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An Economic Impact of Development Project: Case of Phuket International Airport in Thailand

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**An Economic Impact of
“Development Project of
Phuket International Airport”**

by

Wannaphong Durongkaveroj¹

Abstract

The purpose of this study was to estimate the total economic impact of development project of Phuket International Airport (Thailand) using Input-Output Multiplier. The result revealed that the positive economic impact borne to Phuket province was about 32 billion baht or almost 120 percent increasing from initial impact of 15 billion baht. Also, total economic impact to AOT was around 3.6 billion baht or 99 percent increasing from initial impact of 1.8 billion baht.

Development project of Phuket International Airport was thus worthwhile to do so as to improve our facilities for being able to fit a higher demand in tourism industry in the near future. From economic integration like AEC, we should take this advantages by developing our infrastructures or facilities to match with greater interdependence.

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Preface

This report mainly discusses about an economic impact of Phuket International Airport borne to AOT. Phuket International Airport is the second busiest airport in Thailand which serves almost 10 million passengers (arrival and departure) a year. Recently, there is a development program aiming to expand infrastructure and facilities in airport which is anticipated to yield many positive spillovers. So, it inspires me to find out that impacts and it is elaborately demonstrated in this report. I've divided content into two parts including economic impact to Phuket Province and economic impact to AOT. The difference is about multiplier effect and its implication.

For the simulation modeler, all credits are given to Nalitra Thaiprasert, Ph.D. for instructing the framework of economic analysis and giving me the precise simulation path. If there is any mistake, it is merely mine.

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Introduction

Phuket is largest island in Thailand. It is connected to mainland by bridged. In the previous day, it formerly derived its wealth from tin and rubber, and enjoyed very long line history because there are trade routes with China and India. Nowadays, it is one of the tourist destinations in Thailand for travelers from around the world. Since the 1980s, it is developed for being a tourist centers. Even though there was a severe destruction by the 2004 Tsunami, it is currently going through the period of leisure urbanization with many additional hotels, apartments and houses.

For transportation, Phuket International Airport operated by Airports of Thailand Public Company Limited (AOT) is an airport in the south of Thailand and 32 kilometers from downtown Phuket. AOT has several operations including main Suvarnabhumi Airport, Don Muang International Airport, Chiang Mai International Airport, Mae FahLuang – Chiang Rai International Airport, Hat Yai International Airport, and Phuket International Airport. It is the second busiest airport in Thailand – measured from the amount of passenger – after Suvarnabhumi Airport located in Bangkok, Capital of Thailand. For its capacity, the airport is able to handle 24 flight operations per hour and 10 flights per hour for accommodation. There is only one run way for 3,000 meters long and 45 meters wide. Normally, the record of arrivals is around 6 to 7.5 million visitors per year. However, in 2012, this international airport saw a record 9.5 million arrivals with 56 airlines available. Pratuang Sornkham, airport director, said that there is 12% increasing in visitors in 2012 relative to the 2011 arrivals. He informed that there are 34,000 – 35,000 visitors per day which more than last year record of 28,000 persons per day. He is also expected that in 2013, the overall visitors will not less than 10.5 million people. Additionally, he informed that Phuket International Airport can make 1,850 million baht for profit in 2012 and it is expected to be 2,000 million baht for 2013 which the main source of revenue comes from airport industry and passengers.

Due to many scheduled flights from domestics and other countries in Asia, Europe and North America which means that the airport has welcomed several million tourists, in response to an increasing number of visitors, it is now planned to expand, upgrade, and improve its facilities for passenger comfort. The airport commenced a 5.7 billion baht expansion in September 2012, planned for completion in April 2015. The airport will increase its annual capacity from 6.5 million to 12.5 million passengers by building new international passenger terminal, additional 21 bays, a cargo terminal, a new car park and

walkways and rights-of-ways for motorized baggage carts inside the airport, and a new car park while the initial task is refurbishment or renovation an existing terminal such facilities as lavatories and ceilings. In 2012, AOT has signed a 5 year contract with well know Sino – Thai Engineering & Construction Public Company Limited. In this report, I will use the information in an input – output model to assess the effect on an economy of Phuket of changes by development project in Phuket International Airport.

This economic impact is composed of two streams of analysis including the revenue side (airline, passenger consumption (only food and drinks), souvenirs, other shopping, rent (seller), car parking, and others) occurred in Phuket Province and that impact in AOT. The detail about both impacts is followed. Also, I've calculated the impact in construction of AOT to overall Thai economy in the last section.

Economic Impact to Phuket Province

First and the foremost, I will analyze the impact of development project of Phuket International Airport in revenue side. In this past, the impact is considered as the direct and indirect benefit of development the airport. Due to the busiest airport and less capability in serving tourists from around the world, to construct a new bigger terminal helps in convenient dimension. It is expected to be able to fit an increasing amount of tourist projected by the director. When the airport is available, convenient, roomy, and clean, it attracts the airline companies to operate and it increases the demand for travelling more. We can expect a higher profit to AOT from new operations and flight sales. According to the 2012 AOT annual report, the revenue for all operations include landing and parking charges, passenger service charges, aircraft service charge, office and state property rents, service revenues, and concession revenues. The largest share of revenue is stemmed from passenger service charges. The overall revenue is 30,472 million baht. I will present the revenues from sales or services of AOT (total operation) in year 2012 which was affected by this development project. Recall that the total impact should be in 2015 but the development is separated which means that the benefit is consumed in the some parts first after finishing constructing such as renovation of old terminal or construction new airline bay (no need to wait until all development project finished). So, the revenue in 2012 is showed in table as following.

Table: Revenue of AOT from sales and services (millions Baht)

| Revenue from sales or services | Year 2012 |
|---------------------------------------|------------------|
| Landing and parking charges | 4,756 |
| Passenger service charges | 13,183 |
| Aircraft service charges | 489 |
| Office and state property rents | 1,593 |
| Service Revenues | 3,370 |
| Concession Revenue | 7,081 |
| Total | 30,472 |

Source: AOT Annual Report (2012)

To calculate the effect or benefit to Phuket International Airport (PIA), we should consider how much the share of PIA is. Unfortunately, the report does not tell us impressive details about the revenue created by each operation. So, when this revenue is dependent on

flight because it stems from sales and services, I use the shares of the number flight in each operation to calculate the revenue borne by PIA. The table below shows the share of revenue in each operation.

Table: Revenue in each operation

| Operations | Number of flight | share | Revenue |
|----------------------------|-------------------|-------------|------------------|
| Suvarnabhumi and Don muang | 364,111.00 | 0.76 | 23,100.16 |
| Phuket | 59,406.00 | 0.12 | 3,768.87 |
| Hat Yai | 14,573.00 | 0.03 | 924.55 |
| Chiang MAI | 35,571.00 | 0.07 | 2,256.72 |
| Chiang Rai | 6,647.00 | 0.01 | 421.70 |
| Total | 480,308.00 | 1.00 | 30,472.00 |

Source: Author's own calculation

As you seen that, the total revenue for all operations is 30,472 million baht. By calculating using share of the degree of flight in year 2012, Phuket International Airport gained roughly 3,768 million baht in revenue. Additionally, PratuangSornkham (Airport Director) said that 2012 profit of PIA is 1,850 million baht. To check the correct of using this share, I simply calculated the difference between real revenue and cost because it should be equal to profit ($\text{profit} = \text{TR} - \text{TC}$). I found that calculated cost is 2,721 million baht but cost from expected revenue minus expected real profit is just 1,918 million baht. So, the overestimation or error is around 800 million baht from using this share.

However, the revenue that I calculated has a leakage required to deduce. This revenue is stemmed from existing service of PIA plus additional services from development project. If we would like to the real impact of that project, we should go further by calculating additional revenue. But the problem occurs because we don't really know additional revenue in PIA from 2011 to 2012 that come from what factors. It may come from regular higher demand from foreign tourist that not affected by an improvement in airport. But there is some light in the dark corner, according to Pratuang, the 2012 profit has increased by 300 million baht from 1550 to 1850 million baht. It is about 20%. So, I use this 20% is a reward for development project. The 2012 calculated revenue from PIA is 3,768 million baht. Finally, an

increasing in revenue borne by PIA from development project is 754 million baht as table below

Table Impact of PIA development in Sales to AOT

| | Sales | Additional Effect | Increasing Revenue in PIA |
|-----------------------|--------------|--------------------------|----------------------------------|
| Phuket Airport | 3,768.87 | 20% | 753.774 |

Source: Author's own calculation

I will use 20 percent (deduce by 80%) to calculate all of the benefit increasing from the year 2011 to figure out the impact of development project in order to exclude the regular benefit unless there is real information in the previous and present year.

After finishing calculating the impact of development project of PIA in revenue from sales or services, the second thing is the benefit of a higher consumption in foods and drinks produced by Phuket people seller that come from an increasing visitors. According to the 2012 annual report of AOT, the increasing passenger is 954,600 people. Unfortunately, there is no any information about the consumption of those passengers because I do nothing about survey in PIA. In order to exclude the leakage from foreign seller, I have asked my friend who works in some airline at PIA and he is Phuket resident about the proportion of Phuket Resident – owned Restaurant there. He said that almost shop (70%) that selling foods and drinks are the franchise restaurant having a contract with AOT to open its shop in every operation such as 7-11, Burger King, Starbucks or AOT restaurant like Intrigue Lounge. So, the rest is 30% for being Phuket - resident owned shop including inside and outside terminal. Now we have to calculate passenger expense. Unfortunately, there is no any record for passenger consumption in airport but I will presume that 50% of passengers consume foods and drinks at airport with 100 baht per person. The reason I use 50% is that I think some travelers, especially Thai people like me, have already eaten something from restaurant outside airport except in only hurry situation. It is not similar to foreign visitors that we always see he or she consumed burger, coke, coffee in airport. Thus, the benefit from passenger's consumption in only Phuket – resident owned restaurant is shown by table below,

Table: Calculation of consumption's visitors in Phuket International Airport in only local resident – owned restaurants.

| Number of increasing Passenger | Number of visitor consuming foods and drinks | Expenditure of each passenger(Baht) | Consumption in Phuket resident - owned restaurant (Baht) |
|---------------------------------------|---|--|---|
| 954,600 | 477,300 | 47,730,000 | 14,319,000 |

Source: Author's own calculation

As you see that the development project yields 14,319,000 baht as a benefit from higher visitor in consumption that go to Phuket resident – owned shop. This benefit has been borne to Phuket resident is that the pure impact which I would like to clarify.

Thirdly, traveler's expenditure is souvenirs and other shopping such as batik, Sea shell products, ceramics, or other exotic items. Again, there is no any formal information about local souvenirs shop at AOT. However, I asked my friend working there and he said that most of souvenirs shop is run by Phuket resident. So, every incremental income from passenger's higher demand which affected from development project has no leakage which means that there is direct benefit to people who do business in PIA. I use the same way (expectation or speculation) like in the previous paragraph to calculate to traveler's expenditures in souvenirs and other shopping at PIA. Passengers all will not buy souvenirs at the airport because some passenger has already bought it from outside PIA such as big souvenirs shop in the mall and also the price of it is very expensive relative to other shops. So, the details are shown at table below,

Table: Calculation of traveler's consumption in souvenirs shop at PIA

| Number of increasing Passenger | Number of visitor consuming souvenirs | Expenditure of each passenger(Baht) | Consumption in Phuket resident - owned souvenirs shop (Baht) |
|---------------------------------------|--|--|---|
| 954,600 | 190,920 | 22,910,400 | 22,910,400 |

Source: Author's own calculation

From the table, the number of visitor consuming in souvenirs is expected to be less than in foods and drink (20% instead of 50% of additional passenger). Also, the price of

souvenirs is generally higher than of foods and drinks, so I multiplied the number of visitors with 120 Baht. And revenue to Phuket resident is 22,910,400 baht in year 2012 as a benefit from development project in revenue part.

However, there is a leakage in this case. The production of souvenirs does not process 100% in Phuket because it may be made in Krabi, Nakorn Sri Thammarat or elsewhere. So, the idea of leakage lead to re – calculate the effect in souvenir’s revenue by using only profit in selling them. Without formal information about proportion of profit and cost, I presume only 20% of price to be seller’s profit. The reason why I used 20% to be profit is that I asked my mother (she is in the past owner of retailer shop) and she said that in general seller always mark the price up by 20% at least. So, the calculation will be shown by table below,

Table Profit of souvenirs shop

| Number of increasing Passenger | Number of visitor consuming souvenirs | Expenditure of each passenger | Revenue to Phuket resident - owned service (Baht) | Profit to seller |
|---------------------------------------|--|--------------------------------------|--|-------------------------|
| 954,600 | 190,920 | 22,910,400 | 22,910,400 | 6,873,120.00 |

Source: Author’s own calculation

Thus, the effect of PIA development measured in souvenir’s sale (mere profit) is around 7 millions.

Fourthly, it is revenue from transportation including Taxi, Car and van services, Airport Bus, Motorcycle taxis. Due to a higher amount of traveler, those have to use taxi, car and van services from PIA to many tourist attractions such as beach or island in Phuket. Without formal information, I tried to get the real price of those transportations. The best way to derive information is doing a survey but unfortunately, due to the time limit, I will use passenger’s review about transportation in Phuket started from the airport. According to Tripadvisor Website, the price of transportation is different dependent on type of it. Metered taxi has Airport tax for 100 baht and relied on your place. The price is always Turnkey or flat rate. Transport to the furthest point on island is 550 baht, Karon Beach is 450 baht and Patong Beach is 500 baht. Airport Bus is cheapest way with 85 baht. Motorcycle taxis is around 20 baht. With varied transport cost, I will use that average of all transportation

calculated from the information on Tripadvisor. So, the average cost per traveler is about 200 baht per person per day. The details about traveler's expenditure is shown by table as following,

Table: Transport Revenue at PIA (Baht)

| Number of increasing Passenger | Expenditure on transport per person | Expenditure on transport (year) |
|---------------------------------------|--|---|
| 954,600 | 200 | 190,920,000 |

Source: Author's own calculation

To avoid overestimation, I deduced this 190,920,000 – the revenue to driver – by the fixed amount of driver's revenue subtracted to car service agency. Without formal information, accord to the news about car services in Chiang Mai, it is 50 baht per passenger. So, the revenue go to driver should be 150 baht. About driver's consumption, in my opinion, drivers in Phuket may not be necessary to be Phuket resident but of course, they must live in Phuket somewhere. So, the benefit from increasing income should be directly penetrated to Phuket Economy that equal to 143 million baht. Notice that I did not deduce the leakage in oil consumption or rental taxi because it must be in Phuket Retailer or firm.

Additionally, there is another big leakage here. Driver has to pay for its gas or oil. This will not generate any impact because it goes back to retailer who in turn has to pay to suppliers again. According to TDRI, cost in oil or gas of bus or taxi is around 70%. So, I will deduce driver's revenue by their expenditure and the result is shown below,

Table Driver's profit

| Number of increasing passenger | Revenue to driver | Revenue minus driver's expenditure |
|---------------------------------------|--------------------------|---|
| 954,600.00 | 143,190,000.00 | 42,957,000.00 |

Source: Author's own calculation

Thus, revenue goes to driver is around 43 million baht. After deducing possible leakage, 42.96 million baht is the estimated impact from PIA development.

Lastly, it is consumption by additional passenger. According to the department of tourism, the average consumption per day in Thailand between Thai traveler and foreign traveler is 21,000 baht per person per trip. Those travelers will spend their money in foods, drinks, souvenirs, services out of the airport. So, I calculate overall passenger's expenditure as shown in table below,

Table: Additional traveler's consumption affected from development project in PIA

| Number of increasing Passenger | Annual Average Expenditure per trip per person | Annual Traveler consumption (year) | Consumption in Phuket resident - owned service (Baht) |
|---------------------------------------|---|--|--|
| 954,600 | 21,000 | 20,046,600,000 | 14,032,620,000 |

Source: Author's own calculation

According the table, an incremental traveler's consumption in Phuket is 20,046 million baht. However, there is a great leakage here because the business operated in Phuket is partly owned by foreign investor. So, the benefits do not belong to local resident. I deduced this kind of leakage to avoid the overestimation by 30 percent. So, I found that a development project in Phuket International Airport measured in revenue side from an additional traveler's consumption is 14,032 million baht in year 2012. According to AOT annual report, total passenger in PIA in 2012 is 9.1 million people. If I roughly calculate their consumption in Phuket by multiplying those amounts of passenger with average expenditure trip, we will get the value of tourism industry in Phuket that equal to 134,000 million baht that it is close to real value in tourism industry calculated by Kasikorn Bank Research that equal to 140,000 million baht. This good news confirmed at least that my calculation is not too much overestimated. And the main activities of travelers are in services sector that we could expect that there will be a higher demand for hotels, lodging places, restaurants and drinking places.

After enumerating the direct impacts in monetary term and deducing the possible leakage from development project in Phuket International Airport, I will next consider the overall impact on Thai Economy by using the multiplier from 2005 Thailand I – O table (58 x 58) measured by The National Economic and Social Development Board (NESDB). The table below shows the summary of direct impacts from five streams of revenue side, its proper multiplier, and total output impacts.

Table: Economic Impact of Passenger Expenditures in PIA from Development Project

| Revenue Side | Direct Output Impact(฿) | Output Multiplier | Total Output Impact (฿) |
|-------------------------------|--------------------------------|--------------------------|--------------------------------|
| AOT Sales and Services | 754,000,000.00 | 1.71 | 1,287,201,519.87 |
| Foods and Drinks | 14,319,000.00 | 1.96 | 28,008,986.74 |
| Souvenirs | 6,873,120.00 | 1.96 | 13,444,313.63 |
| Transport Services | 42,957,000.00 | 1.82 | 78,272,704.50 |
| Traveler Consumption | 14,032,620,000.00 | 1.96 | 27,448,807,003.52 |
| Total | 14,850,769,120.00 | | 28,855,734,528.27 |

Source: Author's own calculation

According to the table, the total direct effect adding to each sector from development project is almost 15 billion baht. However, there are always link to other sectors a well. With 2005 I-O table in Thailand by NESDB, I calculate output multiplier based on real information. For AOT sales and services, multiplier is 1.71 selected from sector other services (57). For foods and drinks and souvenirs shop, multiplier is 1.96 from sector hotel and restaurant (50). For transport services, multiplier is 1.82 selected from transportation (51) which sub set includes community services, personal services, and etc. lastly, for traveler's consumption, multiplier is 1.96 selected from sector restaurants and hotels (50). Thus, the result is that an indirect effect of AOT sales or services is 1.3 billion baht, of foods and drinks is 28 million baht, of souvenir is 13 million baht, of transport services is 78 million baht, and of passenger's consumption is 27 billion baht. Then, overall effect – direct and indirect – is 28.856 billion baht or increases by 94.30 %.

I will further generate the idea about total impact to economy including direct effect, indirect effect, and induced effect (stemmed from merely VA due to a limit of I – O Table). From calculating using simulation based information on 2005 I – O table, the result is shown by table below,

Table: Total Impacts to Economy

| | Output (baht) |
|------------------------|----------------------|
| Diret Effect | 14,850,769,120 |
| Indirect Effect | 14,004,965,408.27 |
| VA | 3,409,763,527.35 |
| Total Impacts | 32,265,498,056 |

Source: Author's own calculation

As you seen that development project in Phuket International Airport creates almost 15 billion baht for its own benefit accounted from AOT sales or services, foods and drink consumption, souvenirs, transport services, and traveler's consumption. Additionally, it yields billion baht for indirect effect in every other sector around the economy equal to 14 billion baht. Also, it generates another 3.4 billion baht as induced effect measured by the value – added in wages. Thus, the total impacts from direct effect, indirect effect, and induced effect is 32 billion baht which means that 18 billion baht (almost 120% increasing) is added in economy when development project was introduced. This is a revenue side analysis borne to Phuket Provice, the next part is about operating expense of this development project.

Economic Impact to AOT

In this part, it will be less complicated than the previous section. In this case, I will consider the impact of development project of PIA borne to merely AOT. For the revenue side, it will be composed of 2 categories including the first is similar to the previous one, sales (revenue) in Phuket International Airport and the latter is Agent fee collected from rent of food and drink shop, souvenir shop, and charge for transportation agent.

For first sector, revenue, it is similar to the previous one and the table below shows the detail.

Table: Revenue in each operation

| Operations | Number of flight | share | Revenue |
|----------------------------|------------------|-------|-----------|
| Suvarnabhumi and Don muang | 364,111.00 | 0.76 | 23,100.16 |
| Phuket | 59,406.00 | 0.12 | 3,768.87 |
| Hat Yai | 14,573.00 | 0.03 | 924.55 |
| Chiang MAI | 35,571.00 | 0.07 | 2,256.72 |
| Chiang Rai | 6,647.00 | 0.01 | 421.70 |
| Total | 480,308.00 | 1.00 | 30,472.00 |

Source: Author's own calculation

As you seen that, the total revenue for all operations is 30,472 million baht. By calculating using share of the degree of flight in year 2012, Phuket International Airport gained roughly 3,768 million baht in revenue. Additionally, Pratuang Sornkham (Airport Director) said that 2012 profit of PIA is 1,850 million baht. To check the correct of using this share, I simply calculated the difference between real revenue and cost because it should be equal to profit ($\text{profit} = \text{TR} - \text{TC}$). I found that calculated cost is 2,721 million baht but cost from expected revenue minus expected real profit is just 1,918 million baht. So, the overestimation or error is around 800 million baht from using this share.

However, the revenue that I calculated has a leakage required to deduce. This revenue is stemmed from existing service of PIA plus additional services from development project. If we would like to the real impact of that project, we should go further by calculating additional revenue. But the problem occurs because we don't really know additional revenue

in PIA from 2011 to 2012 that come from what factors. It may come from regular higher demand from foreign tourist that not affected by an improvement in airport. But there is some light in the dark corner, according to Pratuang, the 2012 profit has increased by 300 million baht from 1550 to 1850 million baht. It is about 20%. So, I use this 20% is a reward for development project. The 2012 calculated revenue from PIA is 3,768 million baht. Finally, an increasing in revenue borne by PIA from development project is 754 million baht as table below

Table Impact of PIA development in Sales to AOT

| | Sales | Additional Effect | Increasing Revenue in PIA |
|-----------------------|--------------|--------------------------|----------------------------------|
| Phuket Airport | 3,768.87 | 20% | 753.774 |

Source: Author's own calculation

I will use 20 percent (deduce by 80%) to calculate all of the benefit increasing from the year 2011 to figure out the impact of development project in order to exclude the regular benefit unless there is real information in the previous and present year.

For second sector, agent fee, include fees from food and drink shop, souvenir shop, and transportation charge to agent. In this sector, I will separate analysis to two sectors. First sector is food and drink shop and souvenir shop. According to AOT annual report 2012, in statement of income, it is shown the revenue from office and state property rents and concession revenue (AOT own shop). However, it's necessary to generate those revenues in Phuket International Airport. Without any formal information, I use the same proportion from share of revenue (0.12) to calculate share of PIA in this sector again as shown in table below,

Table PIA's revenue from agent fee

| | Revenue | Share |
|---------------------------------------|------------------|------------------|
| Office and state property Rent | 1,593,081,961.00 | 191,169,835.32 |
| Concession Revenue | 7,080,779,647.00 | 849,693,557.64 |
| total | 8,673,861,608.00 | 1,040,863,392.96 |

Source: Author's own calculation

Thus, the revenue from rent collected from food and drink shop and revenue shop is expected to be around 1 billion baht.

Next, it is charge from transport agent. Without formal information, I use 50 baht per car from the news about charge paid to airport occurred in Chiang Mai International Airport. To find out the total amount of driver having to pay for rent, without formal information, I use the total amount of increasing passenger to calculate it. However, there is big leakage because not every passenger uses bus or taxi as he or she will be taken by friends or relatives. So, I deduce this amount by 30 percent. The rest is 70 per cent of passenger to use this kind of transportation. So, revenue from charge will be shown by table below,

Table: Charge from Transport agent (levied by AOT)

| | Amount of passenger (increasing in a 2012) | Amount of passenger who take transport | Charge (AOT's revenue) |
|---|---|---|--------------------------------|
| Transport (taxi, van,motor-tricycle) | 954,600 | 668,220 | 33,411,000.00 |

Source: Author's Calculation

Thus, the charge levied by AOT is around 33.5 million baht which stand for the economic impact of PIA development project in revenue side.

After calculating the direct impacts in monetary term and deducing the proper leakage from development project in Phuket International Airport, I will further consider the overall impact on AOT by using the precise information from 2005 Thailand I – O table (58 X 58) measured by The National Economic and Social Development Board (NESDB). The table below shows the summary of direct impact from 2 stream of revenue side, its proper multipliers, and total output impacts.

Table: Economic Impacts of Development Project of Phuket International Airport

| Revenue Side | Direct Output Impact(฿) | Output Multiplier | Total Output Impact (฿) |
|-------------------------------|--------------------------------|--------------------------|--------------------------------|
| AOT Sales and Services | 754,000,000 | 1.707164 | 1,287,201,519.87 |
| Agent fee | 1,074,274,393 | 1.739477 | 1,868,675,688.88 |
| Total | 1,828,274,393 | | 3,155,877,208.76 |

Source: Author's own calculation

According to the table, the direct output impact is 1.8 billion. With output multipliers, AOT sales and Services multiplier is 1.71 from sector other services (57) and agent fee multiplier is 1.74 from sector electricity and gas (45). Then, it generates 3.156 billion to AOT which include an indirect effect equal to 1,327,602,815.80 baht. In conclusion, it increases from direct impact around 72.62 percent.

I will further generate the idea about total impacts to AOT including direct effect, indirect effect, and induced effect shown by table below,

Table: Total Impacts to AOT

| | Output (\$) |
|------------------------|--------------------|
| Direct Effect | 1,828,274,393 |
| Indirect Effect | 1,327,602,815.80 |
| Induced Effect | 485,540,450.2 |
| Total Impacts | 3,641,417,659 |

Source: Author's own calculation

As you seen that the development project in Phuket International Airport creates almost 1.8 billion for its own sale and agent fee, 1.3 billion for indirect effect in overall sector, and 485 million as induced effect in VA sector. Thus, the total impacts from direct, indirect, and induced effect is 3.64 billion baht which mean that 1.8 billion or 200% increase is added to economy when this project is launched. So, this is a revenue side's economic impact when the impact is narrowed down to AOT.

Economic Impact of Construction to Thai Economy

In addition, I would like to generate the precise result of the effect of Development Project in Phuket International Economy for whole Thai Economy. In this case, I do not deduce any leakage by assuming that Sino – Thai (contractor) use domestic materials by its own production and Thai business partner for being supplier. So, the result is shown by table below,

Table: Economic Impact of Development Project in PIA for Thai Economy as a whole

| | Output (Million Baht) |
|------------------------|------------------------------|
| Direct effect | 5,791,000,000 |
| Indirect effect | 5,139,314,803 |
| Induced effect | 4,014,489,042 |
| Total impact | 14,944,803,845 |

Source: Author's own calculation

As you see that the direct effect in investment is 5,791 million baht. It will generate an indirect effect of 5 billion baht. Also, the induced effect (VA) is 4 billion baht which is responsible for employment effect around 1 billion baht. Therefore, the total impact of 5,791 final demand from Phuket Airport Development Project borne to Thai economy is 14,944,803,845 million baht or almost 15 billion baht or 158 percent increasing.

Conclusion

This study provides an estimate of the total economic impact of development project of Phuket International Airport by separating the analysis into two main streams in revenue side including economic impact to Phuket province and to AOT. With a contribution of I – O table issued by NESDB, it helps us very much to see a possible outcome of this project. For my result, total the economic impact to Phuket province is about 32 billion baht or almost 120 percent increasing from initial impact of 15 billion baht. Also, total economic impact to AOT is around 3.6 billion baht or 99 percent increasing from initial impact of 1.8 billion baht.

Development project of Phuket International Airport is thus worthwhile to do so as to improve our facilities for being able to fit a higher demand in tourism industry in the near future. From economic integration like AEC, it makes people more free to go to other countries within regions, I think we should take this advantages by developing our infrastructures or facilities to match with greater interdependence trend.

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