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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**

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***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*

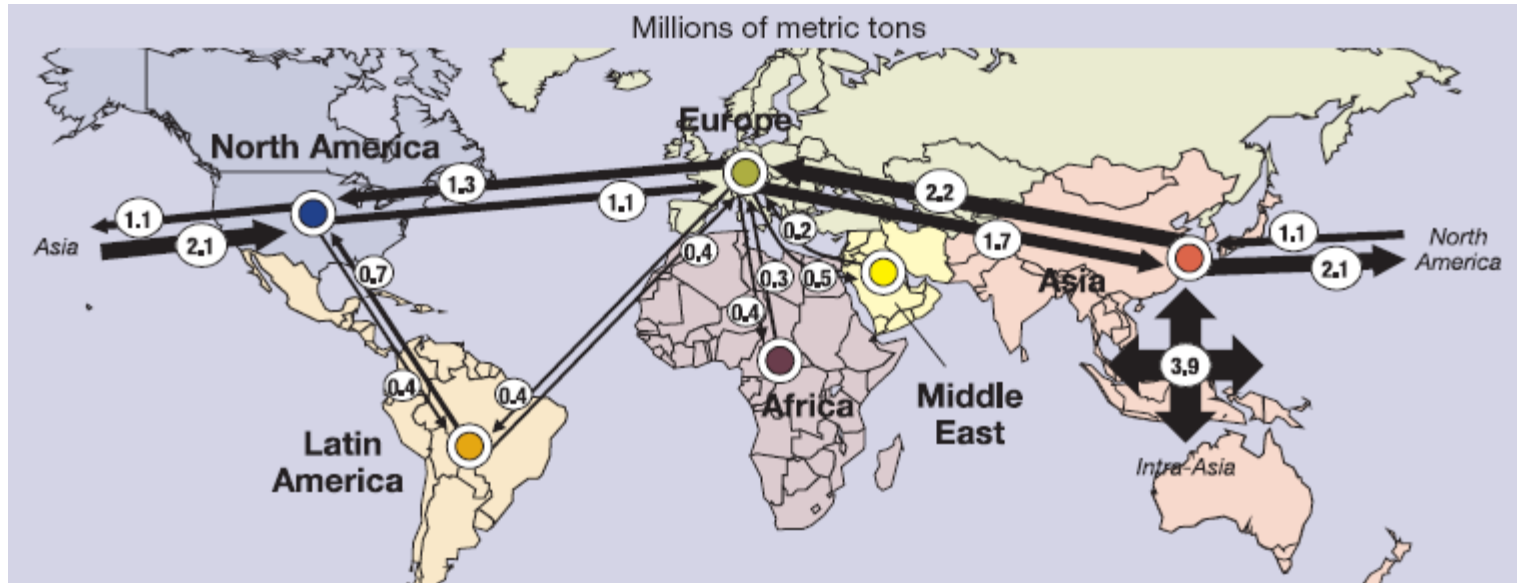
- Long/medium distance
- Fast and reliable (important for some types of freight)
- Highly flexible (spatially and temporally)
- Quick to put in place (relatively low fixed costs)
- Significant development about terminals
- Relatively secure (no track)
- Relatively safe
- Relatively easy to develop private/public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

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<b>Exports from S.A. (MT)</b>	<b>2006</b>
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%

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# *Air Cargo of Perishables*

## **2006 Exports of Perishables to the US – \$ Millions**

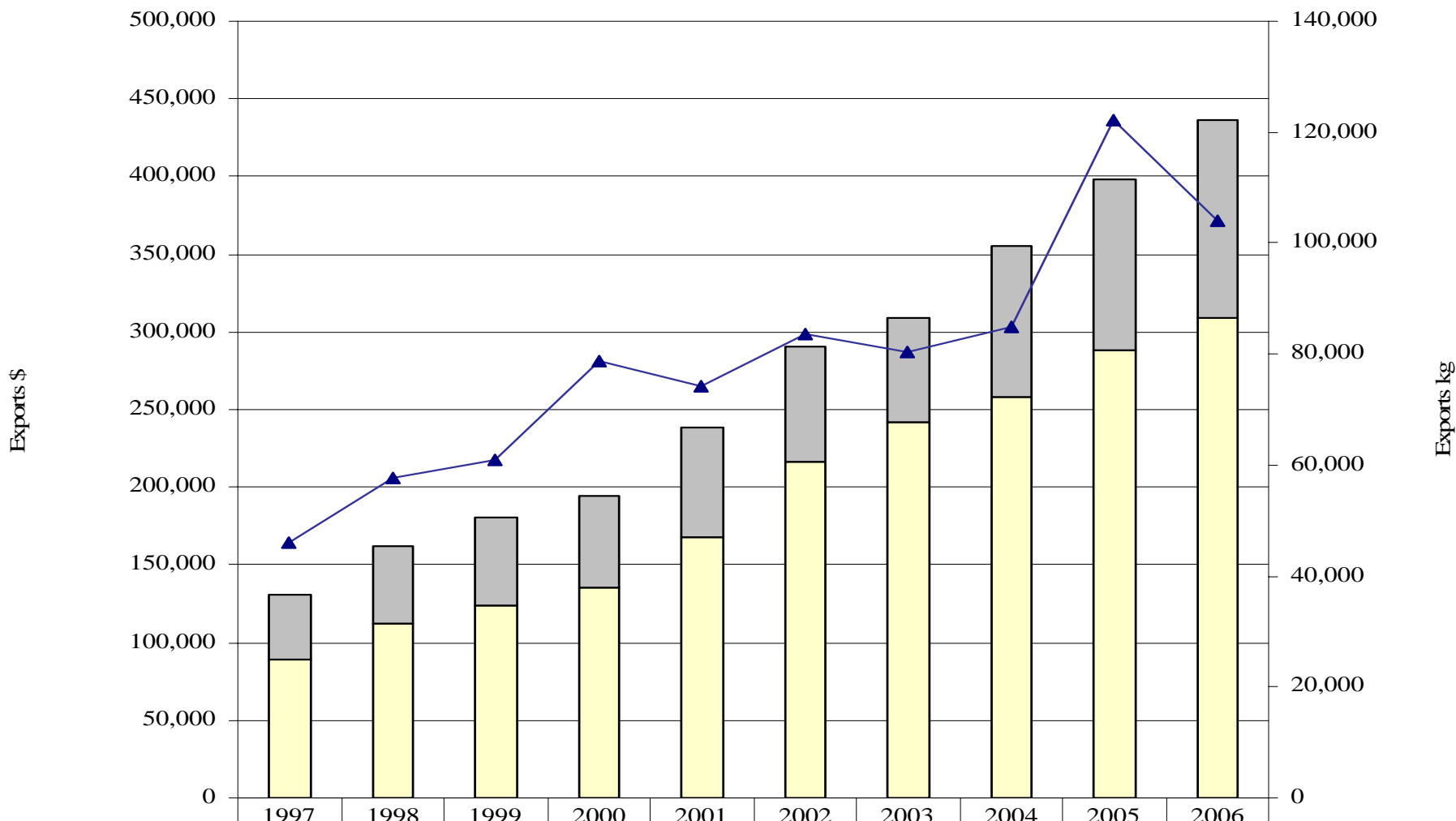
<b>Country</b>	<b>2006</b>	<b>Yearly Growth</b>
Chile	624.00	8.8%
Colombia	471.00	5.1%
Ecuador	248.00	11.3%
<b>Peru</b>	<b>114.00</b>	<b>20.1%</b>
Brazil	40.10	6.1%
Argentina	34.50	18.8%
Venezuela	20.70	1.2%
Suriname	5.96	4.5%
Uruguay	2.89	-2.4%
Guyana	2.04	-4.0%
Bolivia	0.28	34.3%
Paraguay	0.01	-15.5%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

# *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

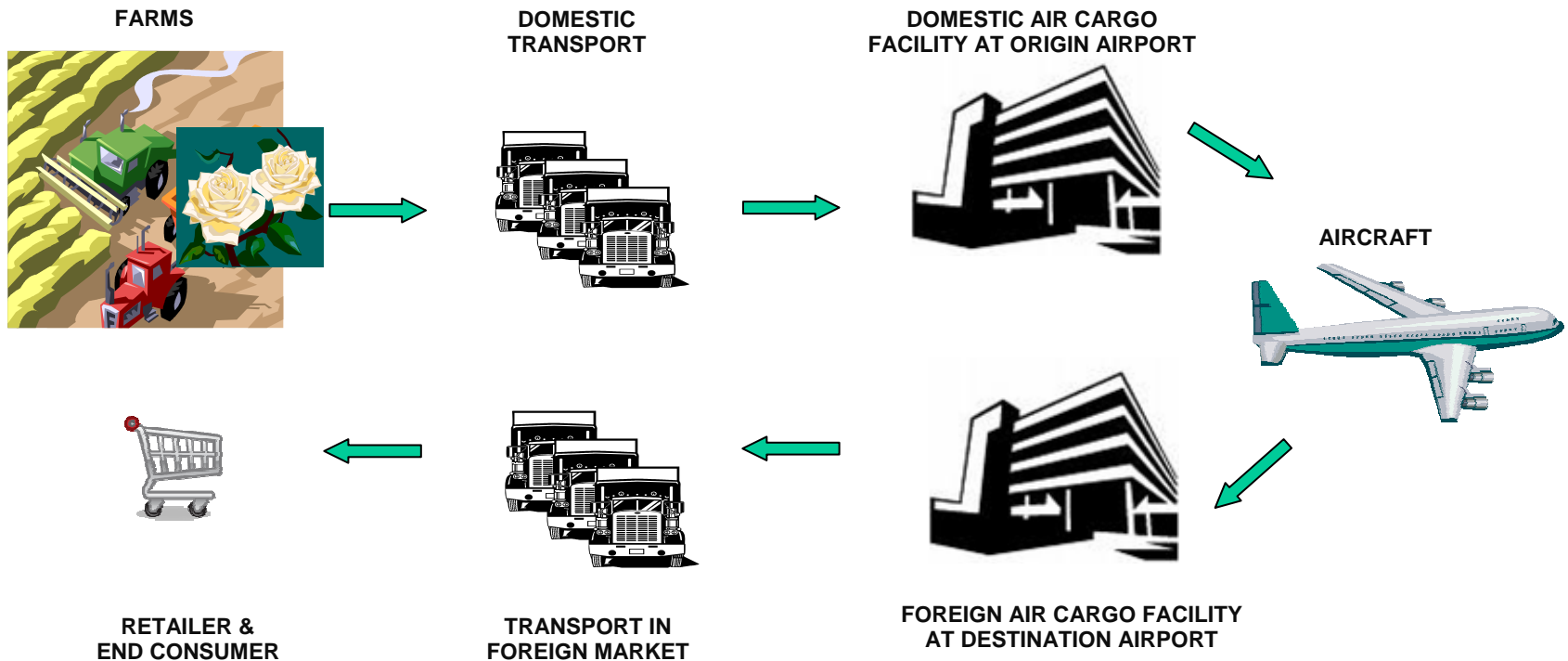
# Air Cargo of Fresh Flowers

## Transportation Costs of Roses from Selected Countries to the US

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

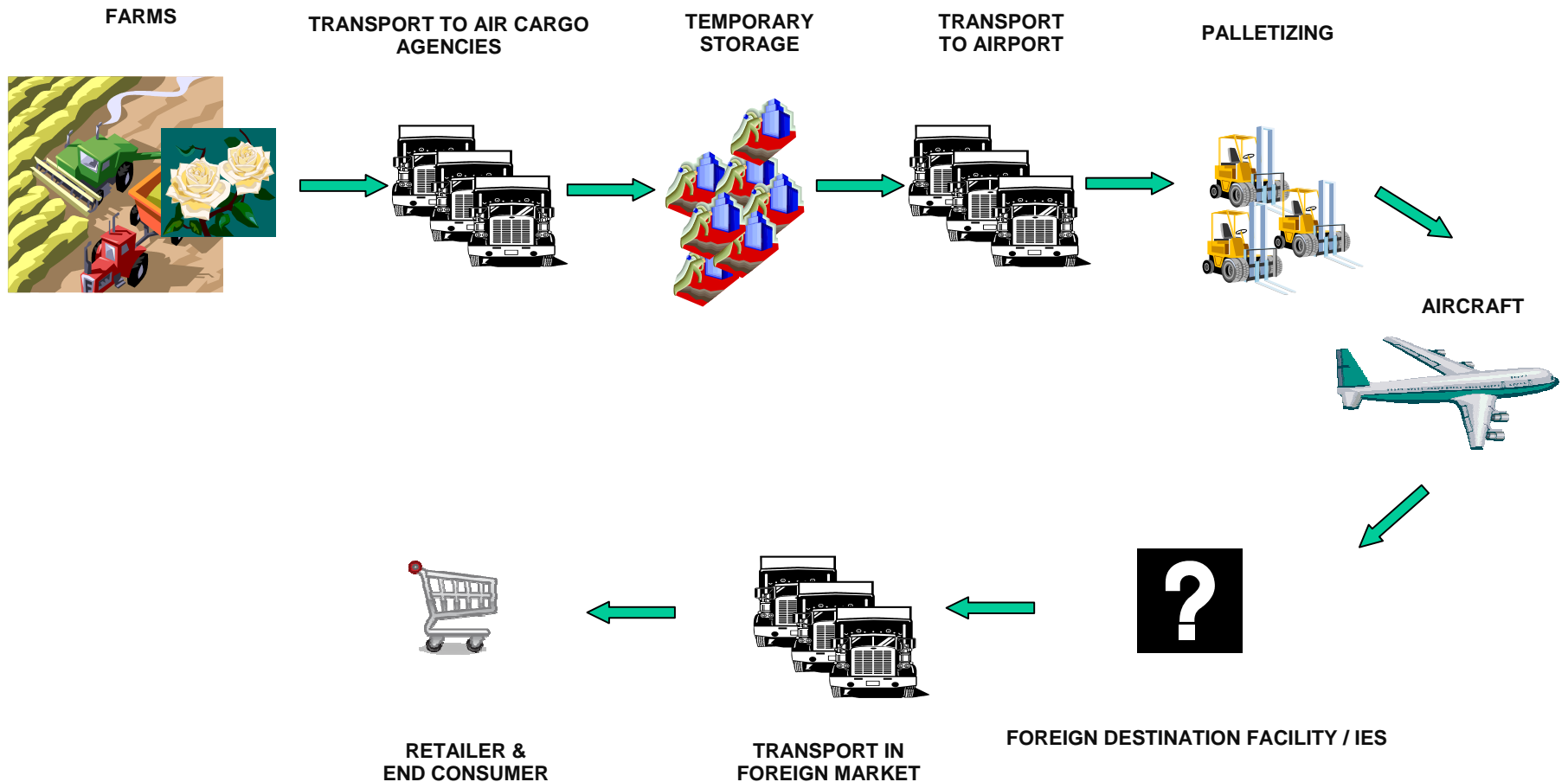
# Discussion: Supply Chain's Complexity

## 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*

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

# *Discussion: Airfreight Cost*

## **Trade with the United States in Metric Tons 2006**

<b>Trading Partner</b>	<b>Exports</b>	<b>Imports</b>
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**

<b>Country</b>	<b>Airport Code</b>	<b>Landing Fees</b>	<b>Other Fees</b>	<b>Total</b>
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