Company Limited
  - Avanti Air Charter Company Limited

There were 2 operators whose licenses had expired and had stopped their services compared to the previous year.

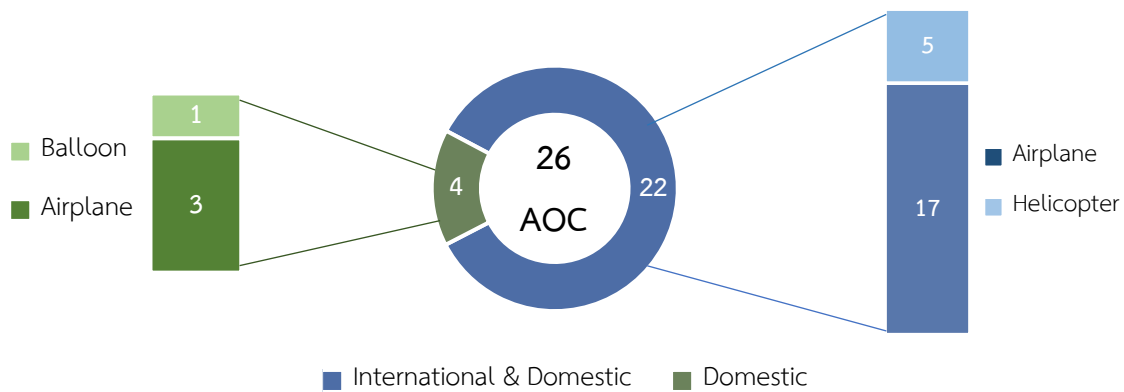
<sup>1</sup> "Scheduled commercial air transport" refers to commercial air transport offered to the general public on fixed, scheduled, or regularly scheduled flights that became recognizable remembered.

<sup>2</sup> "Non-scheduled commercial air transport" refers to commercial air transport that is not the scheduled air transport.

<sup>3</sup> "Aerial work" refers to the operation of an aircraft for a particular service, such as agriculture, construction, photography, survey, observation, patrol, flight inspection, aerial advertising or towing a glider or hauling a billboard for commercial rewards.



**Figure 5** Number of operators granted with air operator certificate

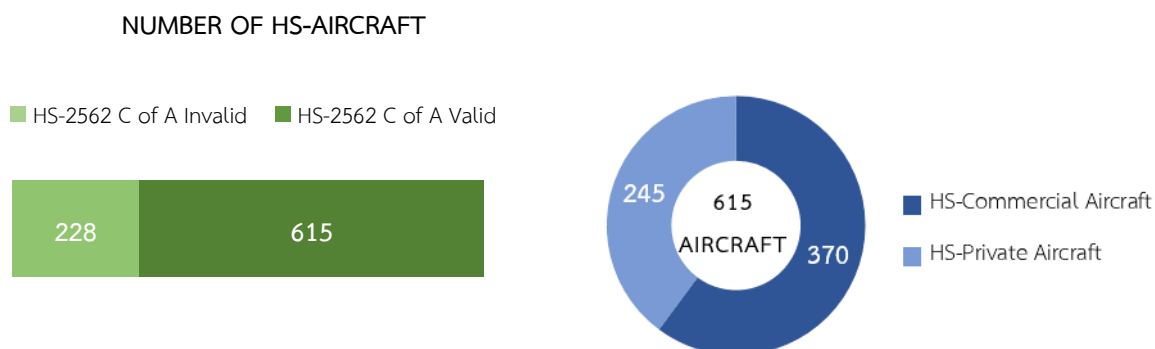


Source: Flight Operation Standards Department, The Civil Aviation Authority of Thailand, information as of 31 December 2019.

Considering only commercial air transport operators in Thailand<sup>4</sup>, it was found that there was a total of 26 operators who have received an air operator certificate (AOC). Of these, there were 22 operators serving on the international and domestic routes, consisting of 17 fixed-wing operators and 5 helicopter operators. There were also 4 operators serving on only the domestic routes, consisting of 3 fixed-wing operators and 1 balloon operator.

<sup>4</sup> “Commercial air transport” refers means the operation of aircraft in connection with the transportation of passenger, goods or postage for commercial rewards.

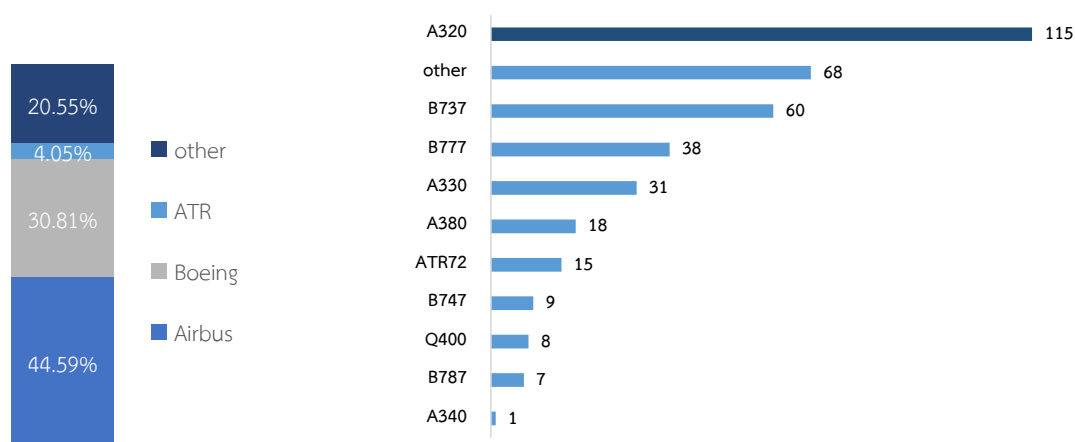
**Figure 6** Number of aircraft registered with Thai Nationality Mark (HS)



Source: Airworthiness and Aircraft Engineering Department, The Civil Aviation Authority of Thailand, information as of 31 December 2019

A total of 843 aircraft are registered with the HS Thai nationality mark in 2020, in which 615 aircraft were airworthiness certified, accounting for 75.97% of all registered aircraft. Of these, 370 are commercial aircraft, accounting for 60.16% of all airworthiness certified aircraft. Commercial aircraft can be categorized into 305 scheduled passenger and cargo aircraft, 56 non-scheduled passenger and cargo aircraft, and the remaining 9 aircraft are for other commercial purposes.

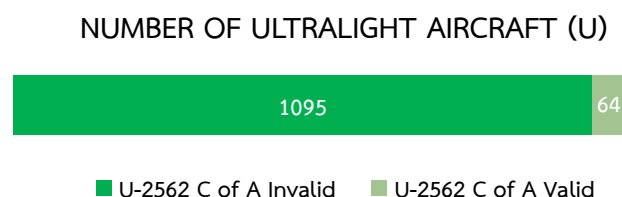
**Figure 7** Number and proportion of commercial aircraft registered with Thai Nationality Mark (HS)



Source: Airworthiness and Aircraft Engineering Department, The Civil Aviation Authority of Thailand, information as of 31 December 2019

75.41% of commercial aircraft registered and certified for airworthiness in Thailand are manufactured by Airbus Company Limited and Boeing Company Limited, in which 165 aircraft are manufactured by Airbus Company Limited, accounting for 44.59% of all aircraft in Thailand. There are 115 aircraft of A320 model, the most popular aircraft model commonly used by the low-cost airlines and some full-service airlines such as Thai AirAsia, Bangkok Airways and Thai Smile Airways, etc. In addition, there are 114 aircraft manufactured by Boeing Company Limited, accounting for 30.81% of all aircraft in Thailand. Of these, 60 of them are of B737 model, the popular aircraft model commonly used by the low-cost airlines such as Thai Lion Air and Nok Air.

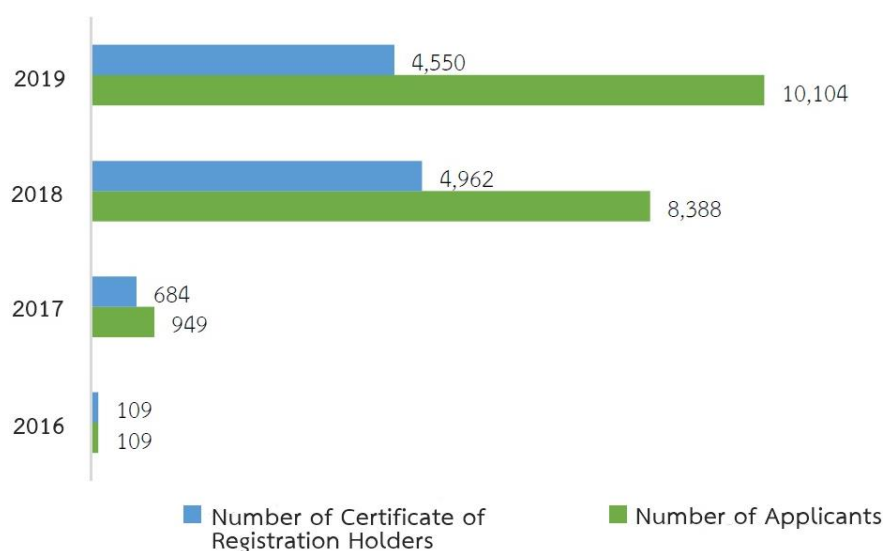
**Figure 8** Number of registered ultralight aircraft (U)



Source: Airworthiness and Aircraft Engineering Department, The Civil Aviation Authority of Thailand, information as of 31 December 2019

A total of 1,159 ultralight aircraft<sup>5</sup> are registered with CAAT. Of these, 64 are airworthiness certified aircraft.

**Figure 9** Number of applicants for controlling and launching of unmanned aerial vehicle and holders of certificate of registration for controlling and launching drone in Thailand during 2016 – 2019



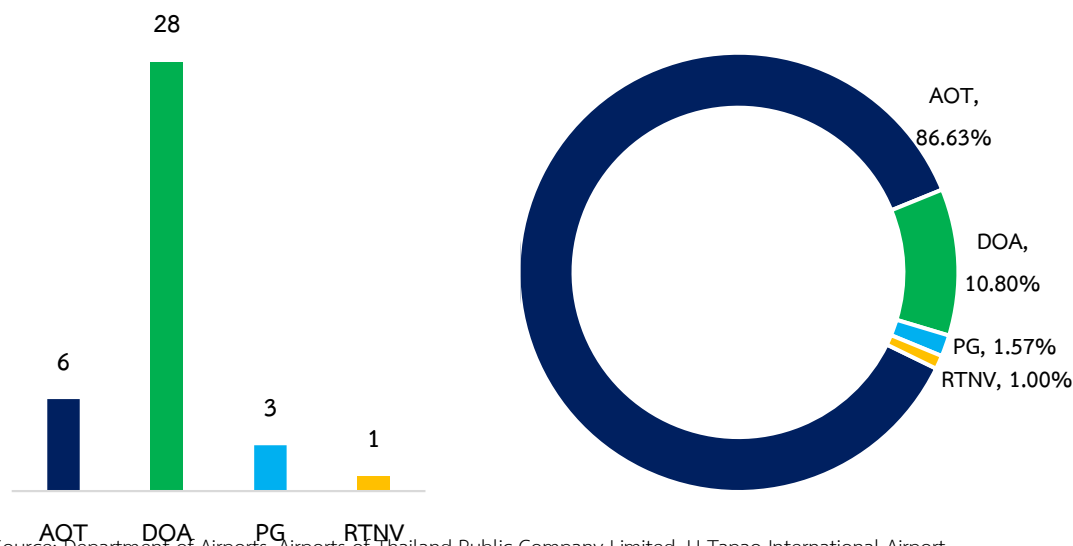
Source: Civil Aviation Regulatory Department, The Civil Aviation Authority of Thailand, information as of 31 December 2019

In 2019, there were 10,104 people who applied for registration as the commander or launcher of unmanned aerial vehicle which increased by 20.46% compared to 2018, and the number of people who granted with the certificate of registration in 2019 were 4,550, similar to that in the year 2018. According to the statistics, the demand for unmanned aerial vehicles in Thailand still has a growing trend in every year, but those who wish to apply for registration still lack understanding of preparation of documents and evidences. Therefore, many applications were rejected by the registration system, resulting in a 8.30% decrease in the number of certificate of registration holders in 2019.

<sup>5</sup> “Ultralight aircraft” refers to an aircraft that is heavier than air, in which its lift force is mainly due to air dynamics. The maximum takeoff weight as specified in the aviation manual does not exceed 500 kilograms.

## 2. Airports offering public services in Thailand

**Figure 10** Number of commercial service airports in Thailand and proportion of users classified by airport regulatory agencies



Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited

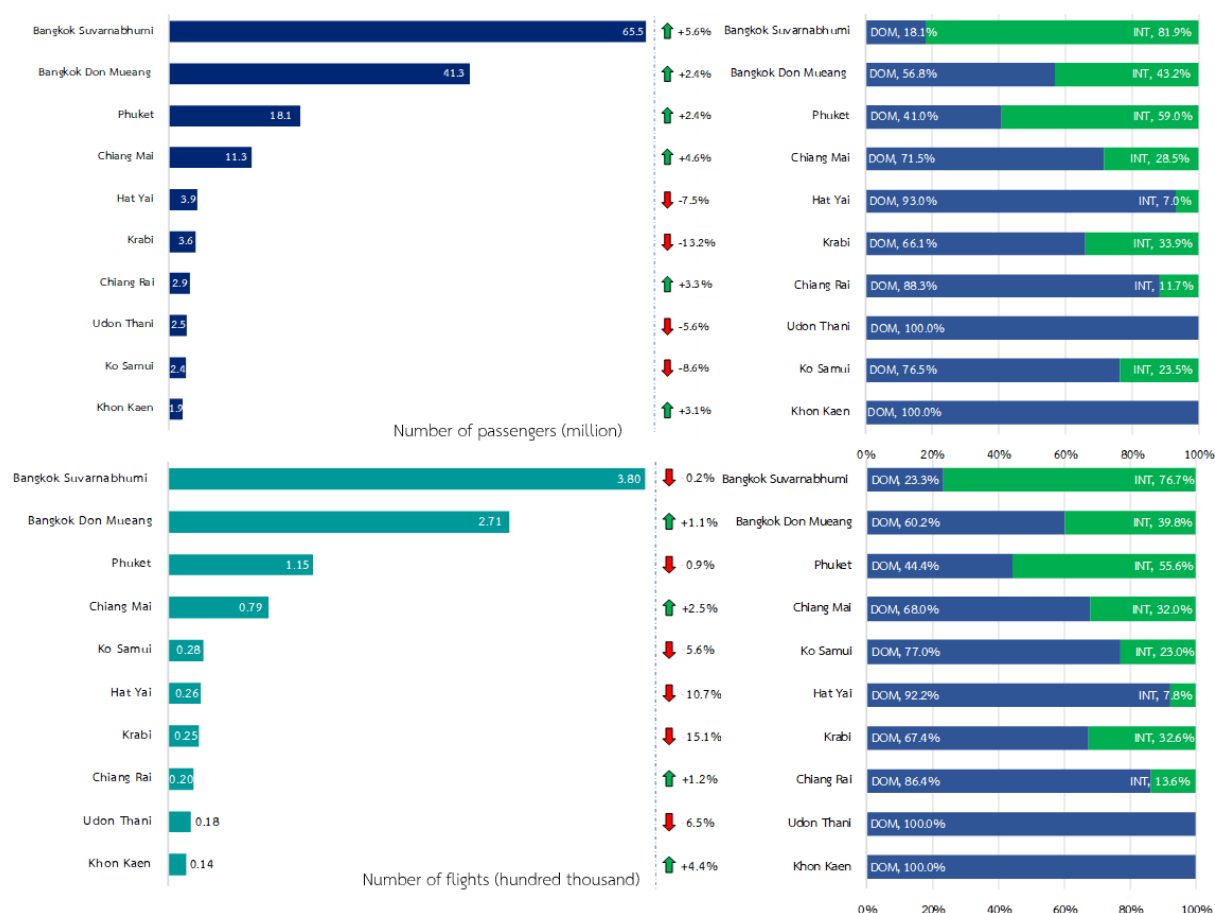
Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

Thailand has a total of 38 airports providing public services, but only 33 airports offering commercial flights. These airports are under the responsibility of

- Department of Airports	28	airports
- Airports of Thailand Public Company Limited	6	airports
- Bangkok Airways Public Company Limited	3	airports
- Royal Thai Navy	1	airport

For the number of passengers classified by airport, the airports under the responsibility of Airports of Thailand Public Company Limited showed the highest proportion of passengers of 86.63% of the total number of passengers, followed by the airports under the responsibility of the Department of Airports with the proportion of 10.80% of the total number of passengers, while the number of passengers of the airports under the responsibility of Bangkok Airways Public Company Limited and Royal Thai Navy was 1.57% and 1% of the total number of passengers, respectively.

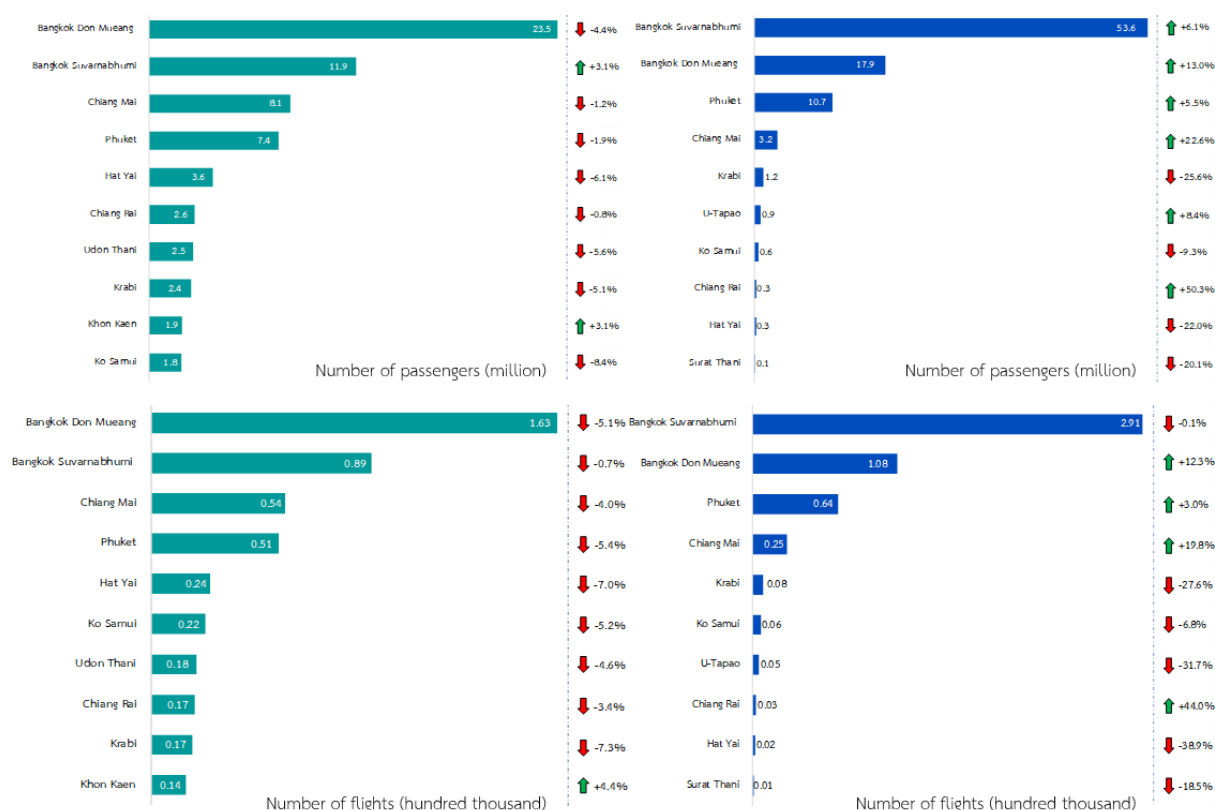
**Figure 11** Overview of top 10 busiest airports with highest number of passengers and proportion of services



Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited  
 Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

Considering the top the 10 busiest airports with highest number of passengers and flights in 2019, Suvarnabhumi Airport showed the highest total number of passengers of 65.5 million passengers with a growth rate of 5.57% from the previous year and also showed the highest total number of flights of 379,111 flights which decreased by 0.20% from the previous year. This followed by Don Mueang Airport and Phuket Airport, respectively. According to the statistics, Hat Yai Airport, Krabi Airport, Udon Thani Airport, and Samui Airport showed the decrease in the number of passengers and flights for international flights, while Chiang Mai Airport, Chiang Rai Airport and Khon Kaen Airport showed the increase in the number of passengers and flights due to more interregional flights offered by the airlines.

**Figure 12** Top 10 busiest airports with highest number of passengers and flights classified by domestic and international travel



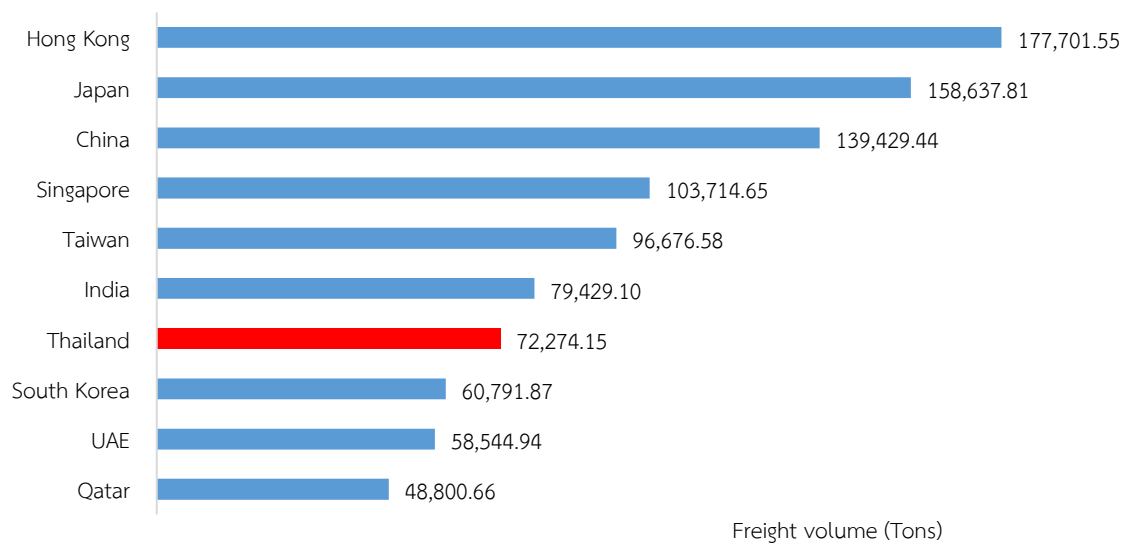
Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited  
 Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

According to the top 10 busiest airports with highest number of passengers and flights classified by domestic and international travel, in 2019, Don Mueang Airport showed the highest number of domestic passengers of 23.5 million passengers with a decrease in growth rate of 4.39% from the previous year and also showed the highest number of domestic flights of 163,365 flights which decreased by 5.11% from the previous year. The decrease in the number of domestic passengers and flights can be attributed to an increase in the number of aircrafts serving on the international routes provided by low-cost airlines. This can be observed from the number of international passengers and flights at Don Mueang Airport which increased by 13% and 12.34% respectively.

Considering the growth rate of the number of passengers and flights in the previous year, it was found that Khon Kaen Airport and Suvarnabhumi Airport showed the highest growth rate of the number of domestic passengers. For the number of domestic flights, Khon Kaen Airport, however, showed the highest growth rate due to more interregional flights offered by the airlines. For international routes, Mae Fah Luang Chiang Rai International Airport showed the highest growth rate in terms of both number of passengers and flights which increased by 50.3% and 44%, respectively. This is because Thai AirAsia has used Mae Fah Luang Chiang Rai International Airport as its additional flight base along with the expansion of routes to China and Hong Kong by Thai and foreign airlines.



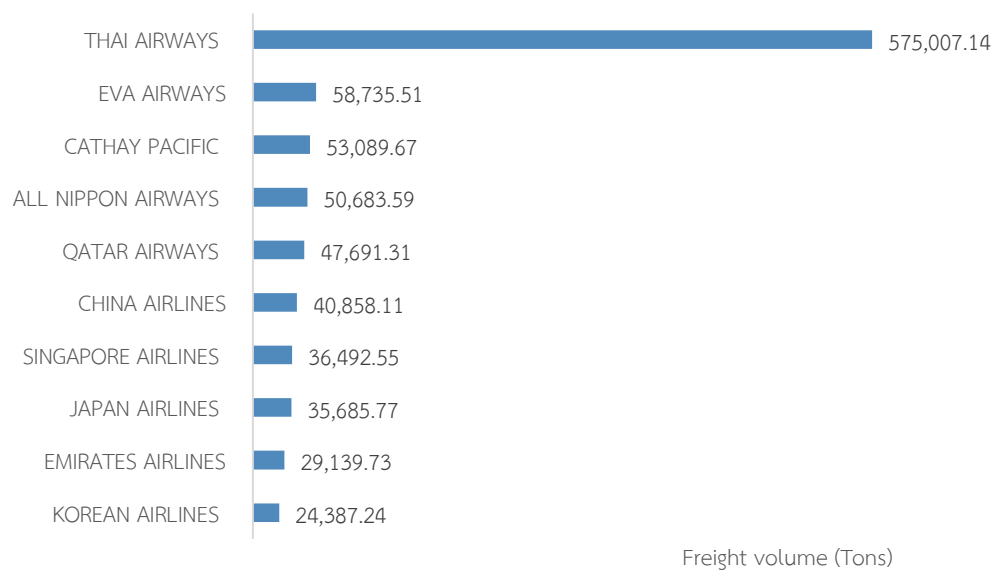
**Figure 13** Top 10 countries of destination with highest air freight volume



Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited  
Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

The freight volumes of top 10 countries of destination with highest freight volume for scheduled flights from Thailand, accounting for 67.43% of the total freight volume. Hong Kong was the country of destination with highest freight volume of 177,701.55 tons, accounting for 12.03% of total freight volume, followed by Japan with the freight volume of 158,637.81 tons, accounting for 10.74%. The third rank was the air freight volume between Thailand and China of 139,429.44 tons, accounting for 9.44%. The domestic air freight volume was ranked 7<sup>th</sup> with the air freight volume of 72,274.15 tons, accounting for 4.89% of the total air freight volume of Thailand.

**Figure 14** Top 10 scheduled airlines with highest air freight volume



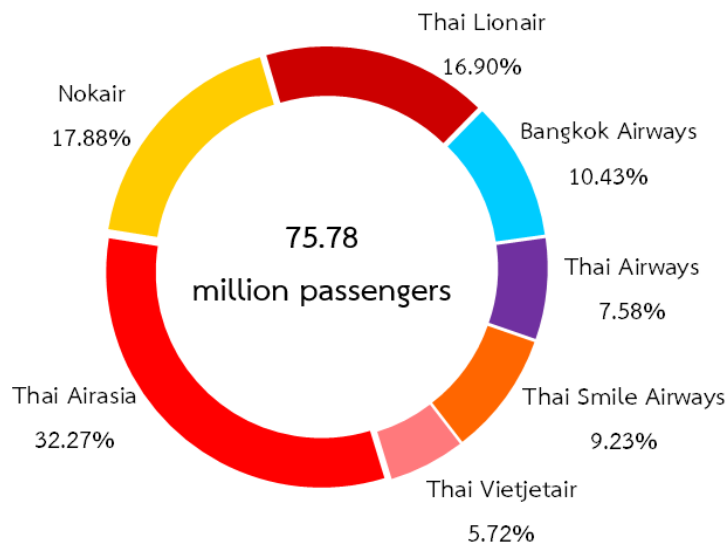
Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited  
Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

According to the top 10 scheduled flights with highest air freight volume, 64.43% of the total air freight volume were carried by the airlines offering passenger and cargo transport services, indicating that most of Thai air freight were carried along with passenger flights. When considering each airline, Thai Airways showed the highest air freight volume of 575,007.14 tons, accounting for 38.92% of the total air freight volume. It was clearly higher than the second highest air freight volume which was carried by EVA Air with the air freight volume of 58,735.51 tons, accounting for 3.98% and Cathay Pacific with the air freight volume of 53,089.67 tons, accounting for 3.59% of the total air freight volume.

## Market share analysis of Thai airlines' air passenger transport

### 1. Market share of Thai airlines on domestic routes

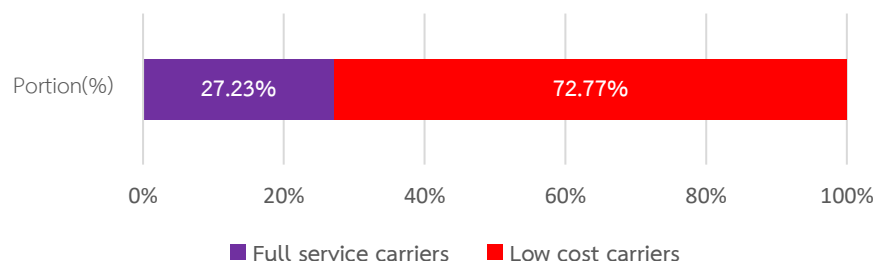
**Figure 15** Market share of Thai airlines offering passenger transport services on scheduled domestic routes



In 2019, Thai airline which showed the highest number of passengers on scheduled domestic routes was Thai AirAsia with number of passengers on scheduled domestic routes of 24.45 million passengers, accounting for 32.27%, followed by Nok Air (13.55 million passengers, accounting for 17.88%) and Thai Lion Air (12.81 million passengers, accounting for 16.90%). Thai Vietjet Air showed the lowest number of passengers of 4.33 million passengers, accounting for 5.72% of the total number of domestic passengers.

Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited  
Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

**Figure 15** Proportion of passenger transport services on scheduled domestic routes classified by the type of airline



Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited  
Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

The passenger transport services of low-cost airlines accounted for 72.77% of the number of passengers on domestic routes, while full-service airlines accounted for only 27.3%, which was three times less than the low-cost airlines' share. This proportion of service reflects the preference of domestic passengers who choose airlines based on fare.

## 1.1 Competition on domestic routes

In this section, the Aviation Economics Division has analyzed the level of competition in the domestic airline market by routes using the market concentration indicator (Herfindahl-Hirschman index: HHI) calculated from the number of passengers of each airline on that route. The criteria for determining the HHI index<sup>6</sup> and the results are as follows:

**Table 1** Number of domestic routes based on the competitive nature of the market.

Competitive Nature	HHI	Number of routes
Highly competitive market	<0.01	0
Moderately competitive market	0.01-0.18	2
Potential monopolistic market with high market share of carriers	0.18-<1.0	25
Single-carrier market	1.0	29
<b>Total</b>		<b>56</b>

Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited  
Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

In 2019, Thailand had a total of 56 scheduled domestic direct flights. The calculation of HHI index and airlines serving on each domestic route are as shown in the Appendix which can be classified according to the competitive nature of the market using HHI index as follows:

1. Highly competitive market: There are no highly competitive routes in Thailand.
2. Moderately competitive market: There are 2 moderately competitive markets in Thailand which are Bangkok – Chiang Mai and Bangkok – Phuket as Chiang Mai and Phuket is the major city of the Northern and Southern Thailand, respectively. This results in high demand for travel of both tourists and businessmen. As a result, the airlines have increased their capacity and frequency of such routes to meet the demand for travel.
3. Potential monopolistic market with high market share of carriers: There are 25 routes which are considered potentially monopoly market with high market share of carriers such as Bangkok – Krabi, Bangkok – Udon Thani and Bangkok -Chiang Rai, etc. These routes are on the major (with 1 million or more users per year) and minor routes (with more than 100,000 users, but less than 1 million users per year)<sup>7</sup> which are limited by the flight capacity of Thai's airports, especially the major airports. As a result, the airlines cannot increase their frequency and capacity on such routes. This is because airlines often apply the allocated time to routes with higher travel demand.

<sup>6</sup> Fiscal Policy Office, Ministry of Finance

<sup>7</sup> Notification of CAAT on the Criteria for Allocating Routes to Licensees for Air Operation Business B.E. 2560 (2017)

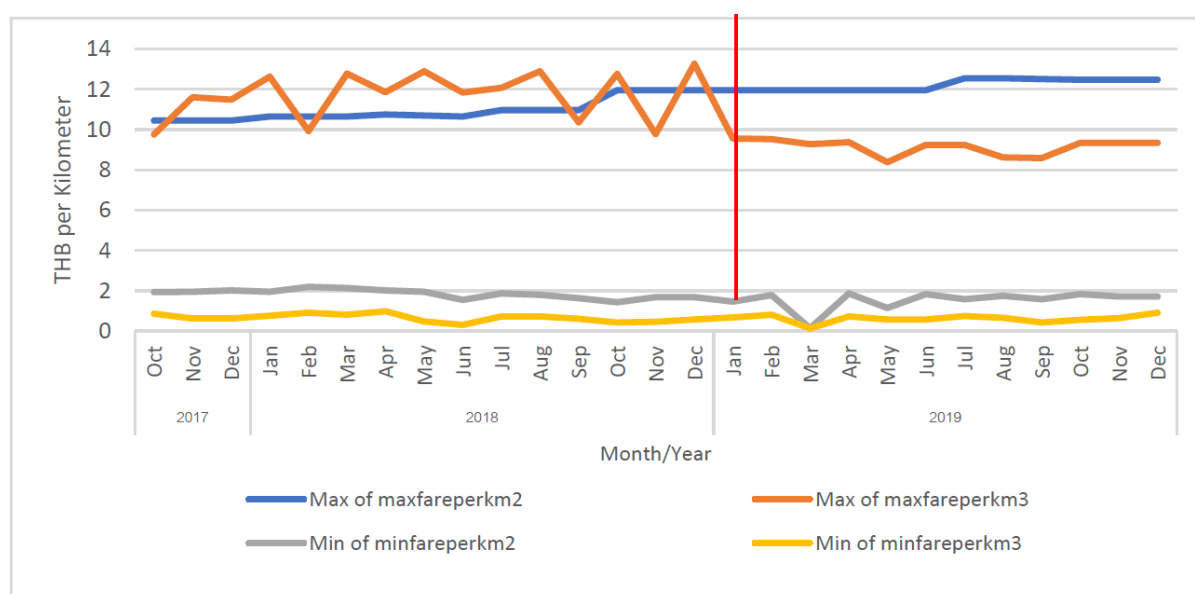
4. Single-carrier market: There are 29 routes with single carrier such as Bangkok – Mae Sot, Bangkok – Phrae and Bangkok – Samui, etc. This monopoly is caused by the fact that they are sub-routes (with less than 100,000 passengers per year and limited to no more than 3 airlines on these routes). Airlines are required to operate in accordance with the Notification of the Civil Aviation Authority of Thailand on the Criteria for Allocating Routes to Licensees for Air Operation Business B.E. 2560 (2017) stipulating that the airlines requesting the allocation of domestic routes on the major and minor routes must also fly on the sub-routes. This makes an airline choose a new route that has not yet been served by any airline to avoid competition in that route, or the routes with restrictions on operations such as routes to and from Ko Samui. This is due to the limitation of the runway of Samui Airport, thus limiting the size of aircraft to take off and land on such runway. The largest aircraft that can land on Samui Airport at present is Airbus A319. However, this type of aircraft has not been popular. Only Bangkok Airways has been used this aircraft model in its fleet. Thus, at present, there is only one airline can fly on this route despite the huge travel demand.

## 1.2 Fares on Domestic Routes in 2019

The price competition of the airline industry in 2019 on domestic routes was likely to be more intense, partially due to the introduction of new regulations for fares on domestic routes.<sup>8</sup> The highly competitive routes have the fare ceilings according to service type. The fare ceiling for the full service was set at 13 Baht per kilometer per seat<sup>9</sup>, while the fare ceiling for the low-cost service was set at 9.40 Baht per kilometer per seat. As a result, the airlines had to adjust their pricing strategies for these routes.

According to the data, at the end of 2019, there were 62 one-way routes on highly competitive routes with different fare ceilings according to service type. Of these, 50 were routes flying to/from Don Mueang Airport, which were operated by 3 airlines. All of which were low-cost service. In addition, there were routes flying to/from Suvarnabhumi Airport which were operated by 4 airlines consisting 3 airlines providing full service and 1 airline providing low-cost service. The analysis of price competition for highly competitive routes was primarily conducted using fare per kilometer per seat, which allowed overall fare comparison without being affected by the difference of distance.

**Figure 16** Comparison of highest and lowest fare per kilometer per seat of full-service and low-cost airlines on highly competitive domestic routes



Source: Tariff Division, Economic Regulatory Department, Civil Aviation Authority of Thailand

<sup>8</sup> Notification of the Civil Aviation Board on Rules and Procedures for Calculation of Fares and Freight for Transport Aircraft on Domestic Routes B.E. 2561 (2018) stipulating the fare ceilings according to service type such as the routes with the distance of over 300 kilometres and fly in/out with transit at Bangkok Airport or link to other provinces in the same region.

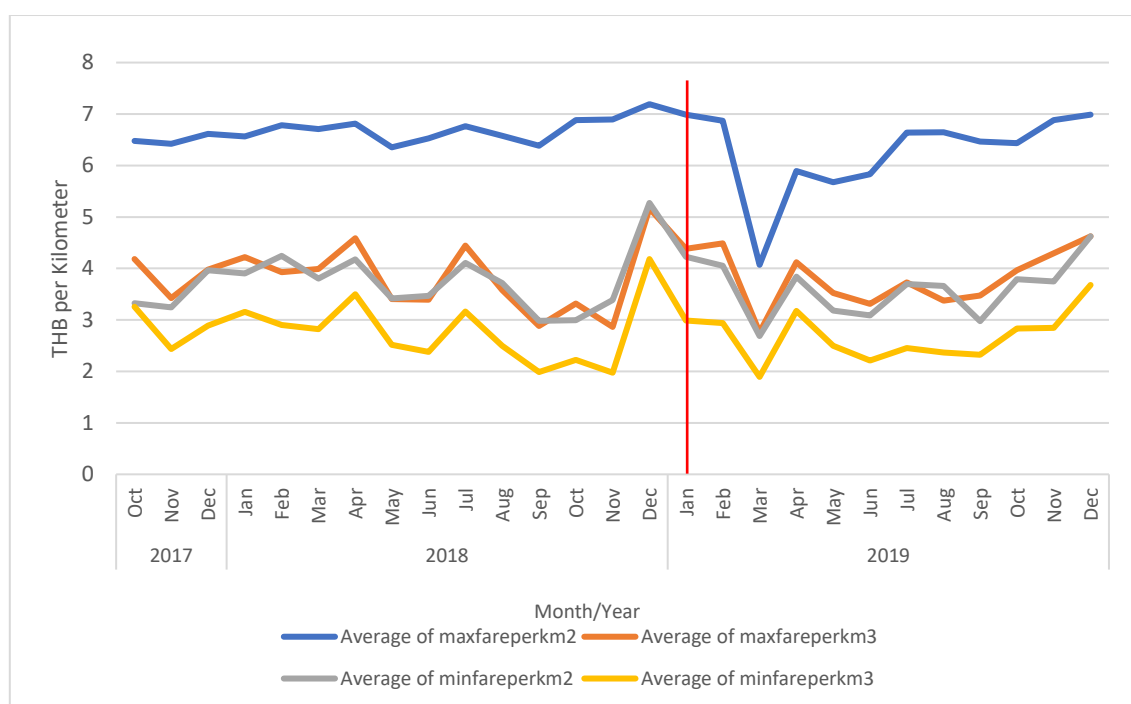
<sup>9</sup> The full-service airlines on any route are required to provide a minimum of 3 standard services with no additional charge: 20 kg checked baggage allowance, food and beverages suitable for the flight duration and seat selection, in which the airline shall charge a fare not exceeding 13 Baht per kilometer. If the airline cannot provide the minimum standard services in any route, such airline shall charge a fare not exceeding 9.40 baht per kilometer.



According to data on the fares on domestic routes since 2018, the fares on highly competitive routes that have been in service until 2019<sup>10</sup> have decreased from 2018. Considering the maximum fare per kilometer, comparing the full service and the low-cost service as shown in Figure 15, it can be seen that the maximum fare per kilometer of the low-cost service in January 2019 has been significantly decreased compared to December 2018. On the other hand, the maximum fare per kilometer of the full service tended to increase since June 2019 compared to 2018 as a result of the introduction of the new rules of fare ceilings according to service type. The lowest fares per kilometer of full-service and low-cost services were not much different, reflecting the price competition between the airlines of both service types.

Considering the averages of the maximum fares per kilometer and the lowest fares per kilometer, comparing between the full service and the low-cost service as shown in Figure 16, it can be seen that the average maximum fares per kilometer of the full service were more volatile than the average maximum fares per kilometer of the low-cost service. The average maximum fare per kilometer since January 2019 has decreased from 2018, after the new rules was introduced. Thus, in 2019, the average fare on highly competitive domestic routes tended to decrease compared to 2018.

**Figure 17** Comparison of the average highest and lowest fare per kilometer per seat of full-service and low-cost service on highly competitive domestic routes

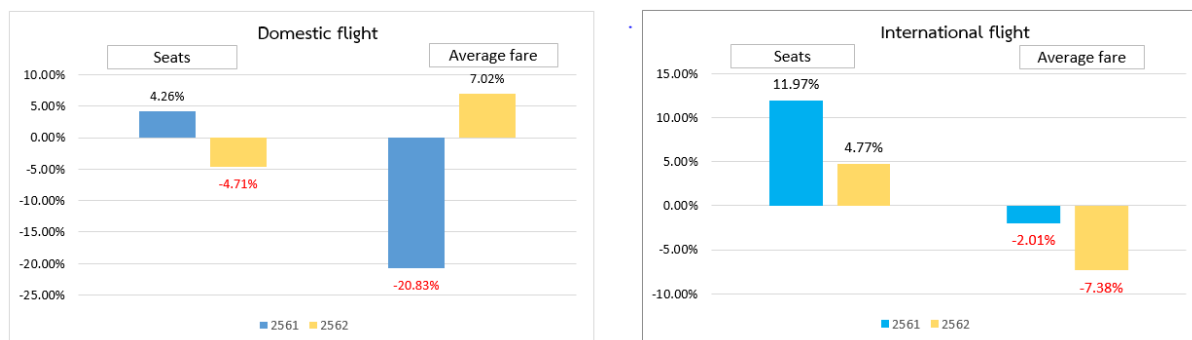


Source: Tariff Division, Economic Regulatory Department, Civil Aviation Authority of Thailand

<sup>10</sup> In 2019, there were 62 one-way routes on highly competitive routes

### 1.3 Adaptation of Low-Cost Airlines in Thailand

**Figure 18** Growth rate of passengers, seats and average fare



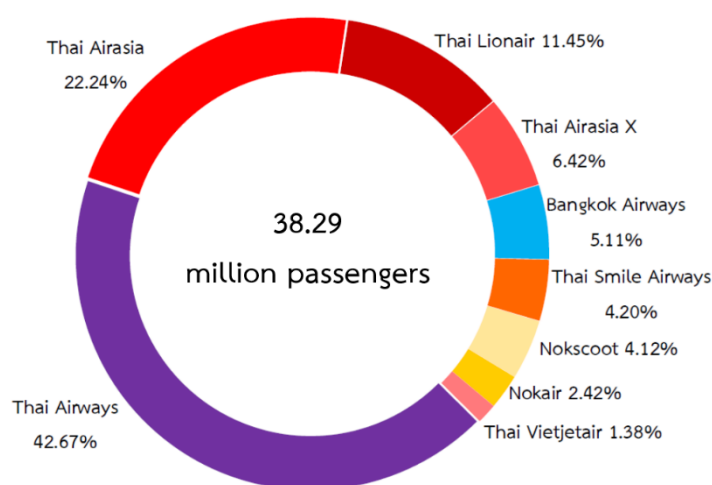
Source: OAG Data Analysis System

Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

As the number of passengers and domestic flights in 2019 significantly decreased compared to 2018, the Aviation Economics Division has therefore studied the relationship between seat capacity offered by airlines and the average fare. It was found that in the past there was price competition on the domestic routes. It can be seen that in 2018, the seat capacity increased by 4.26%, resulting in 20.83% decrease in the average fare of domestic flights. On the other hand, the seat capacity for international flights increased by 11.97%, but the average fare of international flights only decreased by 2.01%. This situation affected the airline's service behavior in 2019, in which the airlines have reduced the number of seats on domestic routes by 4.71% compared to the previous year in order to increase the number of seats on the international routes. This resulted in 7.02% increase in average fare of domestic flights and 7.38 % decrease in average fare of international flights compared to the previous year, which was in accordance with market mechanism.

## 2. Market share of Thai airlines on domestic routes

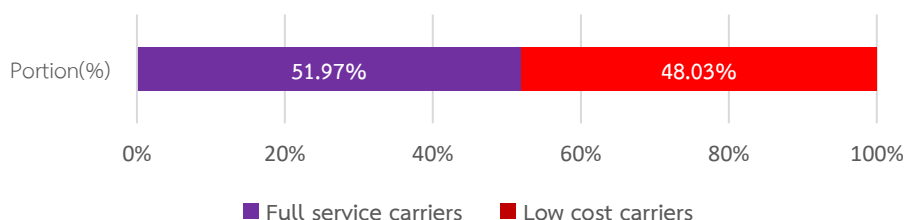
**Figure 19** Market share of Thai airlines providing passenger transport services on scheduled international routes



Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited  
Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

In 2019, Thai airline which showed the highest number of passengers on scheduled international routes was Thai AirAsia with the number of passengers on scheduled domestic routes of 16.34 million passengers accounting for 42.67%, followed by Thai AirAsia (8.52 million passengers, accounting for 22.24%) and Thai Lion Air (4.38 million passengers, accounting for 11.45%). Thai Vietjet Air showed the lowest number of passengers of 528,052 people, accounting for 1.38% of the total number of international passengers.

**Figure 20** Proportion of passenger transport services on scheduled international routes classified by type of airline

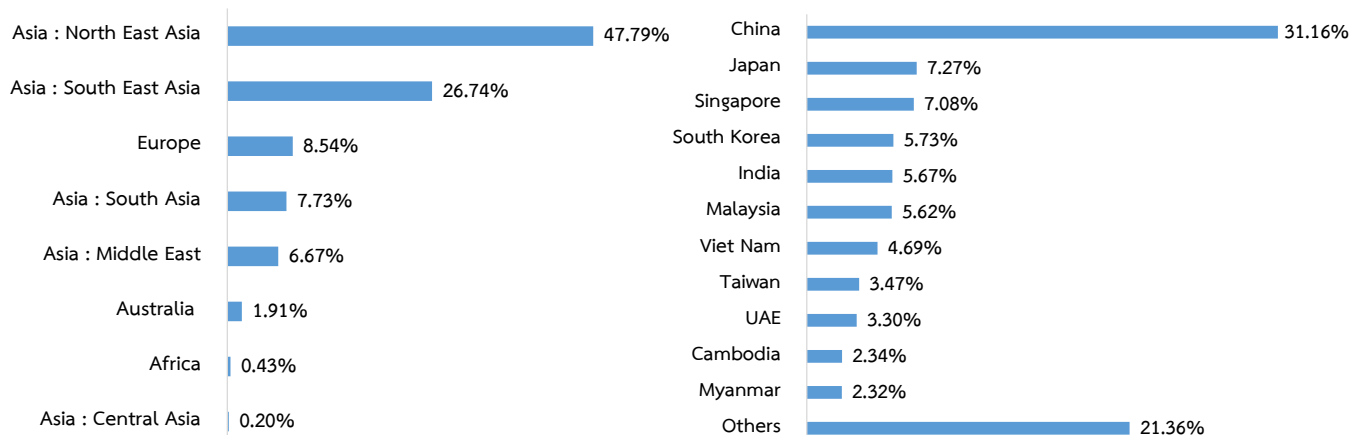


Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited  
Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

The proportion of passenger transport services of full-service airlines was 51.97% of the total number of international passengers which was higher compared to that of low-cost airlines (48.03%). This reflects that passengers preferred full-service airlines on international routes due to the greater convenience of travel such as seat width and food and beverage service during the flight, etc. However, the proportions of two carrier types were similar, because on international routes with less flight time or as regional routes, the service would be chosen mainly based on fare.

### 3. Market share of service on international routes by region

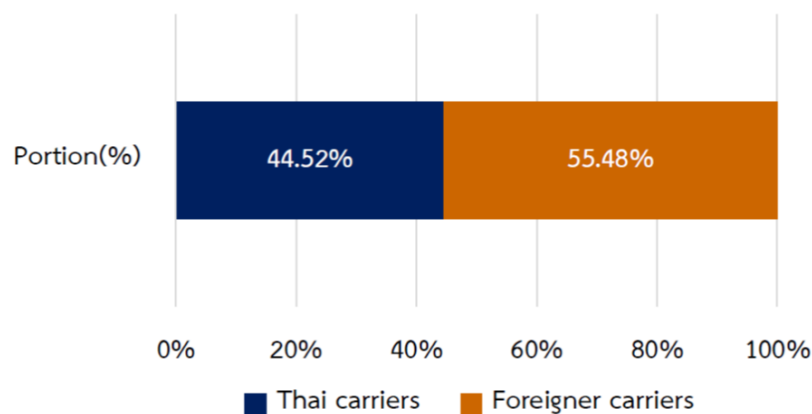
**Figure 21** Market share of service on international routes classified by region



Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited  
Analyzed by Aviation Economics Division, the Civil Aviation Authority of Thailand

Passenger transport on routes between Thailand and Northeast Asia region showed the highest market share of 47.79%, followed by routes between Thailand and Southeast Asia and Europe regions which showed the market share of 26.74% and 8.54%, respectively. Considering routes of each country, it was found that China, Japan and Singapore were the top 3 destinations.

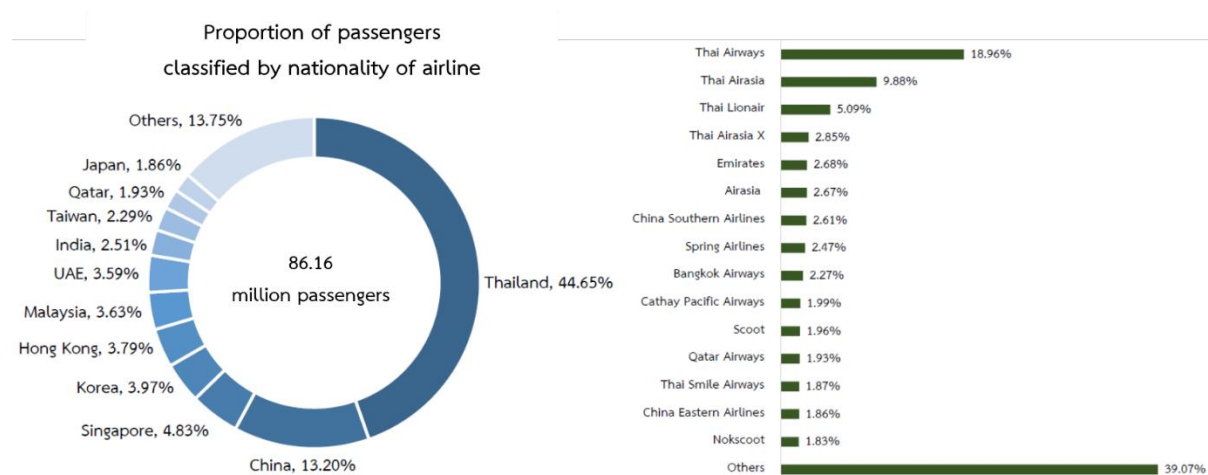
**Figure 22** Proportion of passenger transport services on scheduled international routes classified by nationality of airline (Thai vs. Non-Thai)



Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited  
Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

Passenger transport service on international scheduled routes provided by Thai and non-Thai airlines was accounting for 44.52% and 55.48% of total international passengers, respectively.

**Figure 23** Proportion of passenger transportation on international scheduled routes classified by nationality of airline and top 15 airlines with highest proportion of international passenger transportation



Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited  
Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

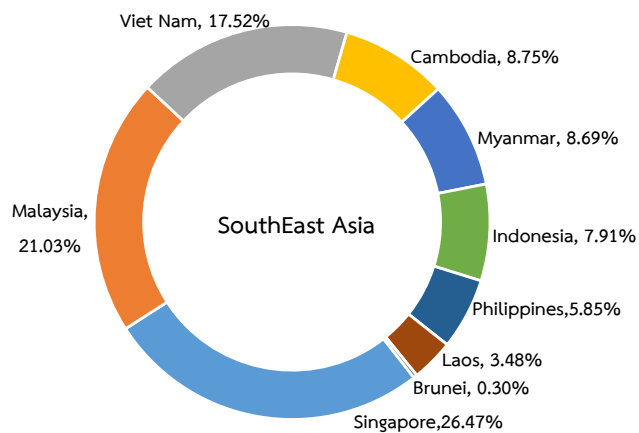
In overall, Thai airlines showed the highest passenger proportion of 44.65%, followed by Chinese and Singaporean airlines with the passenger proportion of 13.20% and 4.83%, respectively.

Thai Airways, Thai AirAsia and Thai Lion Air were the top 3 airlines providing passenger transport service on scheduled international routes with the passenger proportion of 18.96%, 9.88% and 5.09%, respectively. The total international passenger proportion of the top 15 airlines was accounting for 60.93% of total passenger transportation on scheduled international routes.

Chinese airlines had the 2<sup>nd</sup> largest number of direct flights to Thailand which was in line with the highest number of Chinese tourists visiting Thailand. The Middle East airlines which use their own country as a hub for regional connectivity, especially for the routes between Europe and Thailand, resulting in high number of international passengers for these airlines. In addition, these airlines also exercise their Fifth Freedom, of the Air in the transportation of passengers and cargo from Thailand as a partner to the third country such as Emirates Airline flying between Bangkok and Hong Kong, etc.

### 3.1 Market share of international routes between Thailand and Southeast Asia region

**Figure 24** Market share of passenger transport on scheduled international routes between Thailand and Southeast Asia region

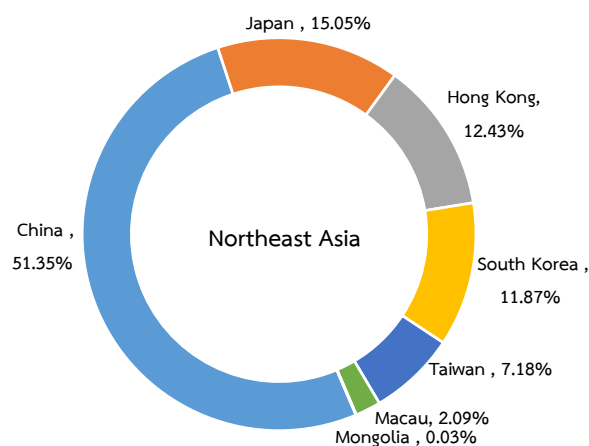


Singapore showed the highest passenger transport proportion on scheduled international routes between Thailand and Southeast Asia region of 26.47%, followed by Malaysia and Vietnam with the passenger transport proportion of 21.03% and 17.52%, respectively.

Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited  
Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

### 3.2 Market share of scheduled international routes between Thailand and Northeast Asia region

**Figure 25** Market share of passenger transport on scheduled international routes between Thailand and Northeast Asia region



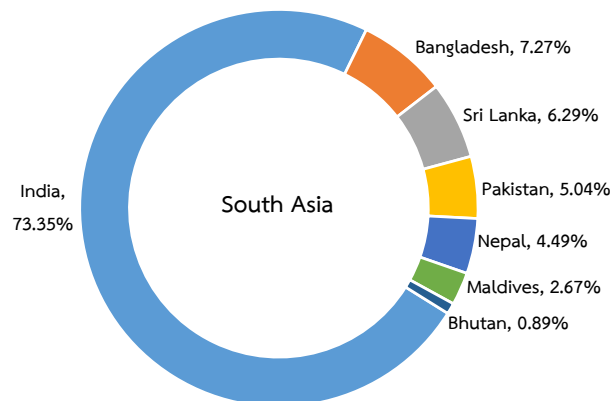
China showed the highest passenger transport proportion on scheduled international routes between Thailand and Northeast Asia of 51.35%, followed by Japan and Hong Kong with the passenger transport proportion of 15.05% and 12.43%, respectively.

Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited  
Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand



### 3.3 Market share of international routes between Thailand and South Asia region

**Figure 26** Market share of passenger transport on international scheduled routes between Thailand and South Asia region

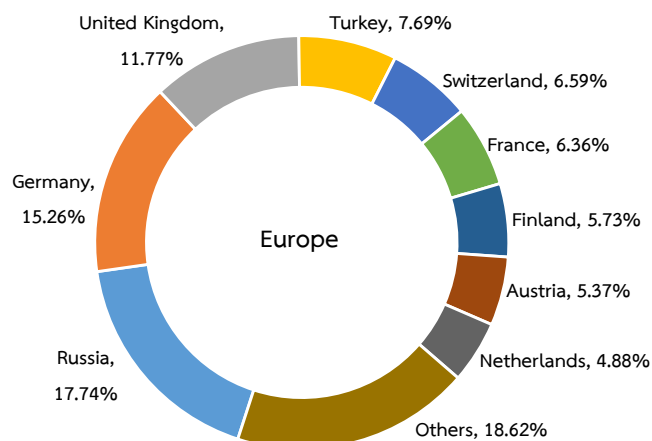


India showed the highest passenger transport on international scheduled routes between Thailand and South Asia of 73.35%, followed by Bangladesh and Sri Lanka with the passenger transport proportion of 7.27% and 6.29%, respectively.

Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited  
Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

### 3.4 Market share of international routes between Thailand and Europe region

**Figure 27** Market share of passenger transport on international scheduled routes between Thailand and Europe region

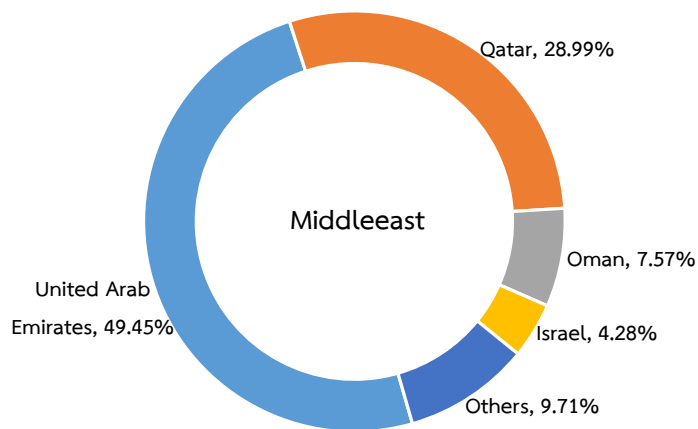


Russia showed the highest passenger transport on international scheduled routes between Thailand and Europe of 17.74%, followed by Germany and the UK with the passenger transport proportion of 15.26% and 11.77%, respectively.

Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited  
Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

### 3.5 Market share of international routes between Thailand and Middle East region

**Figures 28** Market share of passenger transport on international scheduled routes between Thailand and Middle East region

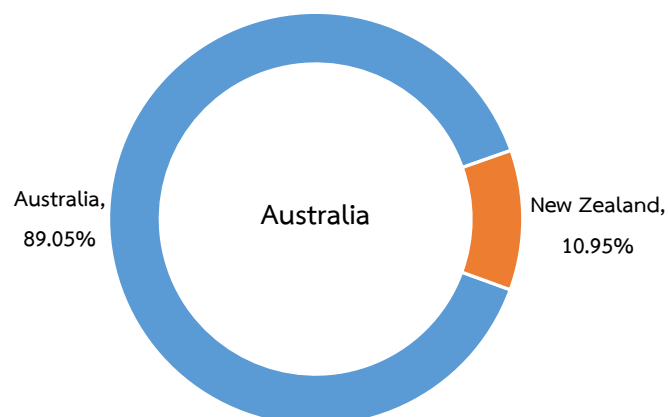


United Arab Emirates showed the highest passenger transport on international scheduled routes between Thailand and Middle East of 49.45%, followed by Qatar and Oman with the passenger transport proportion of 28.99% and 7.57%, respectively.

Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited  
Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

### 3.6 Market share of international routes between Thailand and Australia region

**Figure 29** Market share of passenger transport on international scheduled routes between Thailand and Australia region

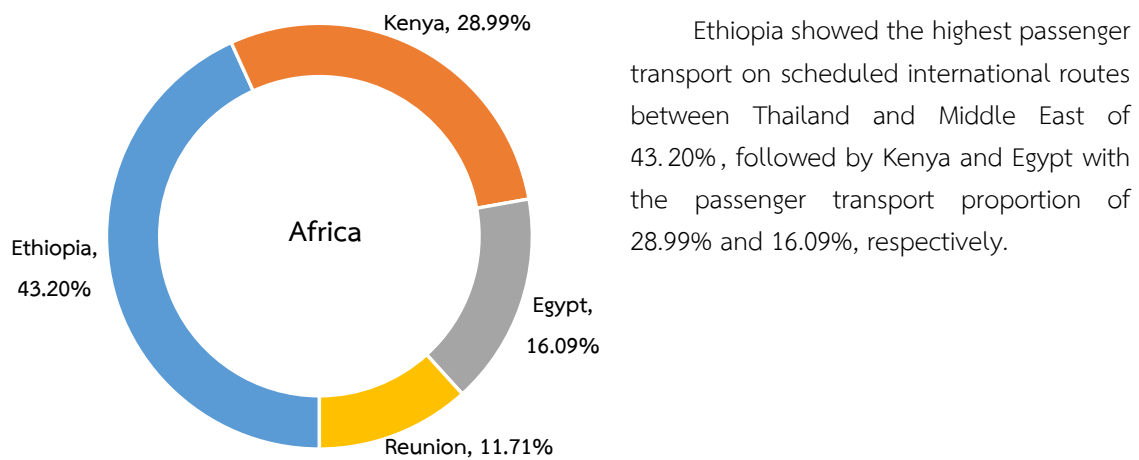


There are scheduled international routes between Thailand and only 2 countries in Australia region: Australia and New Zealand. Australia showed the highest passenger transport on international scheduled routes of 89.05% while it was 10.95% for New Zealand.

Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited  
Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

### 3.7 Market share of international routes between Thailand and Africa region

**Figure 30** Market share of passenger transport on scheduled international routes between Thailand and Africa region



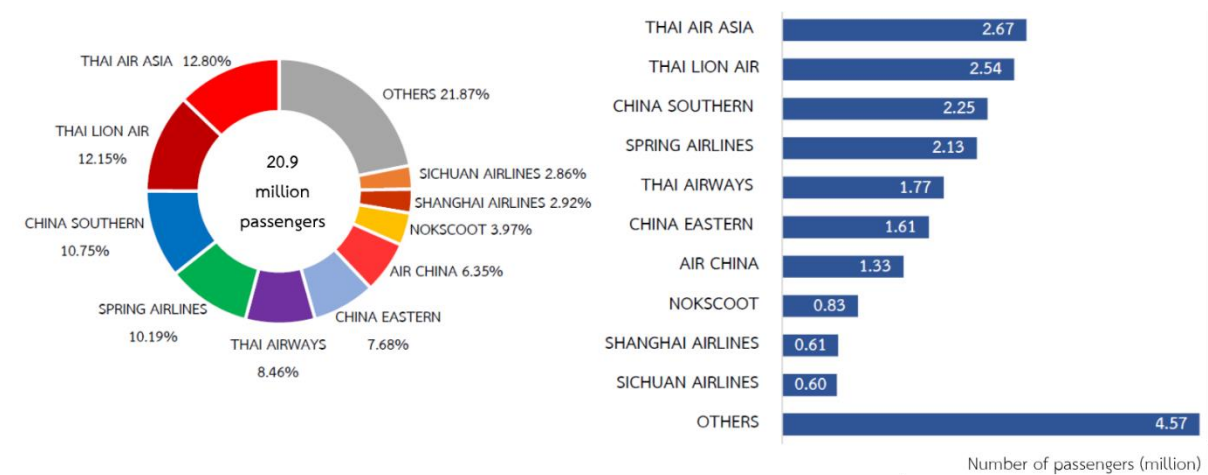
Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited

Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

#### 4. Market share analysis of passenger air transport classified by route

##### 4.1 Chinese routes

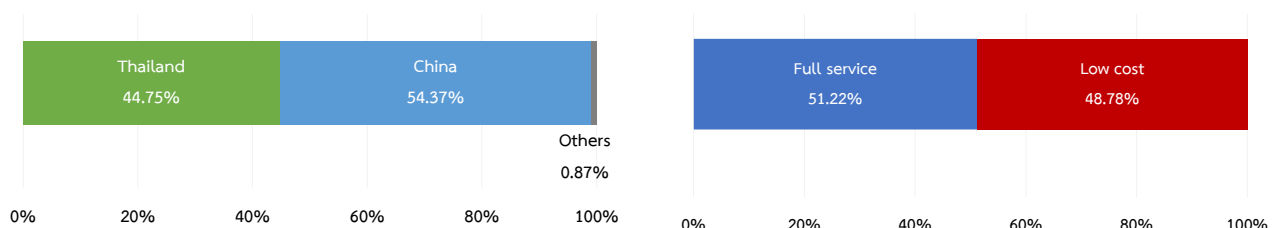
**Figure 31** Market share and ranking of airlines providing passenger transport services on scheduled Chinese routes



Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited  
Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

In 2019, there was a total of 20.9 million passengers travelling between Thailand and China, and Thai AirAsia showed the highest passenger transport of 2.67 million passengers which accounting for 12.80% of the total number of passengers on routes between Thailand and China, followed by Thai Lion Air (2.54 million passengers, 12.15%) and China Southern Airlines (2.25 million passengers, 10.75%), respectively.

**Figure 32** Market share of passenger transport on Chinese routes classified by nationality of airline and type of service

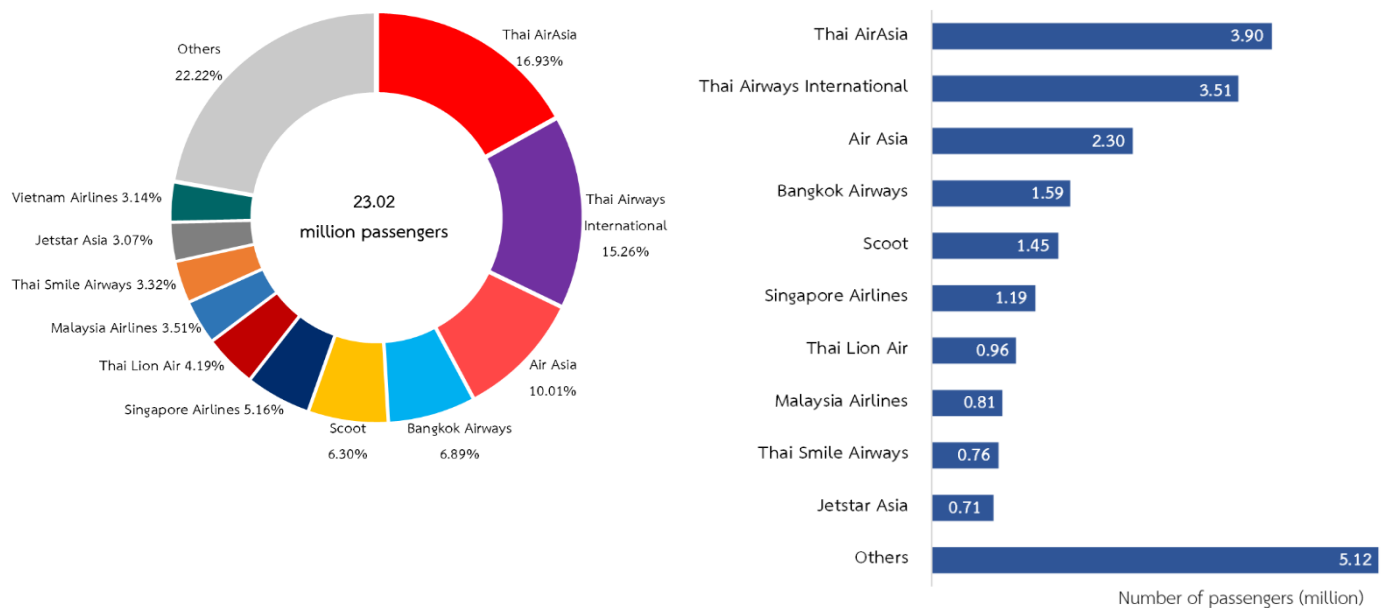


Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited  
Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

According to the nationalities of all 37 airlines serving on the routes between Thailand and China, Chinese airlines had the market share of 54.37%, while Thai airlines had the market share of 44.75% and the remaining 0.87% was served by airlines of other nationalities. The market share of full-service airlines was higher than that of low-cost airlines (51.22% vs. 48.78%)

## 4.2 ASEAN Routes

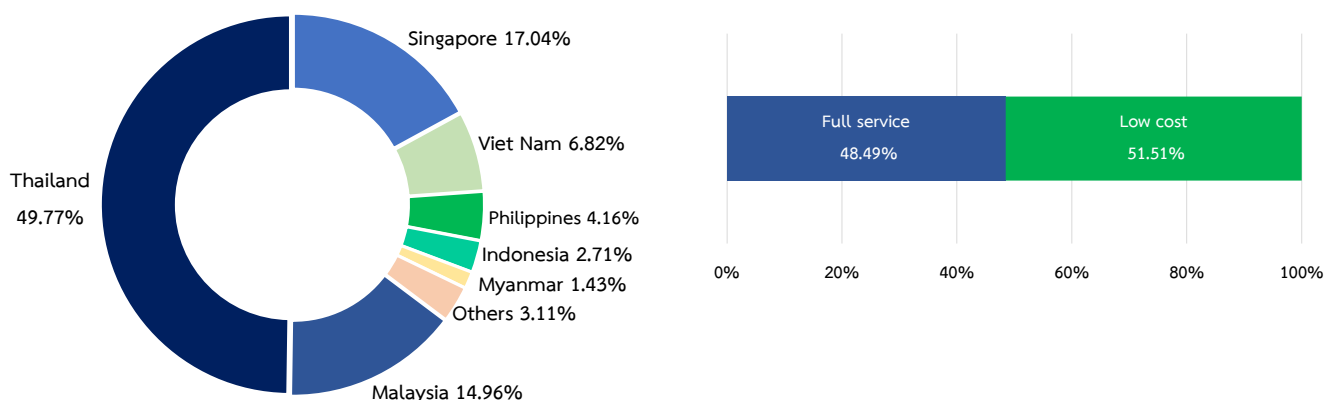
**Figure 33** Market share and ranking of airlines providing passenger transport service on ASEAN routes



Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited  
Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

In 2019, there was a total of 23.02 million passengers traveling between Thailand and ASEAN countries. Thai AirAsia showed the highest passenger transport, accounting for 16.95% of the total number of passengers on all ASEAN international routes, followed by Thai Airways with market share of 15.26% and AirAsia with market share of 10.01% of the total number of passengers on all ASEAN international routes.

**Figure 34** Market share of passenger transport on ASEAN routes classified by nationality of airline and type of service

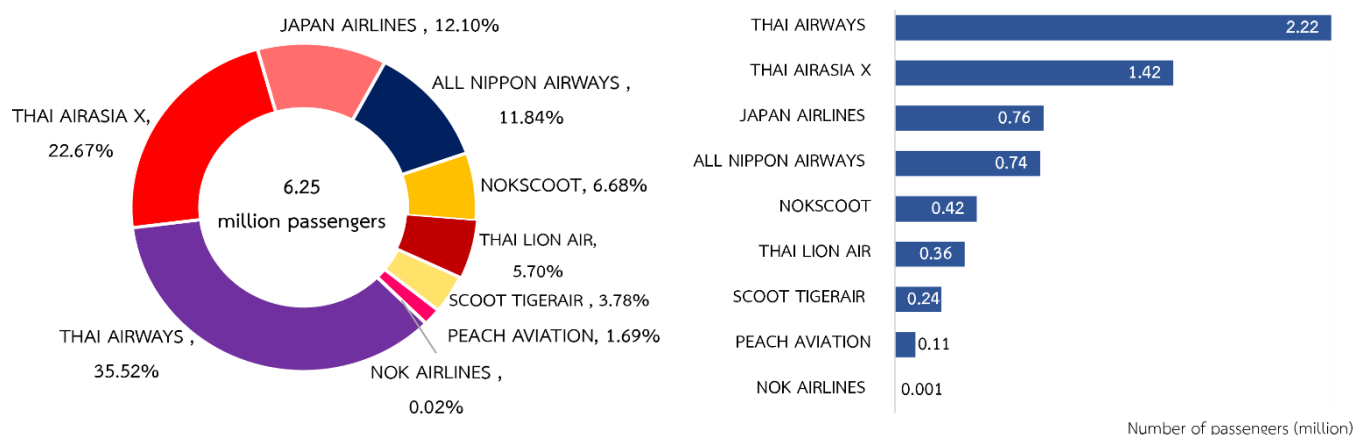


Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited  
Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

According to the nationalities of all 26 airlines serving on the international routes between Thailand and ASEAN countries, Thai airlines had the market share of 49.77%, while Singaporean and Malaysian airlines had the market share of 17.04% and 14.96%, respectively and the remaining 18.23% was served by airlines of other nationalities. The full-service and low-cost airlines showed similar market shares of 51.51% and 48.49%, respectively.

### 4.3 Japanese Routes

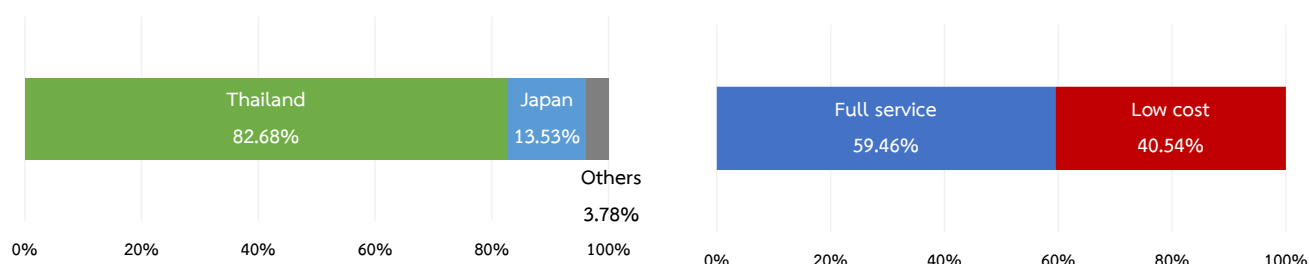
**Figure 35** Market share and ranking of airlines providing passenger transport service on scheduled Japanese routes



Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited  
Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

In 2019, there was a total of 6.25 million passengers traveling between Thailand and Japan, in which Thai Airways showed the highest passenger transport, accounting for 35.52% of the total number of passengers on all Japanese routes. This is followed by Thai AirAsia X with market share of 22.67% and Japan Airlines with market share of 12.10% of the total number of passengers on all Japanese routes.

**Figure 36** Market share of passenger transport on scheduled Japanese routes classified by nationality of airline and type of service



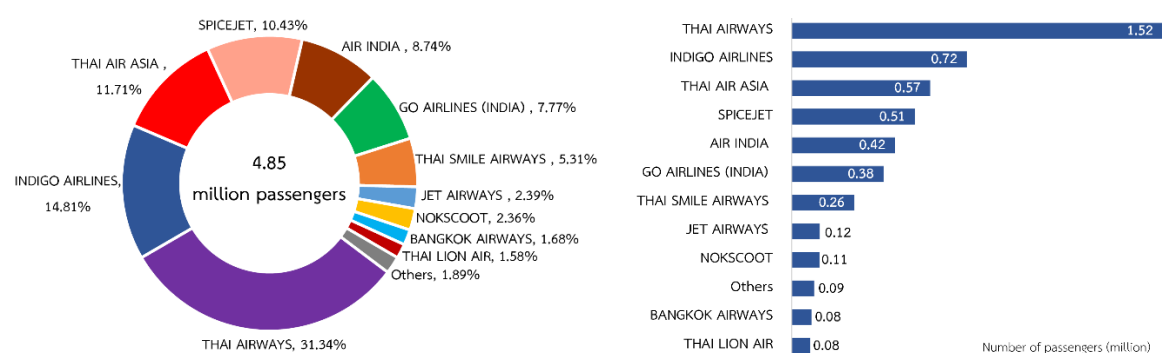
Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited  
Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand



According to the nationalities of all airlines serving on the intern airline national routes between Thailand and Japan, Thai airlines had the market share of 82.68%, while Japanese had the market share of 13.53% and the remaining 3.78% was the service provided by airlines of other nationalities. The market share of full-service airlines was higher than that of low-cost airlines (59.46% vs. 40.54%).

#### 4.4 Indian Routes

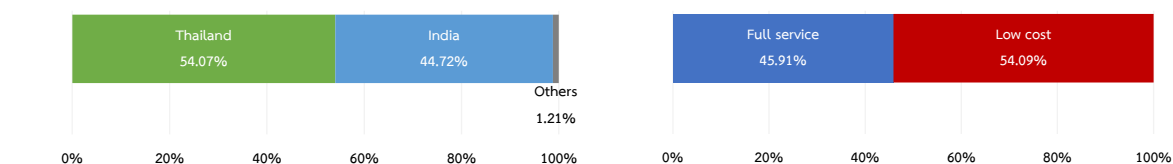
**Figure 37** Market share and ranking of airlines providing passenger transport service on scheduled Indian routes



Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited  
Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

In 2019, there was a total of 4.85 million passengers traveling between Thailand and India, in which Thai Airways showed the highest passenger transport, accounting for 31.34% of the total number of passengers on Indian routes. This is followed by IndiGo Airlines with market share of 14.81% and Thai AirAsia with market share of 11.71% of the total number of passengers on India routes.

**Figure 38** Market share of passenger transport on scheduled Indian routes classified by nationality of airline and type of service



Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited  
Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

According to the nationalities of all 25 airlines serving on the international routes between Thailand and India, Thai airlines had the highest market share of 54.07%, followed by Indian airlines with the market share of 44.72% and the remaining 1.21% was served by airlines of other nationalities. The market share of low-cost airlines was higher than that of full-service airlines (54.09% vs. 45.91%).

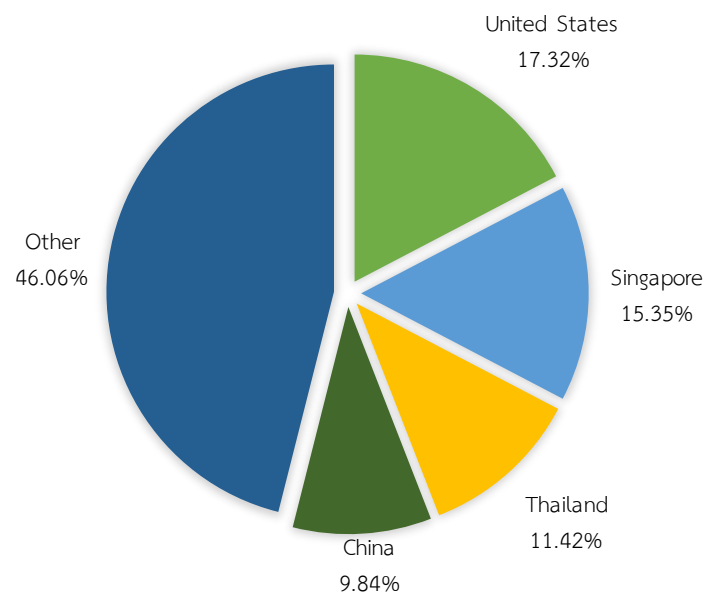
## Related industries

The Industries related to the aviation industry are critical to manufacturing sectors, service sectors maintenance sectors and aviation training institutes that produce personnel to keep pace with industry needs. In the past, these related industries showed significant growth in accordance with the expansion of the aviation industry as follows:

### 1. Maintenance, Repair and Overhaul (MRO)

Any MRO unit operator shall obtain the MRO certificate<sup>11</sup> issued by CAAT in order to carry out maintenance of Thai registered aircrafts.

**Figure 39** Operators in MRO industry certified by the Civil Aviation Authority of Thailand in 2019



Source: Airworthiness and Aircraft Engineering Department, The Civil Aviation Authority of Thailand, information as of 31 December 2019

In 2019, there was a total of 254 MRO unit operators in 40 countries across the world. Most of MRO unit operators (44 operators) locate in the United States of which accounting for 17.32% of the total number of MRO unit operators, followed by Singapore (39 operators, 15.35%) and Thai (29 operators, 11.42%).

<sup>11</sup> Section 41/94 of the Air Navigation Act B.E. 2497 (1954) states that no person shall operate a repair station business unless a Repair Station Certificate has been obtained from the Director General. The application for the certificate and the issuance of the certificate under paragraph one shall be in accordance with the rules and procedures prescribed in the Ministerial Regulations. The Director General shall also specify the type of aircraft, major components of aircraft, equipment or aircraft parts that the repair station is entitled to maintain in the repair station certificate.

## 2. Original Equipment Manufacturer (OEM)

Most original equipment manufacturers in Thailand operate their production in Tier 2 and Tier 3<sup>12</sup> which require advanced production technologies.

**Table 2** Operators in the OEM industry that have been licensed under the Factory Act B.E. 2535 (1992) during 1992 – 2019

Type	Number of factories	Investment (million Baht)
1. Construction, assembly, modification, reparation or alteration of aircraft	12	12,733.41
2. Manufacturing of special parts or equipment for aircraft	21	3,426.82
<b>Total</b>	<b>33</b>	<b>16,160.23</b>

Source: Accumulated statistics on number of factories that are licensed under the Factory Act B.E. 2535 (1992), classified by type at the end of 2019, Department of Industrial Works

During 2019 – 1992, there was a total of 33 operators in the OEM industry that have been licensed under the Factory Act B.E. (1992) 2535 with total investment of 16,160.23 million Baht, consisting of 12 operators in the businesses related to construction, assembly, modification, reparation or alteration of aircrafts with the investment of 12,733.41 million Baht and 21 operators in the businesses related to manufacturing of special parts or equipment for aircraft with the investment of 3,426.82 million Baht

---

<sup>12</sup> Aircraft production is divided into 4 tiers: Tier 1 Assembly and Testing, Tier 2 Design and Build, Tier 3 Build to Print and Tier 4 Material Manufacturing and Support Processes.

### 3. Flying training school certification and aviation language proficiency testing center (LPC)

At present, CAAT has supervised the aviation schools in Thailand to meet the international standards with international competitiveness through the examination and issuance of certificates for aviation schools and training courses. There are 4 types of certification: (1) Training Organization (2) Air Traffic Control Training Organization (3) Aircraft Maintenance Engineering Training Organization (Aircraft maintenance engineer) and (4) Language Proficiency Testing Center for Personnel License Holders.

**Table 3** Number of certificates of flying training schools and language proficiency testing centers for personnel license holders.

Type of certificate	Number (certificates)
Training Organization	14
Air Traffic Control Training Organization	2
Aircraft Maintenance Engineering Training Organization (Aircraft maintenance engineer)	1
Language Proficiency Testing Center	4

Source: Flight Operation Standards Department, The Civil Aviation Authority of Thailand, information as of 31 December 2019.

In 2019, there was a total of 21 flying training schools and language proficiency testing centers in Thailand certificated by CAAT, consisting of 14 certificates of aviation training institutes, 2 certificates of air traffic control training institutes, 1 certificate of ground engineer training institute and 4 certificates of language proficiency testing centers for license holders. The Civil Aviation Authority of Thailand is the only institute that has received all 4 types of certificates.

#### 4. Aeromedical

A person who wants to apply for a personnel license from the Civil Aviation Authority of Thailand must be examined for the issuance or renewal of the license to verify the physical and mental readiness affecting the safety in aviation operations in various professional fields

**Table 4** Hospitals or infirmaries appointed by the Civil Aviation Authority of Thailand

Type	Hospital
Civil Aeromedical Center (AMC)	Institute of Aviation Medicine, Royal Thai Air Force
	Bangkok Civil Aviation Medicine Center, Bangkok Hospital
	Samitivej Srinakarin Hospital
Civil Aeromedical Office (AMO)	Bumrungrad Hospital
	Vejthani Hospital
	B.Care Medical Center Hospital
	Abhakornkiatiwong Hospital

Source: Flight Operation Standards Department, The Civil Aviation Authority of Thailand, information as of 31 December 2019.

Civil aeromedical center is a hospital or infirmary appointed by the Civil Aviation Authority of Thailand to provide services for issuance or renewal of class 1-4 medical certificates. In 2019, there are 3 hospitals or infirmaries that have been appointed as the civil aeromedical centers which are (1) Institute of Aviation Medicine, Royal Thai Air Force, (2) Bangkok Civil Aviation Medicine Center, Bangkok Hospital and (3) Samitivej Srinakarin Hospital.

Civil aeromedical office is a hospital or infirmary appointed by the Civil Aviation Authority of Thailand to provide the medical examination services for renewal of class 1-4 medical certificates and also provide the medical examination services for issuance of class 2 and 4 medical certificates. There are 4 hospitals or infirmaries that have been appointed as the civil aeromedical office which are (1) Bumrungrad Hospital, (2) Vejthani Hospital, (3) B.Care Medical Center Hospital and Abhakornkiatiwong Hospital.

There is a total of 46 medical examiners and senior medical examiners appointed by the Civil Aviation Authority of Thailand, consisting of 27 medical examiners and 19 senior medical examiners.

## 5. Air Navigation Service Providers in Thailand

**Table 5** Air navigation service providers in Thailand certified by the Civil Aviation Authority of Thailand

Agency	Type of Certificate
Aeronautical Radio of Thailand Company Limited	Air navigation services certificate in the area of air traffic management's air traffic services
	Air navigation services certificate in the area of air traffic management's airspace management
	Air navigation services certificate in the area of air traffic management's air traffic flow management
	Air navigation services certificate in the area of communications, navigation, and surveillance services
	Air navigation services certificate in the area of instrument flight procedures design service
Royal Thai Navy	Air navigation services certificate in the area of air traffic management's air traffic services
	Air navigation services certificate in the area of communications, navigation, and surveillance services
	Air navigation services certificate in the area aeronautical meteorological services
Thai Meteorological Department	Air navigation services certificate in the area aeronautical meteorological services
Office of the Permanent Secretary for Transport	Air navigation services certificate in the area aeronautical search and rescue services
Civil Aviation Authority of Thailand	Air navigation services certificate in the area aeronautical information service

Source: Flight Operation Standards Department, The Civil Aviation Authority of Thailand, information as of 31 December 2019.

There are 5 Air Navigation Service Providers in Thailand, each of which has the service capability as follows:

1. Aeronautical Radio of Thailand Company Limited is responsible for providing air traffic management service, communication system, air navigation assistance system, aircraft tracking system and flight procedure design with instrument rating. For air traffic management services at airports, Aeronautical Radio of Thailand Company Limited provides air traffic management service in every airport, except U-Tapao International Airport.

2. The Royal Thai Navy is responsible for air traffic management services at U-Tapao International Airport, including communication system, air navigation assistance system, aircraft tracking system and news related to weather forecast.

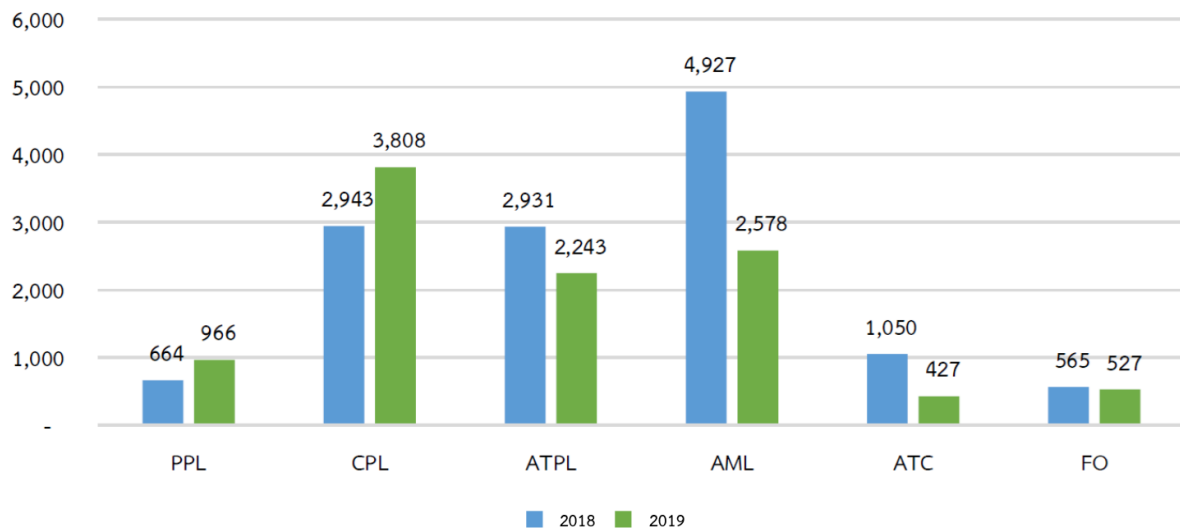
3. The Meteorological Department is responsible for publishing news related to weather forecast, meteorological and earthquake information.

4. The Office of the Permanent Secretary for Transport is the central agency in providing search and rescue services for affected aircraft, with the main function as an emergency responses call center for disaster affected aircraft and ships, as well as directing and coordinating for the search and rescue operations, as well as develop a national search and rescue plan.

5. The Civil Aviation Authority of Thailand is the central agency providing aviation news in Thailand.

## 6. Personnel licenses

Figure 40 Issuance of personnel licenses by the Civil Aviation Authority of Thailand



Source: Flight Operation Standards Department, The Civil Aviation Authority of Thailand, information as of 31 December 2019.

The personnel who are required to obtain a license from the Civil Aviation Authority of Thailand to perform duties are private pilot license (PPL), commercial pilot license (CPL), air transport pilot license (ATPL), aircraft maintenance engineer license (AMEL), air traffic control license (ATC) and flight operation officer license (FO). According to the data, the number of personnel licenses of all types has decreased, except for the commercial pilot license, which increased in line with the increasing number of aviation schools.

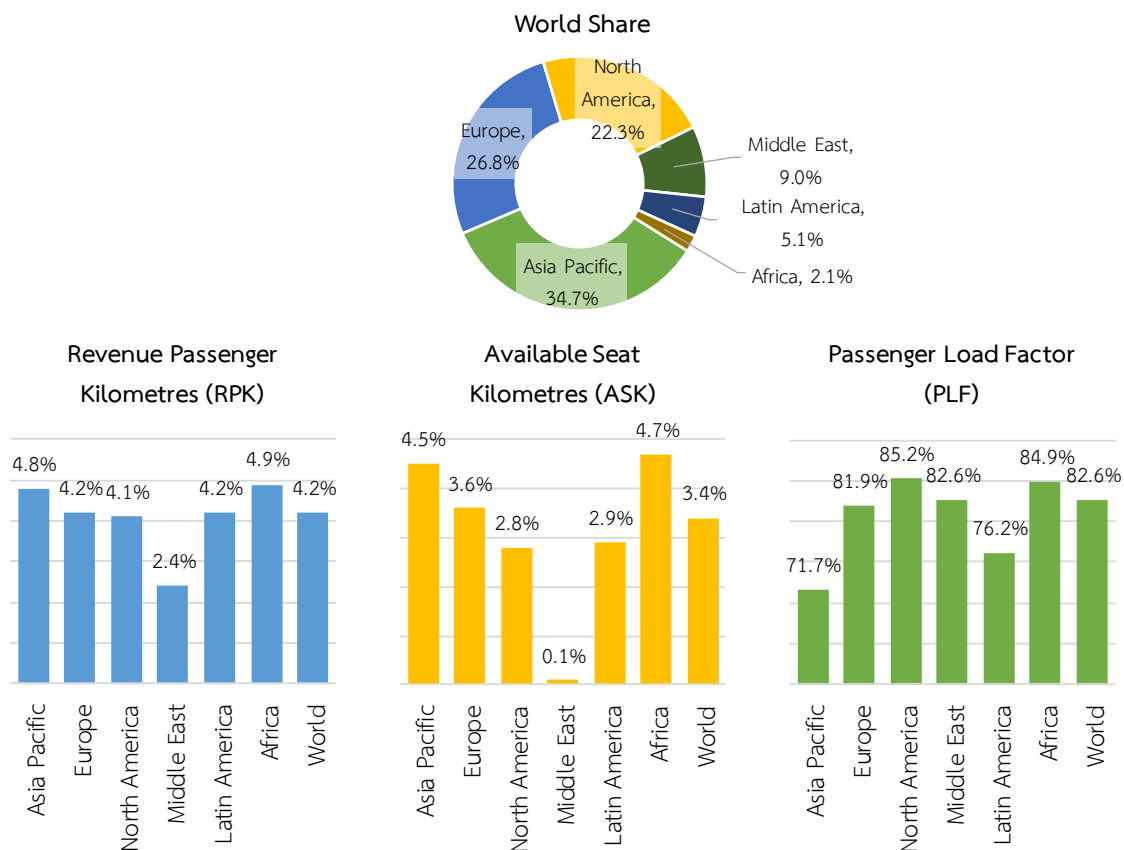
## Chapter 2 Factors Affecting the Growth of Thai Aviation Industry in 2019

This chapter provides an analysis of the factors affecting the growth of Thai aviation industry during the past year, which includes the overview of global air transportation in 2019, global economic growth, Thai economic growth, tourism forecast, supporting factors for investment and benefits, return to international safety standards, major government projects and infrastructure capacity expansion plans. The analysis in this section also provides aviation industry growth forecast for the year 2020, taking into account the impact of the COVID-19 epidemic situation, which has a significant impact on the global aviation industry.

### 1. Overview of global air transport in 2019

For the overview of global air transport in 2019<sup>13</sup>, the Asia Pacific region showed the highest proportion of air transport of 34.7% of overall air transport, followed by Europe and North America with the proportion of 26.8% and 22.3% of overall air transport, respectively.

Figure 41 Overview of global air transport in 2019



Source: Air passenger market analysis December 2019, International Air Transport Association (IATA)

<sup>13</sup> Air passenger market analysis December 2019, International Air Transport Association (IATA)

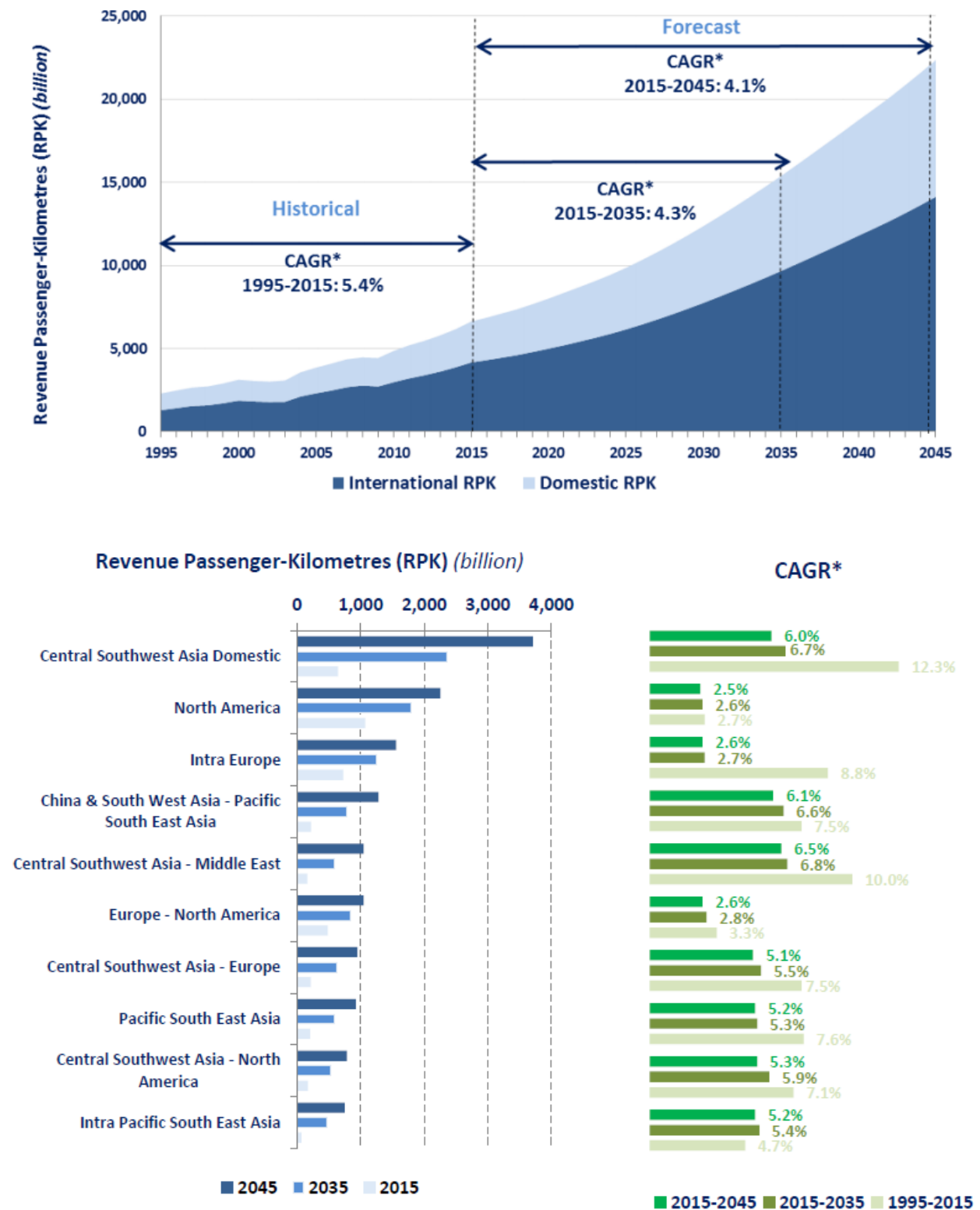


Global revenue passenger kilometers (RPK) grew at a rate of 4.2 percent, in which Africa region showed the highest growth rate of 4.9 percent from the previous year, followed by Asia Pacific region with the growth rate of 4.8 percent. RPK growth rates of Europe and Latin America region were similar to the global average of 4.2 percent while North America and Middle East region showed lower RPK growth rates compared to the global average of 4.1 percent and 2.4 percent, respectively.

Global available seat kilometers (ASK) grew at a rate of 3.4 percent. Africa region showed the highest growth rate, as RPK, of 4.9 percent from the previous year, followed by Asia Pacific and Europe region with the growth rate of 4.5 percent and 3.6 percent, respectively which were higher than the global average. The regions with lower ASK growth rate compared to the global average were Latin America, North America and Middle East with the growth rate of 2.9 percent, 2.8 percent and 0.1 percent from the previous year, respectively.

The lower ASK growth rate compared to RPK growth rate resulted in 0.9 percent increase in the higher passenger load factor (PLF) from the previous year. In overall, the global PLF was 82.6 percent. North America showed the highest PLF of 85.2 percent, followed by Africa with PLF of 84.9 percent and Middle East with PLF of 82.6 percent similar to the global average. Europe and Latin America showed PLF of 81.9 percent and 76.2 percent and Asia Pacific showed lowest PLF of 71.7 percent.

Figure 42 Global revenue passenger kilometers and forecasts of revenue passenger kilometers during 1995-2045 (B.E. 2538-2588)



Source: ICAO long-term traffic forecasts

The International Civil Aviation Organization (ICAO) has reported<sup>14</sup> that the growth rate of global revenue passenger kilometers (RPK) during 1995-2015 (B.E. 2538-2558) was 5.4 percent per year and has forecasted that the revenue passenger kilometers for 20-year period between 2015-2035 (B.E. 2558 – 2578) will grow at a rate of 4.3 percent per year and for 30-year period between 2015-2045 (B.E. 2558-2588) will grow at a rate of 4.1 percent per year.

According to the forecasts, the route group with highest RPK is Central Southwest Asia Domestic, followed by North America and Intra Europe. As for Southeast Asia, the growth rate of 20-year and 30-year domestic RPK is estimated at 5.3 percent and 5.2 percent and international RPK is estimated at 5.4 percent and 5.2 percent, respectively

## 2. Global economic growth

According to the world economic outlook<sup>15</sup>, the International Monetary Fund (IMF) revealed that the world output in 2019 grew at a rate of 2.9 percent, showing 0.7 percent expansion decline compared to the previous year.

**Table 6** GDP growth rate during 2018-2019

Countries/Group of Countries	2018	2019
World Output	3.6	2.9
Advanced Economies	2.2	1.7
Emerging Market and Developing Economies	4.5	3.7
Emerging Market and Developing Economies in Asia	6.4	5.6
China	6.6	6.1
India	6.8	4.8
ASEAN-5	5.2	4.7

Source: World Economic Outlook, January 2020 IMF

In 2019, the GDP growth rate of advanced economies was 1.7%, showing 0.5% expansion decline from the previous year which was lower than the global average GDP growth rate. This was due to the impact of protectionist policies of the United States, decline in private consumption and concerns over political volatility in the European Union, including the recession in Japan and protests in Hong Kong Special Administrative Region of the People's Republic of China.

<sup>14</sup> ICAO long-term traffic forecasts

<sup>15</sup> World Economic Outlook Update, January 2020

The emerging markets and developing economies have grown above the global average with GDP growth rate of 3.7 percent, which was 0.8 percent lower compared to that of 2018. As for the emerging markets and developing Asia, the GDP growth rate was 5.6 percent which decreased by 0.8 percent compared to the previous year. This reflected the expansion decline in emerging markets and developing economies

The groups of countries or countries with highest tourists visiting Thailand were China, India and ASEAN-5<sup>16</sup> which showed higher growth rates compared to the global average. The details are as follows:

- China was the country with the highest number of tourists visiting Thailand in the past year and also one of the countries with largest production and export bases in the world. In 2019, China showed the growth rate of 6.1 percent, showing expansion decline compared to the previous year due to the impact of protectionist policies of the United States.

- India had a high growth rate of number of tourists visiting Thailand. In 2019, the economic growth rate of India was only 4.8 percent which decreased by 2 percent from the previous year due to a sharp slowdown in domestic demand. However, the government sector has adopted monetary and fiscal measures such as subsidy for oil prices, so Indian economy should continue to grow.

- The ASEAN countries had a 4.7 percent economic growth rate from the previous year which decreased by 0.5 percent from 2018 due to the impact of decrease in export and a slowdown in domestic demands in Indonesia and Thailand.

In summary, the world economic outlook in 2019 showed an expansion decline due to the decline in global economic growth as a result of the impact of the trade war, business uncertainty, and the political uncertainty arose in many countries such as the Hong Kong protests, government stability in the European Union and Latin America, etc. However, considering the major countries with high number of tourists visiting Thailand, these countries were developing economies with the higher economic growth rates compared to the global average, resulting in an increase in number of tourists and international passengers in 2019 compared to 2018.

---

<sup>16</sup> ASEAN-5 refers to developing countries in the ASEAN region with high economic growth rates, namely Indonesia, Malaysia, the Philippines, Thailand and Vietnam.

### 3. Thai Economic Growth

**3.1 Overview of Thai Economy** The Fiscal Policy Office, Ministry of Finance<sup>17</sup> reported that the overall Thai economy in 2019 expanded by 2.5%, which significantly decelerated from 4.1% expansion in 2018 due to a slowdown in external demand and a slow recovery in domestic demand.

**Table 7** Thai economic data during 2018-2019

Economic data	Year	
	2018	2019
<b>1. Economic growth rate</b>	4.1	2.5
<b>2. Consumption growth rate</b>		
- Private consumption at constant prices	4.6	4.4
- Government consumption at constant prices	1.8	1.9
<b>3. Investment growth rate</b>		
- Private investment at constant prices	3.9	2.4
- Government investment at constant prices	3.3	2.1
<b>4. Growth rate of exports of goods and services</b>	4.2	-5.3
<b>5. Growth rate of imports of goods and services</b>	8.6	-4.6

Source: Ministry of Finance Newsletter No. 011/2563, 29 January 2020, Fiscal Policy Office, Ministry of Finance

Private consumption and investment continued to expand despite a slight decline from the previous year at 4.4% and 2.4%, respectively due to Taste-Shop-Spend campaign, the government stimulus measure in the second half of 2019 which contributed to the public spending. The government consumption in 2019 increased by 1.9% from 2018.

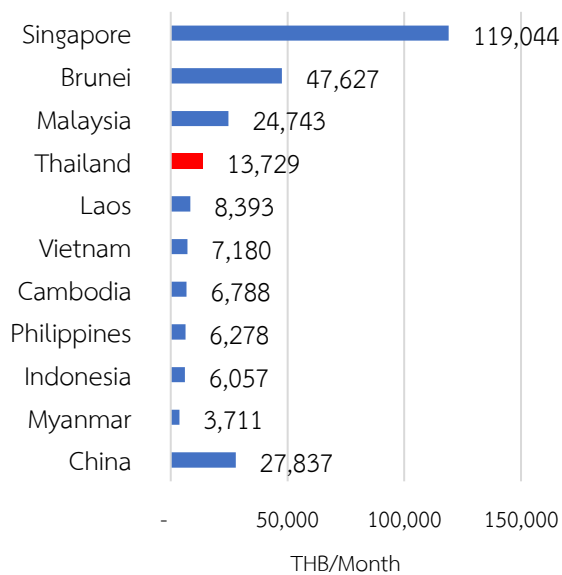
The export and import volumes of goods and services showed negative growth rate of -5.3% and 4.6%, respectively due to the slowdown in foreign demand in 2019 which was affected by the economic slowdown of trading partners and an ongoing appreciation in Baht, resulting in a sharp contraction in the export volume of goods and services.

---

<sup>17</sup> Ministry of Finance Newsletter No. 011/2563, 29 January 2020, Fiscal Policy Office, Ministry of Finance

### 3.2 Nominal wages

**Figure 43** Nominal wages in ASEAN and China



Note: Average Baht exchange rate for 2019

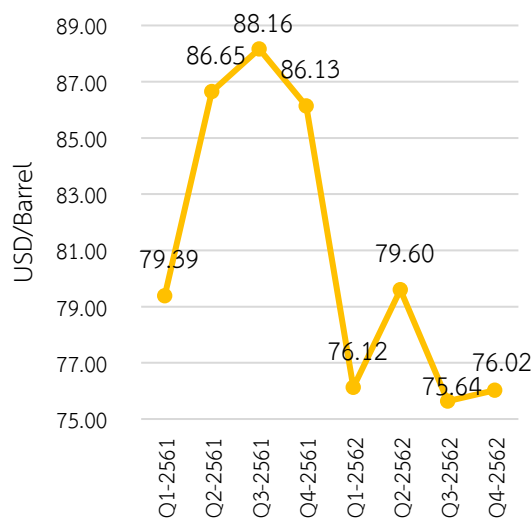
Source: Global Wage Report 2018/19, International Labour Organization

According to the nominal wage in each country reported by the International Labor Organization (ILO), the nominal wage in Thailand was 13,729 Baht which was higher compared to those in ASEAN countries. Countries with higher wages than Thailand were Singapore, Brunei and Malaysia, but their wages were twice the nominal wage in Vietnam, and Myanmar showed the lowest wage at 3,711 Baht per month. Thailand, however, still had a lower wage than that of China, the world's large manufacturing base.

The high nominal wage has the direct impact on the manufacturing and service industries in Thailand, which may lead to the manufacturing base movement to other countries with lower nominal wage such as Vietnam, Philippines, etc. Therefore, Thai entrepreneurs and workers need to develop and improve their labor skills in order to meet the needs of the labor market and to attract the investors.

### 3.3 Oil Prices

**Figure 44** Overview of jet fuel prices during 2018 - 2019

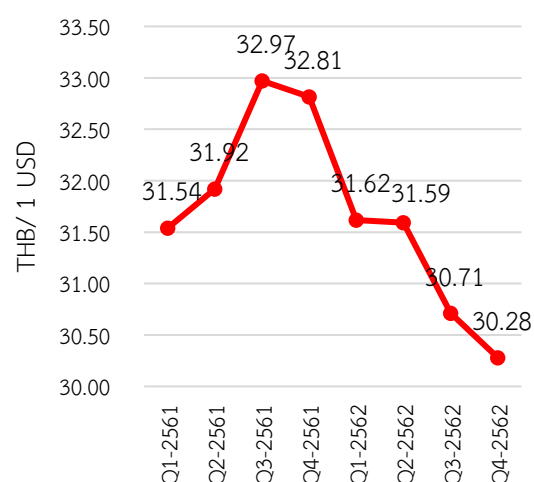


Source: Singapore Jet Kerosene (Platts) Future, Quandl

The jet fuel prices in 2019 decreased compared to the same period of the previous year, directly affecting the direct costs of the airlines. However, airlines usually prefer to enter into the fuel hedging contracts to reduce the fluctuation of the fuel price in the future, thus enabling airlines to purchase aircraft fuel at the price specified in the contract. If an airline has entered into the fuel hedging contracts prior to the drop in fuel prices, such airline will not benefit from this price drop and resulting in higher operation cost compared to its competitors.

### 3.4 Foreign exchange rates

**Figure 44** USD exchange rates to Thai Baht during 2018 - 2019



Source: Bank of Thailand

In 2019, Thai Baht to US dollar exchange rate was appreciated by 3.9 percent compared to the previous year, resulting in higher expenses for traveling to Thailand because the foreigners have to spend more money in exchange into Thai Baht. It also resulted in a decrease in trade and exports of goods due to appreciation. However, the number of international passengers and flights continued to increase. It is possible that the impact of Baht appreciation may result in more Thai tourists deciding to travel to other countries due to lower costs. The overall international travel therefore continues to grow.

### 4. Growth in number of foreign tourists

According to the statistics of International tourist arrival to Thailand by the Ministry of Tourism and Sports, it found that in 2019 there were 39,766,740 foreign tourists which increased 1,588,546 people, representing a 4 percent growth rate from the previous year.

**Table 8** Statistics of International tourist arrival to Thailand 2018-2019

Region	2018	2019	Growth rate	Proportion
Northeast Asia	15,778,120	16,619,916	5.1 percent	41.8 percent
Southeast Asia	10,196,287	10,618,224	4.0 percent	26.7 percent
Europe	6,759,855	6,714,057	-0.7 percent	16.9 percent
South Asia	1,918,212	2,397,349	17.3 percent	6.0 percent
America	1,599,004	1,631,174	2.0 percent	4.1 percent
Australia	921,759	885,185	-4.1 percent	2.2 percent
Middle East	739,487	702,535	-5.3 percent	1.8 percent
Africa	201,470	198,300	-1.6 percent	0.5 percent
<b>Total</b>	<b>38,178,194</b>	<b>39,766,740</b>	<b>4.0 percent</b>	<b>100 percent</b>

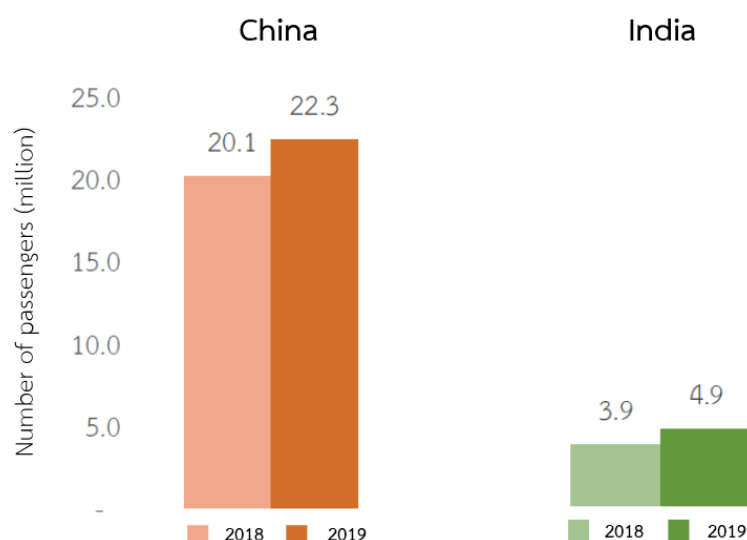
Source: Ministry of Tourism and Sports

Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

The region with the highest number of tourists visiting Thailand was Northeast Asia such as China, Japan and South Korean, etc. which accounting for 41.8 percent of total number of tourists, followed by tourists from Southeast Asia and Europe region with the proportion of 26.7 percent and 16.9 percent, respectively. While South Asia countries such as India, Bangladesh and Sri Lanka, etc. showed the highest growth rate in number of tourists at 17.3 percent compared to the previous year. However, the number of tourists from the Middle East, Australia, Africa and Europe regions has decreased compared to the previous year.

Growth of tourists from Northeast Asia and South Asia region was partly due to the measure issued by Cabinet Resolution on 6 November 2018 to waive the Visa On Arrival (VOA) fee for tourists from 20 countries<sup>18</sup> and 1 economic zone<sup>19</sup> starting from 15 November 2018 to 13 January 2019 and this measure was extended to 30 April 2019. After that, there was a resolution at the Cabinet meeting on 23 April 2019 to extend this measure to 31 October 2019 and finally the said measure was extended to 30 April 2020<sup>20</sup>. The top 5 countries benefited from this measure were China, India, Taiwan, Maldives and Ethiopia.

**Figure 45** Number of passengers on Thailand-China and Thailand-India flights



Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited  
 Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

The number of passengers on the routes between Thailand and China in 2019 was 22.3 million passengers which increased by 10.8% from the previous year. This was in line with the number of passengers on the routes between Thailand and India with the number of passengers in 2019 of 4.9 million passengers which increased by 24.3% from the previous year. This showed that the measure to waive VOA fee was one of the factors contributing to international travel growth.

<sup>18</sup> The countries that were exempt from VOA fee are Andorra, Bulgaria, Bhutan, China, Cyprus, Ethiopia, Fiji, India, Kazakhstan, Latvia, Lithuania.

<sup>19</sup> The special economic zone that was exempt from the VOA fee is Taiwan.

<sup>20</sup> Royal Thai Government Gazette, dated 31 October 2019.



## 5. Application for investment promotion in aviation industry

**5.1 Ease of doing business score** According to the World Bank's Ease of Doing Business Score, Thailand was rated with a score of 81.50 points, which ranked 21<sup>st</sup> out of 190 countries worldwide showing an improvement by 6 ranks from 2018 (rank 27<sup>th</sup>). The ASEAN countries ranked higher than Thailand were Singapore (2<sup>nd</sup>) with a score of 86.20 points and Malaysia (12<sup>th</sup>) with a score of 81.50 points.

**5.2 BOI promoted projects** As the government has set the aviation industry as the target industry, investors in the aviation industry will gain tax benefits including an 8-year corporate income tax exemption and a 50 percent additional tax deduction for an additional 5 years, and import duty exemption on machinery. These investors also enjoy other non-tax benefits, including allowing foreigners to own land and to import skilled workers and professionals to work in Thailand. The projects in the aviation industry that have been promoted by BOI are as follows:

**Table 9** Statistics of aviation industry projects under the process of approval during 2015 - 2019

Investment in aviation industry		Year				
		2015	2016	2017	2018	2019
Manufacturing of fuselages, fuselage parts, critical and other aircraft parts	Number of projects	-	4	2	5	1
	Investment (million Baht)	-	4,741	672	2,085	233
Aircraft repair, including aircraft equipment and parts	Number of projects	-	1	-	2	3
	Investment (million Baht)	-	20	-	654	6,992
Vocational training center	Number of projects	-	-	-	-	1
	Investment (million Baht)	-	-	-	-	381
Air transportation	Number of projects	5	15	9	10	11
	Investment (million Baht)	15,907	21,538	24,370	18,548	16,202
Total	Number of projects	5	20	11	17	16
	Investment (million Baht)	15,907	26,299	25,042	21,287	23,808

Source: The Board of Investment of Thailand

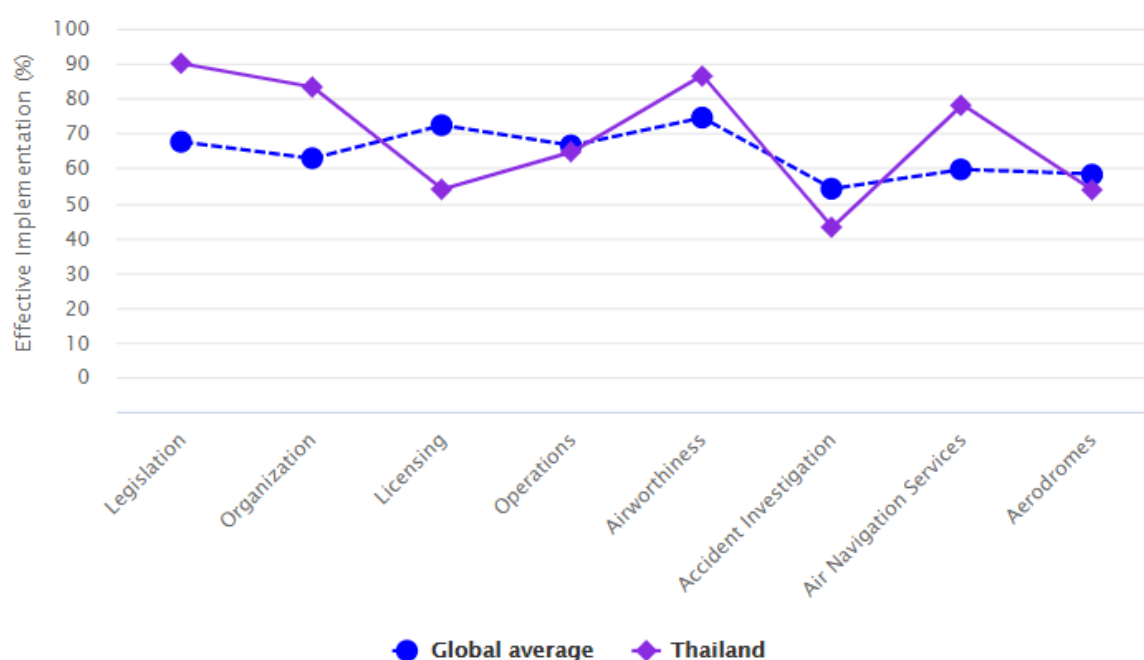
In 2019, a total of 16 investment projects in the aviation industry have been approved by BOI with an investment value of 23,808 million Baht. The number of projects is 1 project less compared to the previous year, but the investment value was 2,521 million Baht higher compared to the previous year. The business with highest investment value was air transportation with 11 BOI promoted projects and investment value of 6,992 million Baht which is 11 times higher than that of the previous year, followed by business related to manufacturing of fuselages, fuselage parts, critical and other aircraft parts with 1 BOI promoted project and investment value of 233 million Baht and vocational training centers with 1 BOI promoted project and investment value of 381 million Baht. The increase in investment in the aviation

industry is due to the government's focus on the aviation industry, concession of regulations on foreign investment and promotion of the aircraft parts manufacturing and maintenance industry in Thailand.

## 6. The Civil Aviation Authority of Thailand meet International Standards

After the Civil Aviation Authority of Thailand (CAAT) and relevant agencies have successfully resolved the issue of red flag removal in 2017, in 2019, the auditors of the Full ICAO Coordinated Validation Mission (Full ICVM) have investigate the corrective action of CAAT with audit results as follows:

**Figure 46** Comparison of effective implementation between Thai and global average



Source: Safety Audit Results: USOAP interactive viewer, ICAO

The audit of the Full ICVM auditor team between 13-22 May 2019 has performed in all 7 areas, including law and regulations, management of regulatory organizations, personnel licensing, flight operations, aircraft airworthiness, air navigation services and airports, however, this audit has not yet been verified in the investigation of aircraft accidents and incidents due to the limitations of the auditors. The audit results showed that the effective implementation (EI) of ICAO standard in Thailand increased to 65.83%, higher than the standard set by ICAO at 60%. It showed that CAAT and related agencies have taken steps to resolve the problems and push forward Thailand's civil aviation safety standards to be in line with the average standards of other member countries. The audit results of Thailand in laws and regulations, management of regulatory organizations, aircraft airworthiness and air navigation services were above the average EI.

## 7. Government policies and airport capacity development projects

The government has designated the aviation industry as one of the New S-curve industries because it is a rapidly growing, high-value and advanced technology-dependent industry. In addition, aviation industry also supports other economic activities such as tourism and employment, etc., which would drive Thailand to become a high-income country. Therefore, the government has the policies consisting of projects and measures as follows:

### 7.1 Projects related to capability development of airports in Thailand

7.1.1 Master Plan for the establishment of commercial airports in Thailand by CAAT to be used as a guideline for assessing the rationale for the construction of a new airport and the development of existing airports to be able to serve as an inter-transportation network and to generate efficient investments in airport operations, including as an infrastructure to support economic development plans and to support the rapid expansion of the aviation industry.

7.1.2 Major airport development projects in which the airport operators such as Department of Airports (DOA), Airports of Thailand Public Company Limited (AOT) and the Eastern Economic Corridor Policy Committee (EEC) have set up a plan to develop airport capacity in its responsibility as follows:

**Table 10** Major airport development projects

Airport	Annual capacity		Action
	Present	Target	
Suvarnabhumi (Phase 3)	45 million passengers	90 million passengers	scheduled for completion in 2021
Don Mueang (Phase 3)	30 million passengers	40 million passengers	under consideration of the Ministry of Transport and the National Economic and Social Development Council
Chiang Mai (Phase 1)	8 million passengers	16.5 million passengers	
Phuket (Phase 2)	16.85 million passengers	18 million passengers	
Krabi	4 million passengers	8 million passengers	DOA has established an airport development plan in the strategic plan 2017 - 2021
Nakhon Si Thammarat	1.1 million passengers	2.3 million passengers	
Mae Sot	0.4 million passengers	1 million passengers	
Narathiwat	0.75 million passengers	1 million passengers	
Trang	0.7 million passengers	2.8 million passengers	
Khon Kaen	2.4 million passengers	3.6 million passengers	
Betong	-	0.7 million passengers	
U-Tapao	3 million passengers	60 million passengers	scheduled for completion in 2033

Source: 1. Department of Airports Strategic Plan 2017-2021, Department of Airports  
2. Annual Report 2019 of Airports of Thailand Public Company Limited  
3. Infrastructure development action plan supporting the development of the Eastern Economic Corridor

### 7.2 National Airspace and Air Navigation Master Plan 2019

The Airspace and Air Navigation system is considered an important infrastructure for air transportation certification of the country. CAAT has, therefore, worked with relevant agencies to prepare a National Airspace Policy Plan to develop the national airspace and air navigation system that is safe, stable and able to support the growth of air traffic volume and in line with regional and international development guidelines. The Working Group has completed the draft of National Airspace and Air Navigation Master Plan

2019 and it is currently in the process of presenting to the Civil Aviation Board for consideration and approval in order to implement the said plan as a guideline in the management of the air space in Thailand<sup>21</sup>

### **7.3 Projects and measures to promote the manufacturing of aircraft parts and aircraft maintenance**

CAAT has amended Thailand Air Navigation Act, B.E. 2497 (1954), as amended by Thailand Air Navigation Act (No. 13), B.E. 2562 (2019) to exclude to the proportion of foreign shareholders who engage in aircraft manufacturing, aircraft key components and aircraft maintenance to hold more than 49 percent of the shares in order to promote manufacturing of aircraft, aircraft key components and aircraft maintenance in Thailand. Currently, it has been approved by the Legislature and became effective on 27 May 2019.

---

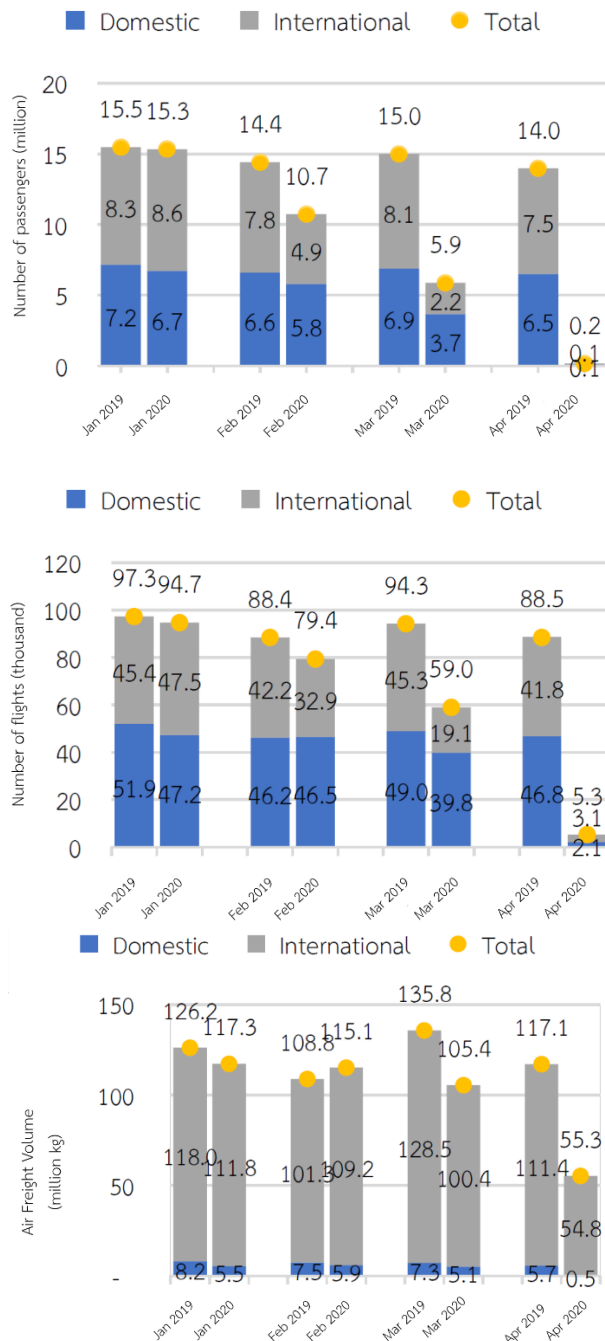
<sup>21</sup> Flight Operation Standards Department, The Civil Aviation Authority of Thailand

## Chapter 3 Forecasts of Thai air transport trends in 2020 due to the impact of COVID-19 epidemic

(Information and forecast as of 30 April 2020)

### 1. Impact on Thailand's air transportation

**Figure 47** Comparison of air transport during January-April between 2019 and 2020



Source: Department of Airports, Airports of Thailand Public Company Limited  
Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

The COVID-19 epidemic has a significant impact on air transportation around the world, as well as in Thailand, where international air travel has started to suffer since late February as countries with large numbers of infected people begin to restrict travel to and from Thailand.

In April, a temporary ban on all international flights to Thailand was announced in order to temporarily ban the passenger flights from flying to Thai airports, resulting in a sharp decline in the number of passengers and international flights. Thailand's air transport experienced the worst hit in the year in June.

Thailand's domestic air transport has started to suffer since the Emergency Decree on Public Administration in Emergency Situations was issued on 26 March 2020, resulting in the sharp decline in the number of passengers and flights for both domestic and international. In terms of air freight, the air freight volume has decreased in line with the volume of flights and passengers, as in the past most of Thai air freight has been transported under the belly of passenger aircraft. The aviation industry is likely to be affected throughout 2020.

## 2. Forecasts of the impact of COVID-19 epidemic in the international aviation organizations' view

The International Civil Aviation Organization (ICAO) has collaborated with the International Aviation Authority to forecast the the impact of COVID-19 epidemic situation. The details are as follows.

**Figure 48** Forecast for the impact in the international aviation organizations' view.



Source: Economic Impacts of COVID-19 on Civil Aviation, ICAO, 13<sup>th</sup> May 2020

- ICAO<sup>22</sup> has estimated that overall impact will result in a 44 - 80 percent drop in passenger numbers from the previous year which are described in two scenarios: V-shaped path and U-shaped Path. The details are as follows:

- V-shaped path: It is estimated that the global passenger will experience a rapid recovery. The number of international seats will decrease 36.1 – 53.8 percent from the previous year, and the number of international passengers will decrease by 789.52– 1,220.90 million people and the airlines will experience revenue loss of US\$139.20 -216.27 billion. For domestic passengers, the number of domestic seats will decrease by 25.1-41.1 percent from the previous year, the number of domestic passengers will decrease by 838.22-1,361.90 million people and the airlines will experience revenue loss of US\$74.63-120.57 billion.

- U-shaped path: It is estimated that the global passenger will experience a gradual recovery. There will be a 46.4- 70.1 percent drop in the number of international passenger seats from the previous year. The number of international passengers will decrease by 1,036.17– 1,452.13 million people and the airlines will experience revenue loss of US\$182.64-257.47 billion. For domestic passengers, the number of domestic seats will decrease by 32.5 – 49.0 percent from the previous year. The number of domestic passengers will decrease by 1,093.54-1,574.50 million people and the airlines will experience revenue loss of US\$97.28-139.22 billion.

<sup>22</sup> Effects of Novel Coronavirus (Covid-19) on Civil Aviation: Economic Impact Analysis, 13 May 2020

- **International Air Transport Association (IATA)** has predicted that the COVID-19 epidemic will cause a 48 percent decrease in Revenue Passenger Kilometer (RPK) compared to 2019.

- **Airports Council International (ACI)** has predicted that the COVID-19 epidemic will cause a 45 percent in number of passengers and 57 percent decrease in airport revenue or more than US\$97 billion compared to the normal forecast for 2020.

- **United Nations World Tourism Organization (UNWTO)** has predicted that revenue from the international tourism sector will decrease by US\$ 300-450 billion compared to 2019, where tourism revenue is US\$1.5 trillion and 96 percent of global destinations will impose travel restrictions.

- **World Trade Organization (WTO)** has predicted that international trade will decrease by 13-32 percent compared to 2019.

- **International Monetary Fund (IMF)** has predicted that the gross domestic product in 2020 will shrink by 3 percent.

### 3. Estimated number of passengers in 2020

**3.1 Estimated number of international passengers** can be divided in two cases, the base-case scenario and worst-case scenario. The details are as follows:

#### 3.1.1 The hypothesis of the estimation

(1) The factors determining the number of passengers are the seat capacity of airlines, the country restrictions (the CAAT Notification on temporary ban on all international flights to Thailand) and passenger confidence in the COVID-19 epidemic situation.

(2) Forecasts by related aviation international organisations

- The International Civil Aviation Organization (ICAO)<sup>23</sup> has analyzed the impact of the COVID-19 epidemic in two scenarios: V-shaped path and U-shaped Path. From the current situation, it can be expected that the Thailand air transportation has followed the U-shaped path.

- The International Air Transport Association (IATA)<sup>24</sup> has predicted that it will take more than 6 months for the air transportation to return to normal state due to the COVID-19 epidemic situation. It is expected that the air transportation will begin to recover in the fourth quarter of 2020, with 50 percent increase in the international passenger volume from the third quarter. It is therefore expected that during 2021-2022, Thailand air transportation will recover according to IATA guidelines

---

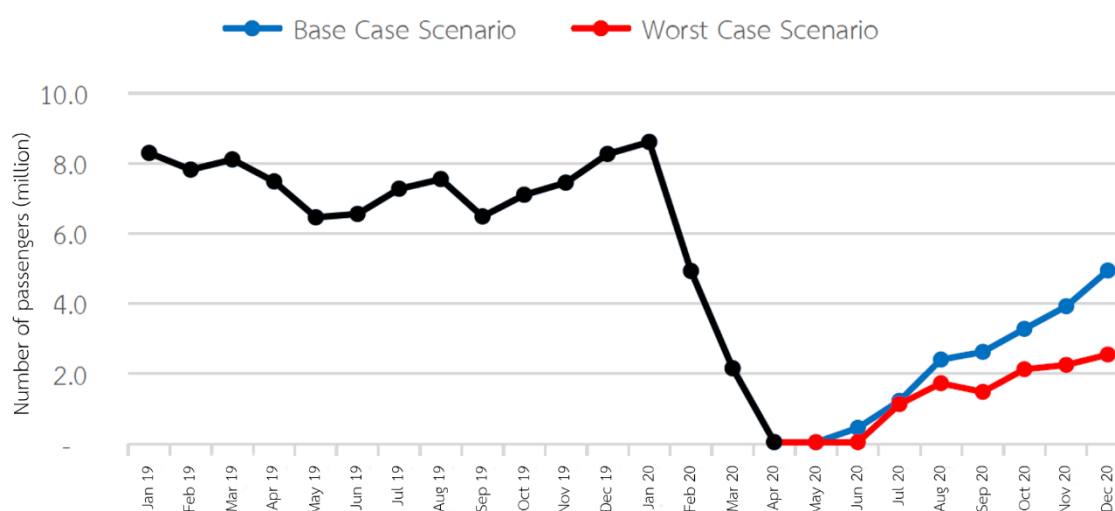
<sup>23</sup> Effects of Novel Coronavirus (Covid-19) on Civil Aviation: Economic Impact Analysis, 28th April 2020

<sup>24</sup> Covid-19 updated impact assessment of the novel Corona virus, IATA on 24 March 2020

### 3.1.2 Estimation results

From above assumptions, the results of the estimation are as follows:

**Figure 49** Estimated international passenger volume of Thailand in 2020



Source: Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

**Table 11** Estimated international passenger volume of Thailand in 2020

Year	Based Case Scenario		Worst Case Scenario	
	Number of passengers (people)	Annual rate of change (%)	Number of passengers (people)	Annual rate of change (%)
2019	88,822,412		88,822,412	
2020	34,640,741	-61.00%	27,090,836	-69.50%

Source: Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

### 3.2 Estimated domestic passenger volume

As Thailand's domestic air transport has started to suffer since the issuance of Emergency Decree on Public Administration in Emergency Situations on 26 March 2020 aiming to control the COVID-19 epidemic, resulting in a significant decrease in number of passengers and flights, both domestic and international and the airlines have to stop flying on domestic routes. In April, only Nok Air and Thai Vietjet were available, resulting in the lowest number of passengers in a year until Nok Air, Thai AirAsia, Thai Lion Air and Thai Vietjet Air started to resume their domestic flights on 1 May 2020 and relaxation of measures allowing people to travel across provinces in some provinces, resulting in a better trend of domestic air transport..



### 3.2.1 The hypothesis of the estimation

(1) The factors determining the passenger volume include cross-provincial travel restrictions and passenger confidence in the COVID-19 epidemic, fleet size reduction and airline flight plans.

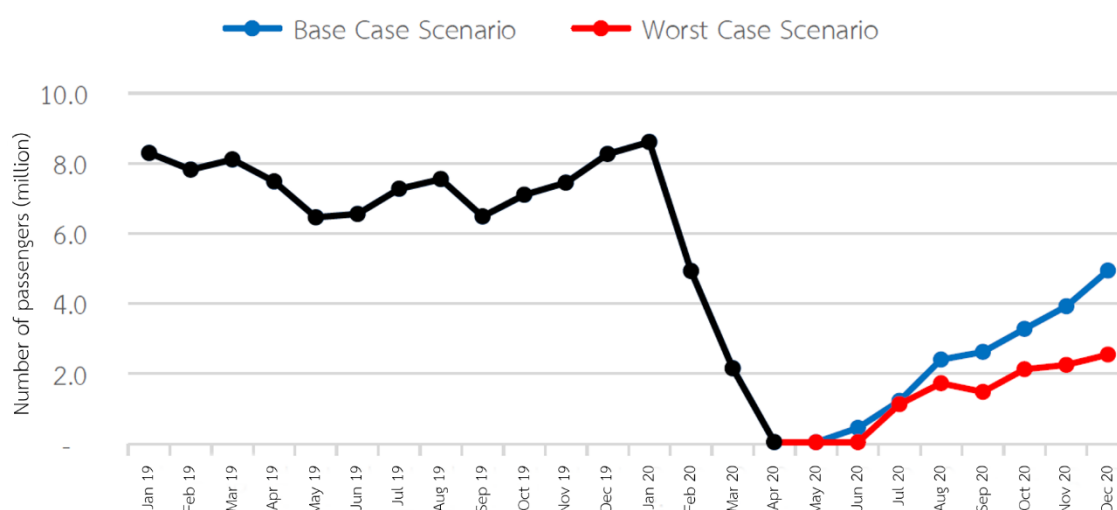
(2) Impact of social distancing measure and announcement of the Civil Aviation Authority of Thailand on guidelines for servicing passengers on domestic routes during the COVID-19 epidemic which limits the number of seats to be served on board the aircraft. Ticket sales must take into account the seating arrangement, leaving at least one seat between each passenger, resulting in approximately 30 percent decrease in the number of seats available for passenger<sup>25</sup>.

(3) Forecasts by International Agencies

### 3.2.2 Estimation results

From above assumptions, the results of the estimation are as follows:

**Figure 50** Estimated domestic passenger volume of Thailand in 2020



Source: Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

**Table 12** Estimated domestic passenger volume of Thailand in 2020

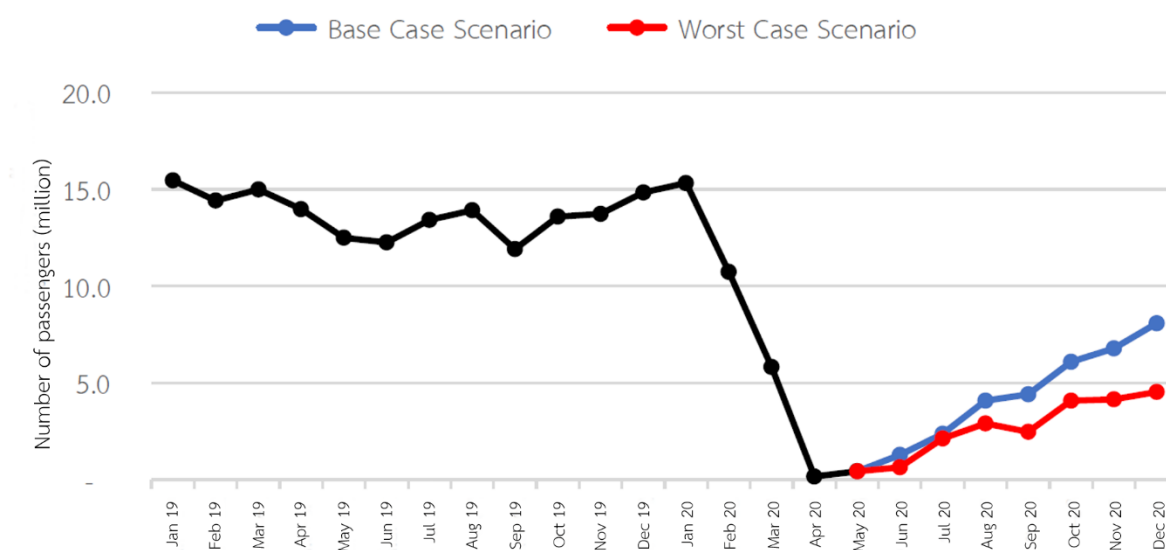
Year	Based Case Scenario		Worst Case Scenario	
	Number of passengers (people)	Annual rate of change (%)	Number of passengers (people)	Annual rate of change (%)
2019	76,253,599		76,253,599	
2020	30,956,914	-59.40%	26,354,823	-65.44%

Source: Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

<sup>25</sup> Service Charge Division, Economic Supervision Department

### 3.3 Estimated total passenger volume of Thailand

Figure 51 Estimated total passenger volume of Thailand in 2020



Source: Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

Table 13 Estimated total passenger volume of Thailand in 2020

Year	Based Case Scenario		Worst Case Scenario	
	Number of passengers (people)	Annual rate of change (%)	Number of passengers (people)	Annual rate of change (%)
2019	165,076,011		165,076,011	
2020	65,597,655	-60.26%	53,445,659	-67.62%

Source: Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

## Appendix

Number of scheduled flights for each route and airport in Thailand in 2019

1. Suvarnabhumi Airport

Country	Airport	Frequency (flights per year)
Thailand	Chiang Mai	16,564
	Chiang Rai	5,908
	Hat Yai	4,043
	Khon Kaen	4,374
	Ko Samui	15,302
	Krabi	6,115
	Lampang	2,162
	Narathiwat	730
	Phuket	19,822
	Sukhothai	1,770
	Surat Thani	1,456
	Trat	2,244
	Ubon Ratchathani	2,188
	Udon Thani	3,613
Australia	Brisbane	415
	Melbourne	1,511
	Perth	730
	Sydney	1,789
Austria	Vienna	1,681
Bahrain	Bahrain	724
Bangladesh	Chittagong	264
	Dhaka	2,496
Belgium	Brussels	535
Bhutan	Paro	821
Brunei Darussalam	Bandar Seri Begawan	721
Cambodia	Sihanoukville	365
	Phnom Penh	9,147
	Siem Reap	5,022

Country	Airport	Frequency (flights per year)
China	Beihai	202
	Beijing (Capital)	4,652
	Beijing (Daxing)	132
	Changchun	118
	Changsha	835
	Changzhou	246
	Chengdu	3,271
	Chongqing	829
	Fuzhou	1,080
	Guangzhou	9,058
	Guiyang	437
	Haikou	841
	Hangzhou	1,428
	Harbin	65
	Hefei	448
	Hohhot	39
	Jieyang	1,073
	Jinan	726
	Jinjiang	430
	Kunming	4,430
	Lanzhou	397
	Lijiang	54
	Linyi	26
	Luoyang	472
	Nanchang	411
	Nanjing	672
	Nanning	1,925
	Ningbo	899
	Ordos	104
	Qingdao	486
	Shanghai	10,244

Country	Airport	Frequency (flights per year)
	Sanya	522
	Shenyang	729
	Shenzhen	3,737
	Shijiazhuang	142
	Taiyuan	416
	Tianjin	706
	Urumqi	133
	Wenzhou	370
	Wuhan	1,876
	Wuxi	12
	Wuyishan	227
	Xiamen	1,819
	Xi'an	294
	Xining	24
	Xinzhou	46
	Xuzhou	169
	Yangzhou	731
	Yantai	58
	Yinchuan	48
	Yinchang	11
	Zhangjiajie	706
	Zhengzhou	1,359
Taiwan	Kaohsiung	1,456
	Taichung	632
	Taipei	8,338
Denmark	Copenhagen	935
Egypt	Cairo	313
Ethiopia	Addis Ababa	731
Finland	Helsinki	1,348
France	Paris	1,299
Germany	Cologne/Bonn	10

Country	Airport	Frequency (flights per year)
	Dusseldorf	262
	Frankfurt	2,080
	Leipzig/Halle	261
	Munich	1,146
Hong Kong	Hong Kong	17,925
India	Ahmedabad	796
	Amritsar	110
	Bagdogra	180
	Bengaluru	1,869
	Chennai	1,458
	Delhi	5,860
	Gaya	352
	Hyderabad	837
	Jaipur	448
	Kolkata	4,218
	Lucknow	401
	Mumbai	4,495
	Varanasi	790
Indonesia	Denpasar-Bali	730
	Jakarta	3,010
Islamic Republic of Iran	Tehran	478
Israel	Tel Aviv	848
Italy	Milan	435
	Rome	618
Japan	Fukuoka	758
	Nagoya	2,184
	Okinawa	952
	Osaka	2,189
	Sapporo	736
	Sendai	54
	Tokyo (Haneda)	5,112

Country	Airport	Frequency (flights per year)
	Tokyo (Narita)	50,16
Jordan	Amman	728
Kazakhstan	Almaty	461
	Nursultan	22
Kenya	Nairobi	727
Korea	Busan	3,388
	Daegu	730
	Jeju	434
	Muan	426
	Seoul Incheon	11,192
Kuwait	Kuwait	728
Laos	Luang Prabang	2,546
	Pakse	442
	Vientiane	5,096
Luxembourg	Luxembourg	100
Macau	Macau	1,370
Malaysia	Kuala Lumpur	6,860
	Penang	1,486
Maldives	Male	1,193
Mongolia	Ulaanbaatar	88
Myanmar	Mandalay	1,457
	Nay Pyi Taw	596
	Yangon	7,563
Nepal	Kathmandu	1,042
Netherlands	Amsterdam	1,108
New Zealand	Auckland	731
Norway	Oslo	838
Oman	Muscat	2,047
Pakistan	Islamabad	253
	Karachi	704
	Lahore	453



Country	Airport	Frequency (flights per year)
Philippines	Cebu	313
	Manila	5,078
Qatar	Doha	4,883
Reunion	St-denis	206
Russia	Irkutsk	426
	Khabarovsk	18
	Krasnoyarsk	112
	Moscow (Domodedovo)	418
	Moscow (Sheremetyevo)	1,547
	Moscow (Vnukovo)	188
	Novosibirsk	718
	Vladivostok	188
Singapore	Singapore	16,389
Sri Lanka	Colombo	2,263
Sweden	Stockholm	988
Switzerland	Zurich	1,456
Turkey	Istanbul	1,715
Turkmenistan	Ashgabat	330
Ukraine	Kiev	464
United Arab Emirates	Abu Dhabi	2,116
	Dubai	4,493
United Kingdom	London	2,882
Uzbekistan	Tashkent	395
Viet Nam	Cam Ranh	390
	Da Nang	3,072
	Dalat	662
	Haiphong	408
	Hanoi	4,699
	Ho Chi Minh City	6,873
	Phuquoc	860

## 2. Don Mueang International Airport

Country	Airport	Frequency (flights per year)
Thailand	Buriram	3,368
	Chiang Mai	22,069
	Chiang Rai	9,751
	Chumphon	2,170
	Hat Yai	15,340
	Khon Kaen	7,350
	Krabi	7,984
	Lampang	2,352
	Loei	2,382
	Mae Hong Son	262
	Mae Sot	2,825
	Nakhon Phanom	2,479
	Nakhon Si Thammarat	8,664
	Nan	2,830
	Narathiwat	866
	Phitsanulok	5,658
	Phrae	1,220
	Phuket	19,415
	Ranong	2,165
	Roi Et	2,642
	Sakon Nakhon	2,853
	Surat Thani	9,255
	Trang	4,380
	Ubon Ratchathani	9,410
	Udon Thani	10,638
Australia	Brisbane	173
Bangladesh	Dhaka	602

Country	Airport	Frequency (flights per year)
Cambodia	Sihanoukville	218
	Phnom Penh	2,202
	Siem Reap	2,166
China	Changsha	1,876
	Changzhou	730
	Chengdu	1,404
	Chongqing	2,153
	Dalian	10
	Guangzhou	2,189
	Guiyang	53
	Hangzhou	2,127
	Hefei	193
	Hohhot	14
	Jinan	551
	Kunming	1,478
	Linyi	53
	Nanchang	943
	Nanjing	1,874
	Nanning	559
	Nantong	418
	Ningbo	551
	Qingdao	367
	Shanghai	1,436
	Shantou	729
	Sanya	240
	Shenyang	416
	Shenzhen	1,550
	Tianjin	1,237
	Wuhan	1,916
	Wuxi	245

Country	Airport	Frequency (flights per year)
	Xi'an	1,563
	Xuzhou	6
	Yancheng	160
	Yiwu	311
	Zhanjiang	314
	Zhengzhou	1,034
Taiwan	Taipei	2,815
Hong Kong	Hong Kong	2,091
India	Ahmedabad	246
	Bengaluru	728
	Bhubaneshwar	226
	Chennai	730
	Delhi	388
	Gaya	244
	Guwahati	50
	Jaipur	417
	Kochi	745
	Kolkata	728
	Mumbai	628
	Vishakhapatnam	303
Indonesia	Denpasar-Bali	2,555
	Jakarta	3,851
	Medan	730
Japan	Fukuoka	827
	Hiroshima	12
	Nagoya	1,030
	Osaka	2,646
	Sapporo	684
	Tokyo (Narita)	4,300
Korea	Seoul Incheon	2,108

Country	Airport	Frequency (flights per year)
Laos	Luang Prabang	730
	Vientiane	728
Macau	Macau	2,886
Malaysia	Johor Bahru	1,416
	Kota Kinabalu	258
	Kuala Lumpur	9,331
	Penang	1,460
Maldives	Male	739
Myanmar	Mandalay	729
	Yangon	5,200
Nepal	Kathmandu	728
Philippines	Manila	842
Singapore	Singapore	6,067
Sri Lanka	Colombo	816
Viet Nam	Cam Ranh	280
	Can Tho	193
	Da Nang	2,011
	Hanoi	2,292
	Ho Chi Minh City	3,650

### 3. Chiang Mai International Airport

Country	Airport	Frequency (flights per year)
Thailand	Bangkok Don Mueang International Airport	22,069
	Bangkok Suvarnabhumi International Airport	16,564
	Hat Yai	1,126
	Khon Kaen	1,186
	Ko Samui	840
	Krabi	1,610

Country	Airport	Frequency (flights per year)
	Mae Hong Son	932
	Nan	20
	Pai	40
	Mea Sot	17
	Phuket	3,184
	Surat Thani	730
	Udon Thani	1,914
	U-Tapao	2,166
	Ubon Ratchathani	372
China	Beijing	784
	Changsha	730
	Chengdu	343
	Chongqing	340
	Guangzhou	2,155
	Hangzhou	418
	Jinghong	400
	Kunming	2,058
	Nanchang	418
	Nanning	297
	Quanzhou	131
	Shanghai	3,047
	Sanya	207

Country	Airport	Frequency (flights per year)
	Shenzhen	664
	Wuhan	284
	Xi'an	470
Taiwan	Taipei	1,370
Hong Kong	Hong Kong	2,150
Korea	Seoul Incheon	1,303
Laos	Luang Prabang	774
Macau	Macau	816
Malaysia	Kuala Lumpur	1,124
Myanmar	Mandalay	412
	Yangon	982
Qatar	Doha	254
Singapore	Singapore	959
Vietnam	Hanoi	1,240
	Ho Chi Minh City	418

#### 4. Mae Fah Luang Chiang Rai International Airport

Country	Airport	Frequency (Flight per year)
Thailand	Bangkok Don Mueang International Airport	9,751
	Bangkok Suvarnabhumi International Airport	5,908
	Hat Yai	490
	Phuket	926
	Udon Thani	32

Country	Airport	Frequency (Flight per year)
China	Changsha	417
	Chengdu	286
	Guangzhou	4
	Hangzhou	36
	Jinghong	302
	Kunming	311
	Shenzhen	459
Hong Kong	Hong Kong	256
Macau	Macau	194
Malaysia	Kuala Lumpur	154
Singapore	Singapore	156

#### 5. Nan Nakhon Airport

Country	Airport	Frequency (Flight per year)
Thailand	Bangkok Don Mueang International Airport	2,830
	Chiang Mai	20

#### 6. Lampang Airport

Country	Airport	Frequency (Flight per year)
Thailand	Bangkok Don Mueang International Airport	2,352
	Bangkok Suvarnabhumi International Airport	2,162

#### 7. Mae Hong Son Airport

Country	Airport	Frequency (Flight per year)
Thailand	Bangkok Don Mueang International Airport	262
	Chiang Mai	932

#### 8. Pai Airport

Country	Airport	Frequency (Flight per year)
Thailand	Chiang Mai	40



9. Phrae Airport,

Country	Airport	Frequency (Flight per year)
Thailand	Bangkok Don Mueang International Airport	1,220

10. Buriram Airport

Country	Airport	Frequency (Flight per year)
Thailand	Bangkok Don Mueang International Airport	3,368

11. Khon Kaen Airport

Country	Airport	Frequency (Flight per year)
Thailand	Bangkok Don Mueang International Airport	7,350
	Bangkok Suvarnabhumi International Airport	4,374
	Chiang Mai	1,186
	Hat Yai	314
	Phuket	416
	U-Tapao	394

12. Nakhon Phanom Airport

Country	Airport	Frequency (Flight per year)
Thailand	Bangkok Don Mueang International Airport	2,479

13. Roi Et Airport

Country	Airport	Frequency (Flight per year)
Thailand	Bangkok Don Mueang International Airport	2,642

#### 14. Loei Airport

Country	Airport	Frequency (Flight per year)
Thailand	Bangkok Don Mueang International Airport	2,382

#### 15. Sakon Nakhon Airport

Country	Airport	Frequency (Flight per year)
Thailand	Bangkok Don Mueang International Airport	2,853

#### 16. Udon Thani International Airport

Country	Airport	Frequency (Flight per year)
Thailand	Bangkok Don Mueang International Airport	10,638
	Bangkok Suvarnabhumi International Airport	3,613
	Chiang Mai	1,914
	Chiang Rai	32
	Hat Yai	312
	Phuket	730
	U-Tapao	734

#### 17. Ubon Ratchathani International Airport

Country	Airport	Frequency (Flight per year)
Thailand	Bangkok Don Mueang International Airport	9,410
	Bangkok Suvarnabhumi International Airport	2,188
	Chiang Mai	372

#### 18. Phuket International Airport

Country	Airport	Frequency (Flight per year)
Thailand	Bangkok Don Mueang International Airport	19,415
	Bangkok Suvarnabhumi International Airport	19,822
	Chiang Mai	3,184
	Chiang Rai	926
	Hat Yai	732
	Khon Kaen	416
	Ko Samui	3,428
	Udon Thani	730
	U-Tapao	1,660
Australia	Melbourne	359
	Sydney	306
Cambodia	Phnom Penh	216
	Siem Reap	478
China	Beijing	2,169
	Changsha	418
	Chengdu	3,592
	Chongqing	1,449
	Fuzhou	62
	Guangzhou	2,262
	Guiyang	463
	Hangzhou	792
	Hefei	312
	Hohhot	15
	Huai'an	294
	Jinan	115
	Kunming	1,201
	Lanzhou	60
	Nanjing	1,397

Country	Airport	Frequency (Flight per year)
	Nanning	305
	Shanghai	5,179
	Shenzhen	1,468
	Shijiazhuang	18
	Taiyuan	138
	Tianjin	416
	Wuhan	900
	Xi'an	1,374
	Zhengzhou	736
Denmark	Copenhagen	33
Finland	Helsinki	148
Germany	Frankfurt	157
Hong Kong	Hong Kong	3,917
India	Bengaluru	1,282
	Delhi	1,357
	Mumbai	729
Iran	Tehran	19
Korea	Seoul Incheon	1,927
Macau	Macau	582
Malaysia	Kuala Lumpur	6,915
	Langkawi	224
	Penang	796
Myanmar	Kawthaung	14
	Yangon	58
Qatar	Doha	1,623
Russia	Irkutsk	44
	Moscow (Sheremetyevo)	918
	Moscow (Vnukovo)	378

Country	Airport	Frequency (Flight per year)
	Novosibirsk	38
Singapore	Singapore	8,051
Sweden	Stockholm	27
Switzerland	Zurich	146
Turkey	Istanbul	584
Uzbekistan	Tashkent	16
United Arab Emirates	Abu Dhabi	690
	Dubai	1,071
Viet Nam	Ho Chi Minh City	788

#### 19. Hatyai International Airport

Country	Airport	Frequency (Flight per year)
Thailand	Bangkok Don Mueang International Airport	15,340
	Bangkok Suvarnabhumi International Airport	4,043
	Chiang Mai	1,126
	Chiang Rai	490
	Khon Kaen	314
	Phuket	732
	Udon Thani	312
	U-Tapao	730
China	Kunming	54
Malaysia	Kuala Lumpur	862
Singapore	Singapore	1,000

#### 20. Chumphon Airport

Country	Airport	Frequency (Flight per year)
Thailand	Bangkok Don Mueang International Airport	2,170

#### 21. Krabi International Airport

Country	Airport	Frequency (Flight per year)
Thailand	Bangkok Don Mueang International Airport	7,984
	Bangkok Suvarnabhumi International Airport	6,115
	Chiang Mai	1,610
	Ko Samui	738
China	Chengdu	732
	Chongqing	497
	Guangzhou	212
	Kunming	48
	Shanghai	100
	Xi'an	38
Denmark	Copenhagen	86
Finland	Helsinki	72
Hong Kong	Hong Kong	284
Macau	Macau	256
Malaysia	Kuala Lumpur	2,842
Norway	Oslo	90
Qatar	Doha	246
Singapore	Singapore	1,336
Sweden	Stockholm	96
UAE	Dubai	44

## 22. Trang Airport

Country	Airport	Frequency (Flight per year)
Thailand	Bangkok Don Mueang International Airport	4,380

## 23. Nakhon Si Thammarat Airport

Country	Airport	Frequency (Flight per year)
Thailand	Bangkok Don Mueang International Airport	8,664

## 24. Narathiwat Airport

Country	Airport	Frequency (Flight per year)
Thailand	Bangkok Don Mueang International Airport	866
	Bangkok Suvarnabhumi International Airport	730

#### 25. Ranong Airport

Country	Airport	Frequency (Flight per year)
Thailand	Bangkok Don Mueang International Airport	2,165

#### 26. Surat Thani International Airport

Country	Airport	Frequency (Flight per year)
Thailand	Bangkok Don Mueang International Airport	9,255
	Bangkok Suvarnabhumi International Airport	1,456
	Chiang Mai	730
China	Chengdu	414
	Hangzhou	213
	Wuhan	64
Malaysia	Kuala Lumpur	140

#### 27. Samui International Airport

Country	Airport	Frequency (Flight per year)
Thailand	Bangkok Suvarnabhumi International Airport	15,302
	Chiang Mai	840
	Krabi	738

	Phuket	3,428
	U-Tapao	744
China	Chengdu	343
	Chongqing	114
Hong Kong	Hong Kong	1,454
Malaysia	Kuala Lumpur	728
Singapore	Singapore	2,865

#### 28. U-Tapao Rayong International Airport

Country	Airport	Frequency (Flight per year)
Thailand	Chiang Mai	2,166
	Hat Yai	730
	Khon Kaen	394
	Ko Samui	744
	Phuket	1,660
	Udon Thani	734
China	Chengdu	236
	Guiyang	157
	Haikou	571
	Meixian	40
	Nanning	235
	Shijiazhuang	50
	Yichang	26
Macau	Macau	275
Malaysia	Kuala Lumpur	390

#### 29. Trat Airport



Country	Airport	Frequency (Flight per year)
Thailand	Bangkok Suvarnabhumi International Airport	2,244

### 30. Mae Sot Airport

Country	Airport	Frequency (Flight per year)
Thailand	Bangkok Don Mueang International Airport	2,825
	Chiang Mai	17

### 31. Hua Hin Airport

Country	Airport	Frequency (Flight per year)
Malaysia	Kuala Lumpur International Airport	636

### 31. Sukhothai Airport

Country	Airport	Frequency (Flight per year)
Thailand	Bangkok Suvarnabhumi International Airport	1,770

### 32. Phitsanulok Airport

Country	Airport	Frequency (Flight per year)
Thailand	Bangkok Don Mueang International Airport	5,658

Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited  
Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

HHI Index and airlines providing services on each domestic rout

Route	Airline	HHI index
BKK/DMK-CNX	Thai AirAsia	0.16
	Nok Air	
	Thai Lion Air	
	Thai Vietjet	
	Thai Airways International	
	Bangkok Airways	
	Thai Smile Airways	
BKK/DMK-HKT	Thai AirAsia	0.17
	Thai Airways International	
	Bangkok Airways	
	Thai Vietjet	
	Thai Lion Air	
	Nok Air	
	Thai Smile Airways	
BKK/DMK-KBV	Thai AirAsia	0.18
	Thai Lion Air	
	Thai Airways International	
	Bangkok Airways	
	Nok Air	
	Thai Vietjet	
	Thai Smile Airways	
BKK/DMK-CEI	Thai AirAsia	0.19
	Thai Lion Air	
	Nok Air	
	Thai Smile Airways	
	Thai Vietjet	
	Bangkok Airways	

Route	Airline	HHI index
BKK/DMK-UTH	Nok Air	0.25
	Thai AirAsia	
	Thai Lion Air	
	Thai Smile Airways	
	Thai Vietjet	
BKK/DMK-HDY	Thai AirAsia	0.27
	Thai Lion Air	
	Nok Air	
	Thai Smile Airways	
BKK/DMK-UBP	Nok Air	0.28
	Thai Lion Air	
	Thai Smile Airways	
	Thai AirAsia	
BKK/DMK-URT	Thai AirAsia	0.30
	Thai Lion Air	
	Nok Air	
	Thai Smile Airways	
BKK/DMK-KKC	Thai Smile Airways	0.33
	Thai AirAsia	
	Thai Lion Air	
	Nok Air	
DMK-NST	Nok Air	0.33
	Thai AirAsia	
	Thai Lion Air	
DMK-PHS	Thai AirAsia	0.34
	Nok Air	
	Thai Lion Air	

Route	Airline	HHI index
DMK-TST	Thai AirAsia	0.39
	Thai Lion Air	
	Nok Air	
DMK-BFV	Thai AirAsia	0.50
	Nok Air	
DMK-UNN	Nok Air	0.50
	Thai AirAsia	
DMK-CJM	Thai AirAsia	0.50
	Nok Air	
BKK/DMK-NAW	Thai AirAsia	0.51
	Thai Smile Airways	
BKK/DMK-LPT	Nok Air	0.52
	Bangkok Airways	
UTP-CNX	Thai AirAsia	0.54
	Thai Lion Air	
CNX-HKT	Thai AirAsia	0.56
	Thai Smile Airways	
	Bangkok Airways	
DMK-SNO	Nok Air	0.60
	Thai AirAsia	
DMK-LOE	Thai AirAsia	0.60
	Nok Air	
HKT-CEI	Thai AirAsia	0.66
	Thai Vietjet	
UTP-HKT	Bangkok Airways	0.67
	Thai AirAsia	

Route	Airline	HHI index
CNX-KBV	Thai AirAsia	0.77
	Bangkok Airways	
DMK-NNT	Thai AirAsia	0.81
	Nok Air	
DMK-KOP	Thai AirAsia	0.93
	Nok Air	
DMK-ROI	Thai AirAsia	0.94
	Nok Air	
DMK-MAQ	Nok Air	1.00
DMK-PRH	Nok Air	1.00
BKK-TDX	Bangkok Airways	1.00
BKK-THS	Bangkok Airways	1.00
BKK-USM	Bangkok Airways	1.00
CEI-HDY	Thai AirAsia	1.00
CEI-UTH	Thai Vietjet	1.00
CNX-HDY	Thai AirAsia	1.00
CNX-HGN	Bangkok Airways	1.00
CNX-KKC	Thai AirAsia	1.00
CNX-MAQ	Wisdom Airways	1.00
CNX-NNT	Wisdom Airways	1.00
CNX-PYY	Wisdom Airways	1.00
CNX-UBP	Nok Air	1.00
CNX-URT	Thai AirAsia	1.00
CNX-USM	Bangkok Airways	1.00
CNX-UTH	Nok Air	1.00
DMK-HGN	Nok Air	1.00
HDY-KKC	Thai AirAsia	1.00

Route	Airline	HHI index
HDY-UTH	Thai Lion Air	1.00
HKT-HDY	Bangkok Airways	1.00
HKT-KKC	Thai AirAsia	1.00
HKT-USM	Bangkok Airways	1.00
HKT-UTH	Thai AirAsia	1.00
KBV-USM	Bangkok Airways	1.00
KKC-UTP	Thai AirAsia	1.00
UTP-HDY	Thai AirAsia	1.00
UTP-USM	Bangkok Airways	1.00
UTP-UTH	Thai AirAsia	1.00

Source: Department of Airports, Airports of Thailand Public Company Limited, U-Tapao International Airport and Bangkok Airways Public Company Limited

Analyzed by Aviation Economics Division, The Civil Aviation Authority of Thailand

List of air operator license (AOL) holders

No.	Company	Scheduled	Scheduled	Non-Scheduled	Aerial work
		International	Domestic		
1	K-Mile Air Company Limited (only air freight)	x		x	
2	Jet Asia Airways Company Limited	x		x	
3	Asia Atlantic Airlines Company Limited	x		x	
4	Asian Aerospace Services Company Limited			x	
5	H.S. Aviation Company Limited			x	
6	AC Aviation Company Limited			x	
7	MJets Company Limited			x	
8	SFS Aviation Company Limited			x	
9	Heliluck Aviation Company Limited			x	
10	Rabbit Wings Airways Company Limited			x	
11	AG Global Company Limited				x
12	Advance Aviation Jet Company Limited			x	
13	Advance Aviation Company Limited			x	
14	Air Inter Transport Company Limited			x	
15	Solaire Heliluck Aviation Service Company Limited				x
16	Thai Express Air Company Limited	x	x	x	
17	Thai Lion Mentari Company Limited	x	x	x	
18	Thai Summer Airways Company Limited			x	
19	Thai Flying Service Company Limited			x	
20	Thai Sky Adventures Company Limited				x
21	Thai Eastar Jet Company Limited	x		x	
22	Thai Vietjet Air Joint Stock Company Limited	x	x	x	

No.	Company	Scheduled	Scheduled	Non-Scheduled	Aerial work
		International	Domestic		
23	Thai Aviation Services Company Limited			x	
24	Thai AirAsia X Company Limited	x		x	
25	Thai AirAsia Company Limited	x	x	x	
26	Thai Smile Airways Company Limited	x	x	x	
27	Bangkok Helicopter Company Limited			x	
28	Kannithi Aviation Company Limited		x	x	
29	Thai Airways Public Company Limited	x	x	x	
30	Bangkok Airways Public Company Limited	x	x	x	
31	City Airways Company Limited	x		x	
32	Newgen Airways Company Limited	x	x	x	
33	Flying Media Company Limited			x	
34	United Offshore Aviation Company Limited			x	
35	Aeronautical Radio of Thailand Company Limited			x	
36	VIP Jets Company Limited			x	
37	Sriracha Aviation Company Limited			x	
38	Sky View Airways Company Limited	x		x	
39	Siam Land Flying Company Limited			x	
40	Nok Airlines Public Company Limited	x	x	x	
41	NokScoot Airlines Company Limited	x		x	
42	Avanti Air Charter Company Limited				x
43	RPS System Company Limited		x	x	

Source: Economic Supervision Department, The Civil Aviation Authority of Thailand, information as of 31 December 2019.