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Transportation costs of fresh flowers: a
comparison across major exporting countries

Henry Vega – George Mason University

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Institute for the Integration of Latin
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***Trade and Transportation Costs in Ecuador:
A Case Study of Fresh Flowers***

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***...the most successful transport policies are actually those
removing and restraining the role of governments
in the transport sector***

J.P. Rodrigue, Hofstra University, 2006

***Large-scale (transportation) investments that can open significant
areas of rural potential can have very large (development) impacts***

P. Freeman, The World Bank, 2007

Outline

- ✈ Air transportation's importance
- ✈ Air cargo of perishables
- ✈ Air cargo of fresh-flowers
- ✈ Discussion
- ✈ Conclusions

Air Transportation

- ✈ 1 600 million passengers a year
- ✈ 3.9 million jobs
- ✈ \$260 billion turnover
- ✈ 18,000 aircraft
- ✈ 15 million kilometer network
- ✈ 10,000 airports
- ✈ 130 billion revenue ton kilometers
- ✈ 30 million tons of freight

Air Transportation

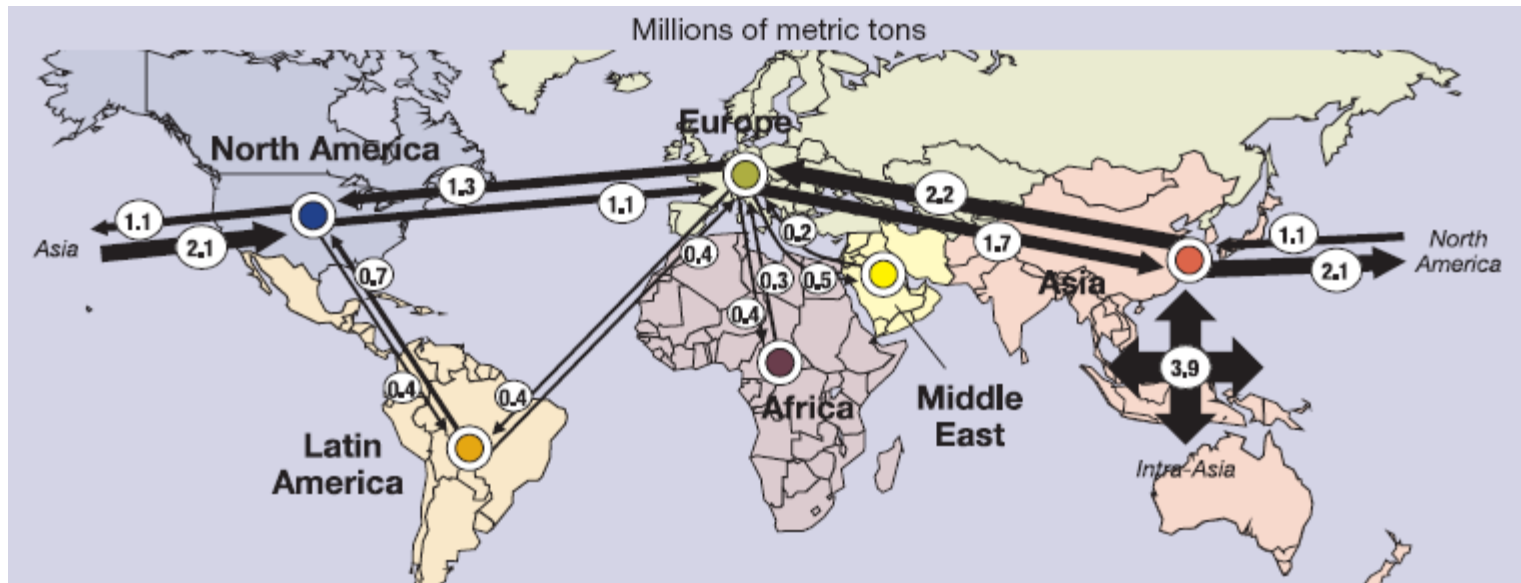
- ✈ Long/medium distance
- ✈ Fast and reliable (important for some types of freight)
- ✈ Highly flexible (spatially and temporally)
- ✈ Quick to put in place (relatively low fixed costs)
- ✈ Significant development about terminals
- ✈ Relatively secure (no track)
- ✈ Relatively safe
- ✈ Relatively easy to develop private/public structures

Air Transportation

- ✈ Large industry in its own right (1% of Western European GDP, more than 1% of US GDP)
- ✈ Important for long term economic/political integration
- ✈ Lubricant for the economic system
- ✈ Half of tourists outside of Europe travel by air
- ✈ Important for key modern industries (high-tech management flies 60% more than traditional industries)
- ✈ Crucial for moving perishables and exotics

Air Cargo

**40% of world's freight value, \$50 billion, 6% growth
...18 million metric tons across continents**



**...including capital and intermediate goods, computers, apparel,
refrigerated foods, consumer goods,
7 - 15% are perishables**

Air Cargo of Perishables

South American Exports by Air in Metric Tons 2006

Exports from S.A. (MT)	2006
Perishables to U.S.	347,345
Other to U.S.	119,342
Percentage Perishables	74%
Perishables to E.U.	99,734
Other to E.U.	90,754
Percentage Perishables	52%
U.S. Market Perishables	78%

Air Cargo of Perishables

2006 Exports of Perishables to the US – \$ Millions

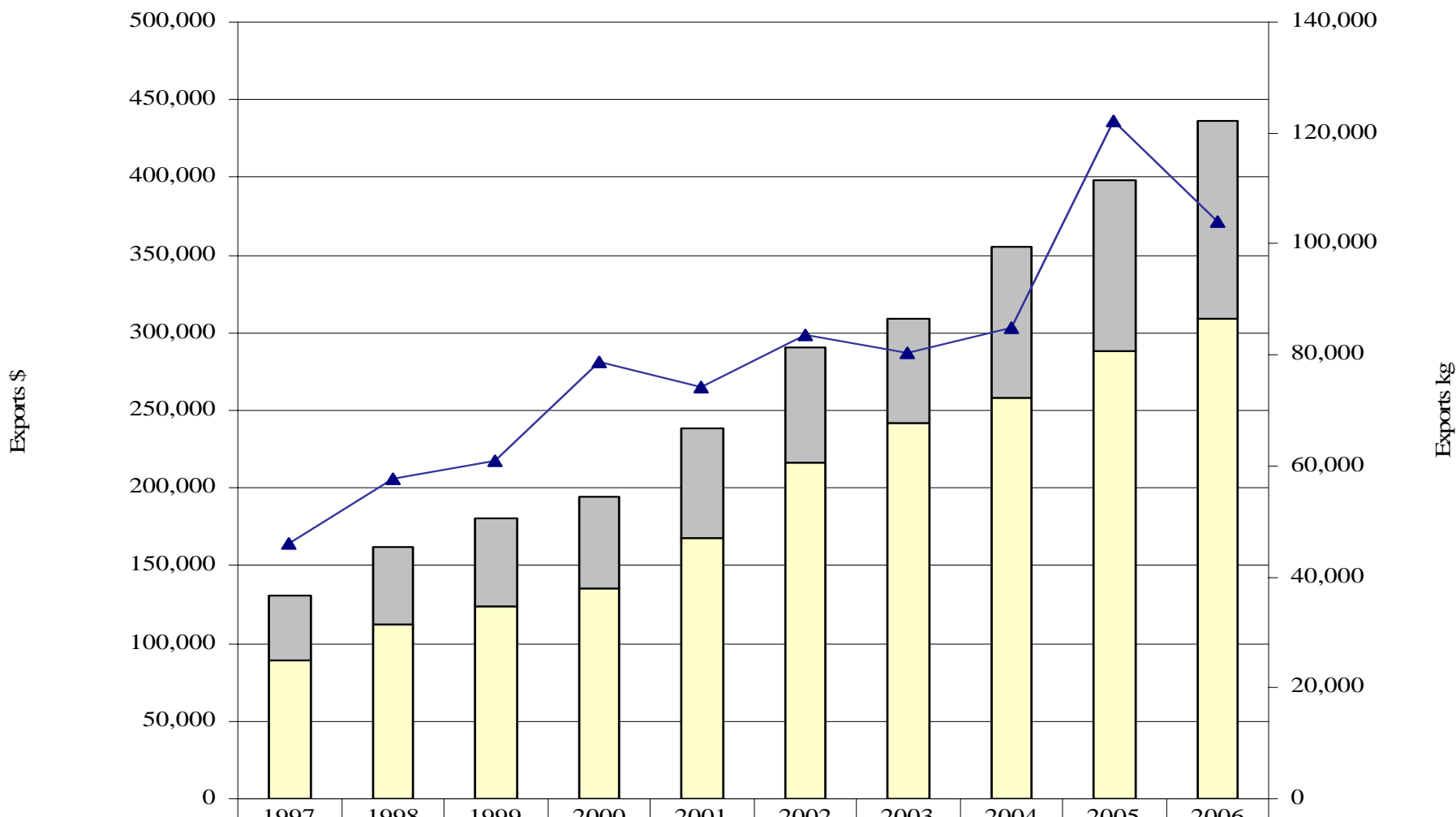
Country	2006	Yearly Growth
Chile	624.00	8.8%
Colombia	471.00	5.1%
Ecuador	248.00	11.3%
Peru	114.00	20.1%
Brazil	40.10	6.1%
Argentina	34.50	18.8%
Venezuela	20.70	1.2%
Suriname	5.96	4.5%
Uruguay	2.89	-2.4%
Guyana	2.04	-4.0%
Bolivia	0.28	34.3%
Paraguay	0.01	-15.5%
Total	1,563.48	8.3%

Air Cargo of Fresh Flowers

- ✈ Large global industry, \$40 to 60 billion
- ✈ US 15% market share – EU 65%
- ✈ 82% of US imports come from LAC
- ✈ Unilateral preference initiatives have lowered or eliminated tariffs for Andean products
- ✈ Colombia 59% Ecuador 18%
- ✈ Very complex supply chains

Air Cargo of Fresh Flowers

Ecuador's Export of Fresh Flowers 1997 – 2006



 \$ Other	41,369	50,009	56,376	59,246	69,660	74,440	66,751	97,167	109,674	126,691
 \$ Roses	89,641	111,953	124,023	135,405	168,391	215,886	241,987	257,651	288,233	309,151
 Volume Kg	45,948	57,770	60,935	78,825	74,230	83,631	80,363	84,853	122,185	104,164

Year

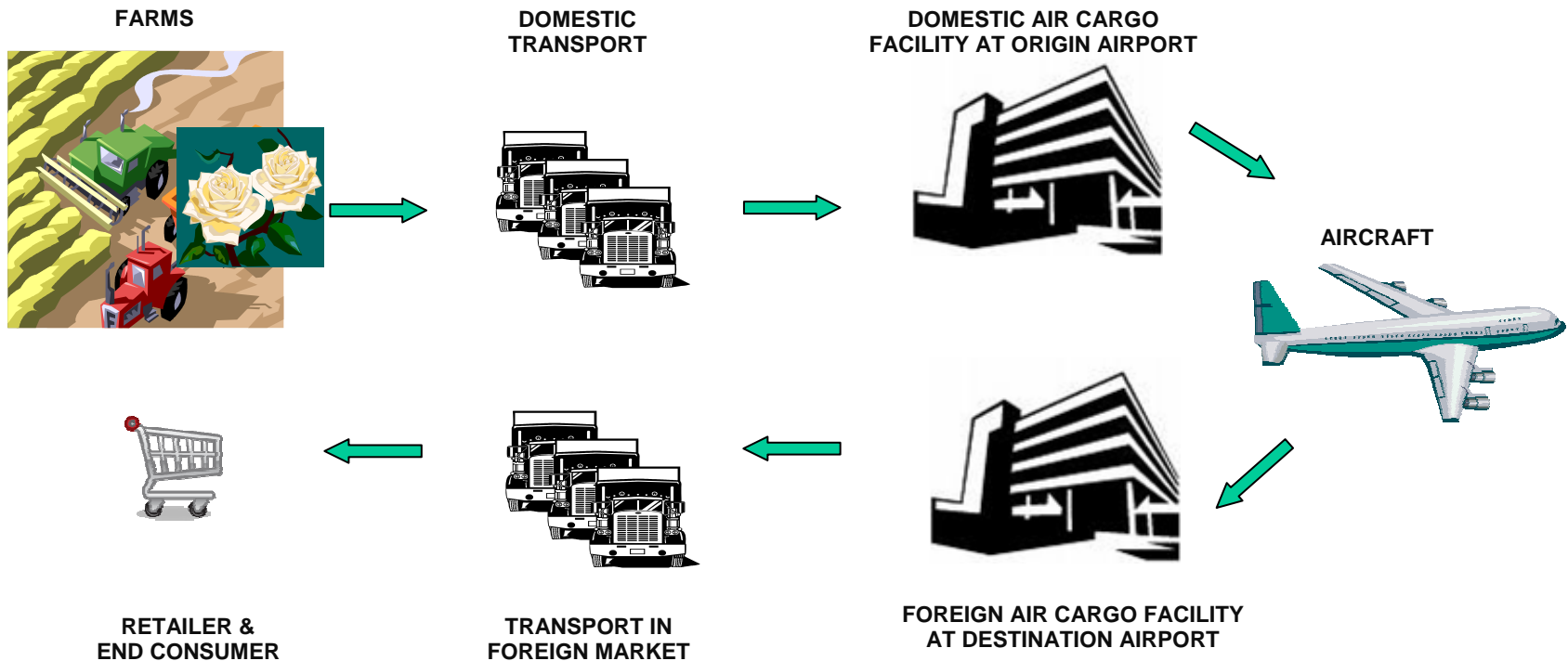
Air Cargo of Fresh Flowers

Transportation Costs of Roses from Selected Countries to the US

Country	Distance to	Feb-06		Aug-06	
	Main entry	Freight		Freight	
	U.S. airport (statute miles)	\$/kg	% cargo value	\$/kg	% cargo value
Kenya	7,947	2.75	79	3.03	86
Israel	5,677	2.29	67	n/a	n/a
Ecuador	1,787	1.35	32	1.23	33
Costa Rica	1,117	1.09	20	1.71	26
Netherlands	4,120	0.98	22	n/a	n/a
Colombia	1,506	0.90	20	0.90	22
Guatemala	1,017	0.47	11	0.87	19

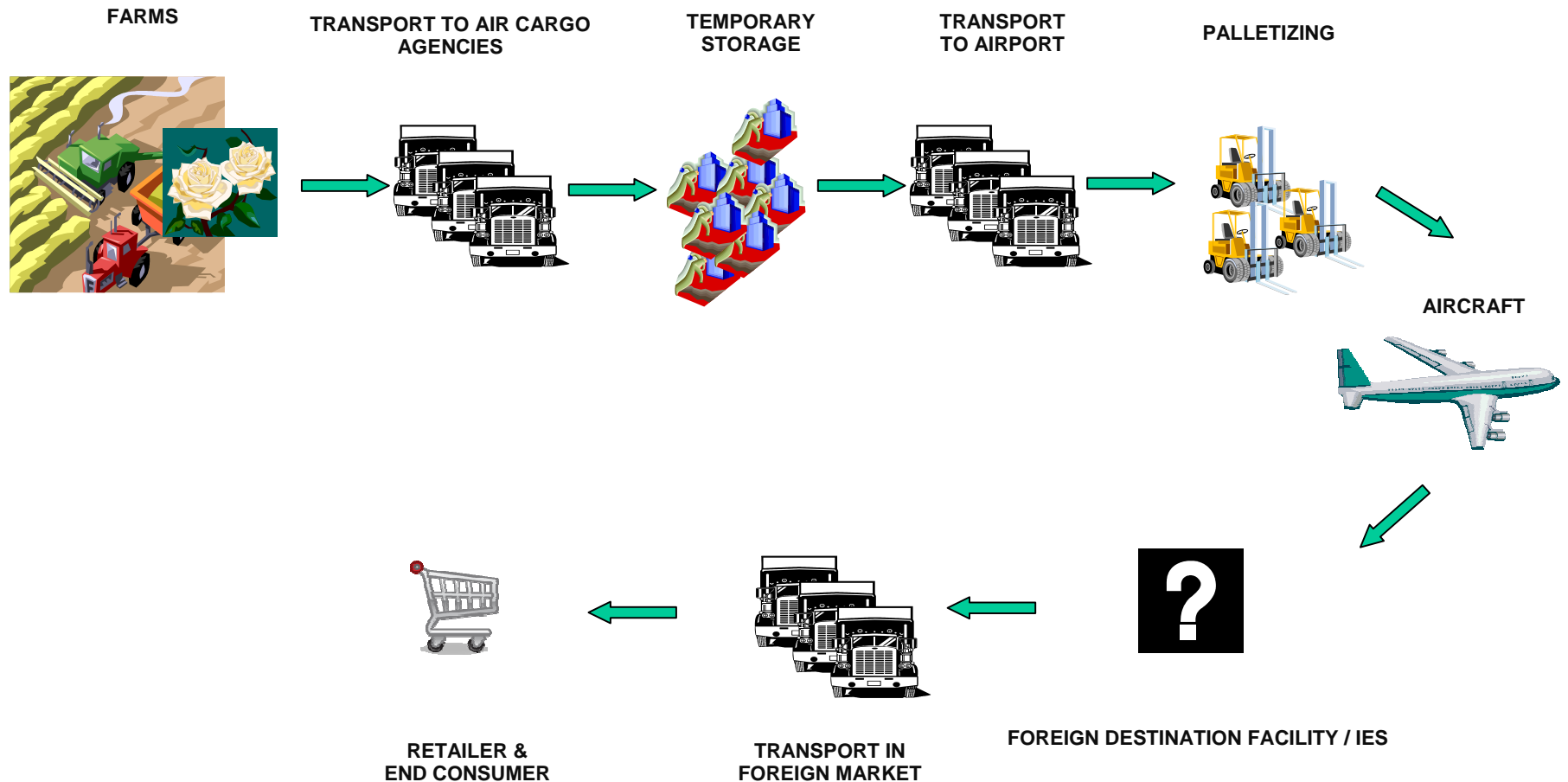
Discussion: Supply Chain's Complexity

Ideal Supply Chain of the Fresh Flower Industry



Discussion: Supply Chain's Complexity

Current Supply Chain of Ecuador's Fresh Flower Industry



Discussion: Quality Deterioration Cost

Process	Time	Quality Deterioration
Post-harvest on farm, Ecuador	4 - 8 hours	Medium
Storage on farm	12 - 72 hours	Low - Medium
Transportation to cargo agencies	1 - 6 hours	Medium
Storage at cargo agency	4 hours	Low
Palletizing, Quito	6 hours	Medium - High
Customs clearance, Quito	0.5 hours	Low
Loading to aircraft, Quito	1 - 2 hours	Medium – High
Flight UIO-MIA nonstop	4 hours	High
Customs clearance, Miami	4 - 12 hours	Low
Depalletizing, Miami	2 - 4 hours	High
Storage at cargo agency, Miami	4 - 72 hours	Low - Medium
Transportation to U.S. retailer	2 hours - 5 days	Medium

Discussion: Airfreight Cost

Trade with the United States in Metric Tons 2006

Trading Partner	Exports	Imports
Ecuador	54,017	10,972
Kenya	3,708	1,361
Colombia	131,231	58,288
Costa Rica	28,909	13,694
Guatemala	14,685	8,795
Israel	51,018	35,148
Netherlands	76,477	112,170
South Africa	8,234	21,957

Discussion: Airfreight Cost

Air Navigation Costs Landing and Other Fees at Selected Airports March 2007

Country	Airport Code	Landing Fees	Other Fees	Total
Ecuador	UIO	1,661	560	2,221
Ecuador	GYE	952	305	1,257
Colombia	BOG	1,075	84	1,159
Costa Rica	SJO	60	427	487
Guatemala	GUA	40	112	152

Discussion: Airfreight Cost

- ✈ From harvesting near Quito until the moment it arrives to a US retailer: 44 ½ hours to almost 13 days
- ✈ Ecuador's transportation costs can be 10 - 20 percent higher than Colombia's, about \$0.43 higher per kilogram (kg)
- ✈ Limited and costly airport infrastructure:
 - lack of refrigeration facilities
 - limited competition for cargo services
 - 2,814 meters above sea level
 - single runway 3,120 meters long
 - landing fee structure
- ✈ Smaller scale of Ecuadorian exports
- ✈ Peak load problem
 - freight rates are higher as the shipper pays for foregone capacity on either the inbound or outbound flight
- ✈ International trade policy
- ✈ International aviation policy
- ✈ Lack of liberalization of aviation services in the region

Conclusions

- ✈ Lack of supply chain's time reliability, adequate interface with other modes, and appropriate storage capacity at different times
 - Producers' requests for more investment on airport infrastructure, more competition between airports and more competition between airlines, particularly through deregulation of the aviation sector do not seem unreasonable
- ✈ Peak load problem
 - freight rates are higher as the shipper pays for foregone capacity on either the inbound or outbound flight
- ✈ There are no long-term solutions to permanent preferential tariffs
- ✈ Liberalization of international aviation policy in the region will face strong opposition
- ✈ Is the time right for open skies for cargo in the region? Brazil's initiative