Air Cargo Hub Competition in Northeast Asia

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Introduction

Why is it important to become a cargo hub in NEA?

- Air freight growth in Northeast Asia (NEA)
  - Asia's air cargo markets is leading the world air cargo industry.
- Hub-and-spokes system
  - Multinational companies and logistics service providers prefer hub-and-spokes system for their logistics distribution
    - can reduce the logistics flow cost and time, and improve accuracy
- Government-level efforts
  - Each country is trying to invite global corporations for their logistics bases and freight transit.
    - Invest money for improving airport facilities
    - Introduce customs-free zone or deregulation

<table>
<thead>
<tr>
<th>2005 Air Freight Growth by Major Market, Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>World</td>
</tr>
<tr>
<td>North America</td>
</tr>
<tr>
<td>Europe–North America</td>
</tr>
<tr>
<td>Asia–North America</td>
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<tr>
<td>North America–Latin America</td>
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<td>Europe–Asia</td>
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<tr>
<td>Intra-Asia</td>
</tr>
<tr>
<td>Domestic China</td>
</tr>
</tbody>
</table>

[Boeing, 2006/2007 World Air Cargo Forecast]
Literature review (1/2)

- Multinational firm’s location preference for regional distribution centers
  - Analysis on the choice of host countries by Multinational companies (MNCs)
    - Important determinants of MNCs’ choice
      - Market size and economic growth
      - Labor and other factor costs
      - Geographical proximity to host countries
      - Government policies towards foreign investment
      - Location advantage in logistics
      - Host country infrastructure
      - Technological capability of the host country
      - Cultural distance between the home and host countries
      - Extent of labor unionization
  - Whether the characteristics of host regions determine MNC’s choice of regions in the host country?
    - Market demand characteristics
    - Labor market characteristics
    - Quality and capacity of infrastructures
    - Existence of industry cluster
    - Government incentives

### Multinational firm’s location preference for regional distribution centers

<table>
<thead>
<tr>
<th>Determinants</th>
<th>Mean(^a)</th>
<th>Std. deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>② Geo-location, transport linkage and market accessibility</td>
<td>4.27(^b)</td>
<td>0.98</td>
</tr>
<tr>
<td>① Market size and growth potential of catchment region</td>
<td>4.28</td>
<td>0.98</td>
</tr>
<tr>
<td>③ Port, airport and inter-modal transport facilities</td>
<td>3.80</td>
<td>1.04</td>
</tr>
<tr>
<td>Labor and other input costs</td>
<td>3.35</td>
<td>0.97</td>
</tr>
<tr>
<td>⑤ Skilled labor force, labor quality, and labor peace</td>
<td>3.62</td>
<td>0.87</td>
</tr>
<tr>
<td>Flexible immigration</td>
<td>2.47</td>
<td>1.22</td>
</tr>
<tr>
<td>Land and availability and price</td>
<td>3.04</td>
<td>1.08</td>
</tr>
<tr>
<td>Corporate tax incentives</td>
<td>3.12</td>
<td>1.17</td>
</tr>
<tr>
<td>Availability of Free Trade Zones</td>
<td>3.06</td>
<td>1.17</td>
</tr>
<tr>
<td>Info-communications tech/e-business infrastructure</td>
<td>3.33</td>
<td>1.12</td>
</tr>
<tr>
<td>⑥ Modern logistics service providers and costs</td>
<td>3.53</td>
<td>1.19</td>
</tr>
<tr>
<td>Competitive financial service sector</td>
<td>2.70</td>
<td>1.05</td>
</tr>
<tr>
<td>Personal income taxes for foreign employees</td>
<td>2.23</td>
<td>0.99</td>
</tr>
<tr>
<td>⑦ Pro-business government and officials</td>
<td>3.48</td>
<td>0.92</td>
</tr>
<tr>
<td>Housing, schools, quality of life, environmental amenity</td>
<td>2.86</td>
<td>1.02</td>
</tr>
<tr>
<td>④ Political stability</td>
<td>3.70</td>
<td>0.93</td>
</tr>
</tbody>
</table>

\(^a\) Measured in 5-point scale: 1 = the least important; 5 = the most important.
\(^b\) Shaded are critical determinants.
Determinant factors for a cargo hub (1/2)

- **Location**
  - Geographical location
  - B747-400 nonstop flight range
  - Local logistics infrastructure
    - Seaport, railroad

- **Demand**
  - Market size and growth potential
  - Flag carriers
    - Ex) Korean Air: Top 3 cargo airlines in 2006
  - Logistics service providers
    - FedEx, UPS, DHL, etc.

- **Cost**
  - Airport user charges
    - Landing fee, parking charge, cargo service charge, etc.
  - Labor cost
  - Land price
Determinant factors for a cargo hub (2/2)

- **Facilities**
  - Runway capacity
    - Annual flights, number of runways, etc.
  - Terminal area
    - Expandability
  - Operating system technology
  - Labor quality and labor peace

- **Government**
  - Open skies agreement
    - Between U.S.A. and China
  - Free Trade Zone (FTZ)
    - Ex) Airport Logistics Park (260,000m²) of Singapore Changi airport
  - Tax incentives
  - Political stability
Air Cargo Hub Candidates

Competitors for air cargo hub in NEA

- Hong Kong, CN (HKG)
- Seoul, KR (ICN)
- Tokyo, JP (NRT)
- Shanghai, CN (PVG)
- Guangzhou, CN (CAN)
- Taipei, TW (TPE)
- Subic Bay, PH (SFS)
Hong Kong (HKG)

- **Hong Kong Chek Lap Kok international airport (China)**
  - **Characteristics**
    - Ranked No. 2 air cargo handling in the world in 2006
    - 49 air cargo airlines
    - Hub for Cathay Pacific
  - **Strength**
    - China market (intermediate trade between China and Taiwan)
    - Excellent connectivity and accessibility
      - Pearl River Delta Region
    - Sufficient cargo capacity and efficient cargo operation
      - Super Terminal 1: the world’s largest stand-alone air cargo handling facility
      - Automated cargo handling system
  - **Weakness**
    - Geographical location drawback
      - B747-400F: 85~90% payload to Anchorage or Frankfurt
    - Uncertain future
      - China’s entry into the World Trade Organization (WTO) in 2001
      - Relation improvement between China and Taiwan
      - Small O-D market and low transit
Incheon (ICN)

- Seoul Incheon international airport (South Korea)
  - Characteristics
    - International gateway to Seoul (52km)
    - Gimpo airport for domestic flights
    - The most technologically advanced airport
    - 44 air cargo airlines
    - Hub for Korean Air and Asiana Airlines
    - The 2nd best airport in 2007
  - Strength
    - Strategic geographical location
    - Government support
    - Korean Air: No. 3 air cargo airlines in 2006
    - Free trade zone in Yeongjong Sky City (1km²) opened in 2006.
  - Weakness
    - Low accessibility and ship transport infrastructure
    - Political problem
      - A threat of nuclear weapons from North Korea
      - Inefficient operation of airspace around the airport
Narita (NRT)

- Tokyo Narita international airport (Japan)
  - Characteristics
    - International gateway into Tokyo (60km)
      - Haneda airport for domestic flights
    - 8 air cargo airlines
    - Hub for Japan Airlines and All Nippon Airways
  - Strength
    - Big O-D market
      - Tokyo has been the main Asian destination for air cargo with the United States traditionally.
      - Strong local market and liberal fifth freedom rights of US airlines
  - Weakness
    - Saturated capacity
    - Concentrated on domestic market only, small portion of transit
      - 20% of total freights
    - High labor cost
Shanghai (PVG)

- Shanghai Pudong international airport (China)
  - Characteristics
    - International gateway to Shanghai (30km)
      - Hongqiao airport for domestic flights
    - 30 air cargo airlines
    - Hub for China Eastern Airlines and Shanghai Airlines
  - Strength
    - Big market size and growth potential
    - Free trade zone in Pudong area (10km²) and tax incentives
    - Low labor cost and land price
  - Weakness
    - Government regulation (protective trade policy)
    - Low labor quality
    - Lack of logistics infrastructure
Guangzhou (CAN)

- Guangzhou Baiyun international airport (China)
  - Characteristics
    - 11 air cargo airlines
    - Hub for China Southern Airlines and Shenzhen Airlines
    - Selected as a regional hub of FedEx
  - Strength
    - Big market size and growth potential
    - Low labor cost and land price
    - Free trade zone
      - Guangzhou
      - Shenzhen
    - Shenzhen special economic zone
      - manufacturing center in China
  - Weakness
    - Government regulation (protective trade policy)
    - Low labor quality
Taipei (TPE)

- Taipei Taoyuan international airport (Taiwan)
  - Characteristics
    - The busiest international gateway to Taiwan (40km)
      - Taipei Songshan Airport for domestic flights
    - 15 air cargo airlines
    - Hub for China Airlines and EVA Air
  - Strength
    - Geographically desirable location
    - Fluent economic power
  - Weakness
    - Political issue with mainland China
      - Trade with China relies on intermediate trade through Hong Kong
Subic bay (SFS)

Subic Bay international airport (Philippine)

- Characteristics
  - Long history
    - Used to be the Naval Base of United States from 1952 to 1992.
    - Returned to Philippine government in 1992.
    - Managed by the Subic Bay Metropolitan Authority (SBMA) now.
  - FedEx’s regional hub (1995-2008)
  - 4 passenger airlines & 3 air cargo airlines

- Strength
  - Good facilities and infrastructure
  - Subic Bay Free Port Zone
  - English-speaking work force

- Weakness
  - Political instability
    - Frequent military coups
  - Small runway capacity
    - 2,744 X 45 meters, 1 runway
## Comparison of several factors

<table>
<thead>
<tr>
<th>Category</th>
<th>Index</th>
<th>HKG</th>
<th>ICN</th>
<th>NRT</th>
<th>PVG</th>
<th>CAN</th>
<th>TPE</th>
<th>SFS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>B747-400 payload to ANC</td>
<td>85-90%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>85-90%</td>
<td>90-95%</td>
<td>85-90%</td>
</tr>
<tr>
<td>Demand</td>
<td>Population (mil)</td>
<td>7.0</td>
<td>48.5</td>
<td>127.8</td>
<td>1,311.4</td>
<td>1,311.4</td>
<td>22.8</td>
<td>86.3</td>
</tr>
<tr>
<td></td>
<td>Cargo traffic of flag carrier ('06)</td>
<td>No. 7</td>
<td>No. 3 &amp; 19</td>
<td>No. 15</td>
<td>No. 18</td>
<td>No. 18</td>
<td>No. 8 &amp; 11</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Logistics service providers’ hub</td>
<td>FedEx, UPS, DHL</td>
<td>DHL</td>
<td>DHL</td>
<td>UPS, DHL</td>
<td>FedEx (2008 open)</td>
<td>UPS, DHL</td>
<td>FedEx (2008 close)</td>
</tr>
<tr>
<td>Cost</td>
<td>Landing fee ($, B747-400, ’03)</td>
<td>4,920</td>
<td>3,015</td>
<td>8,360</td>
<td>5,315</td>
<td>5,315</td>
<td>2,975</td>
<td>2,551</td>
</tr>
<tr>
<td></td>
<td>Average wage ($/month, ‘99)</td>
<td>2,045</td>
<td>945</td>
<td>2986</td>
<td>92</td>
<td>92</td>
<td>964</td>
<td>276</td>
</tr>
<tr>
<td>Facilities</td>
<td>Runway capacity (runway #)</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Terminal area (m²)</td>
<td>268,200</td>
<td>130,000</td>
<td>249,000</td>
<td>280,000</td>
<td>320,000</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Government support</td>
<td>Free Trade Zone</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

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Choice of Logistics service providers (1/2)

- **FedEx**
  - FedEx Corporation
    - Headquarters: Memphis (US)
    - Ranked No. 1 air cargo airlines in 2006 (15.1 billion FTKs)
  - Asia hub: **Hong Kong** (CN), Subic Bay (PH)
  - Investment
    - $150 million at Guangzhou (CN)
      - Replace its present regional hub at Subic Bay (PH) in 2008.
      - Plan to build 882,640 sq.ft facility (annual capacity: 600,000 tons)

- **UPS**
  - United Parcel Service
    - Headquarters: Atlanta (US)
    - Ranked No. 2 air cargo airlines in 2006 (9.3 billion FTKs)
  - Asia hub: Taipei (TW), Pampanga (Clark, PH), Hong Kong (CN), **Singapore** (SN)
  - Investment
    - $500 million in China over 2006-2007
      - Establish an air cargo hub at Shanghai (CN) in 2007 (annual cargo handling capacity: 200,000 tons)

Choice of Logistics service providers (2/2)

- **DHL**
  - German-based, express and logistics company
    - Founded by A. Dalsey, L. Hillblom and R. Lynn in 1969
    - Headquarters: Amsterdam (NL)
  - Asia hub: Hong Kong (CN), Singapore (SN), Manila (PH), Taipei (TW), Bangkok (TH), Tokyo (JP)
  - Investment
    - Opened its new Central Asia hub at Hong Kong (CN) with $100 million facility (18,200 sq.ft) in 2004.
    - Announced $110 million investment to expand its regional hub at Hong Kong (CN) in 2005.
    - Establishment of a $50 million hub facility at Incheon (KR) (2009)
      - Strong regional & inter-continental connections
      - Market: Korea, Mongolia, Guam, Saipan, and the Russian Far East
    - Development of a DHL Express North Asia hub in Shanghai (CN) with $175 million investment
  - **Key Factor: China’s market size and growth potential**

[http://www.dhl.com]
Airport cargo traffic growth

- Airport cargo traffic trend in NEA (2000-2006)
  - High growth rates at HKG, PVG, and CAN with China’s economic growth
  - Slight decreases of cargo traffic at NRT and TPE

Conclusion

- It is important to become an air cargo hub in Northeast Asia
  - China’s economic growth
  - Hub-and-spokes distribution system
- Each airport has different environments and conditions
  - Should emphasize its own merits and overcome its drawbacks
  - Government support could be crucial.
    - Investment of facilities and infrastructure, free trade zone, tax incentives, etc.
- Logistics service providers
  - Expanding their networks in Asia-Pacific region
  - “Market size and growth potential” is the most critical factor to decide their air cargo hubs.
Questions?

Thank you!