TGL Núcleo de Estudos
COPPE UFRJ Tecnologia, Gestão e Logística

Airlines and Demands of a Price-Competitive Environment

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Presentation WAS COPPE/UFRJ

1 June 2010

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Summary

1 - INTRODUCTION

✈The sector of air transportation can be seen through different perspectives: Airports, Airline Companies, Air traffic Control, Incident and Accidents, Aircraft and components, Auxiliary Services, Passengers, Cargo, Governments, Society in general, etc.

✈There are stakeholders who participate in the Air transportation and are affected by it (Airlines, Passengers, Cargo, etc) and other actors who are affected positively or negatively by the externalities of the sector (Economic Development, Noise, Pollution, etc).

✈Air Travel Demand Up, Airline Profits Still Down "Airlines have lost two to three years of growth. Demand is moving in the right direction," IATA General Director and CEO Giovanni Bisignani said in statement. "We can start to see the future with some cautious optimism, but better volumes do not necessarily mean better profits. Passenger yields are still 15 percent below peak. And we expect 2010 losses to be $5.6 billion." (Source: Meetingnews.com)

Is airtransport industry puting profits before safety?

Safety and Profits in the Airline Industry
Author (s): Devra L. Golbe
Source: The Journal of Industrial Economics, Vol. 34, In. 3 (Sea., 1986), pp. 305-318

Conclusion of the research

The evidence presented here on airline safety and profits does not support the popular wisdom. There does not seem to be a statistically significant relationship between safety and profits. If there is any relationship it is weak and of the "wrong" sign: that is, more profitable firms may have more accidents. It does not appear that profit-reducing changes in regulation will necessarily lead to less safe airlines.

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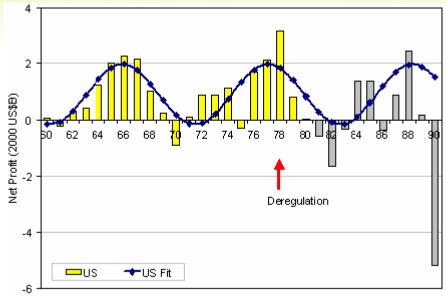
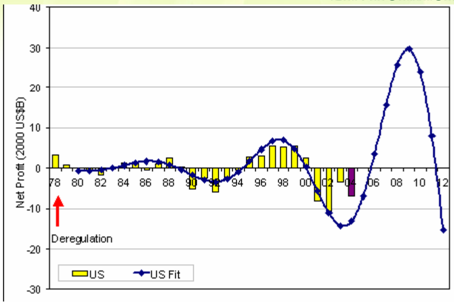
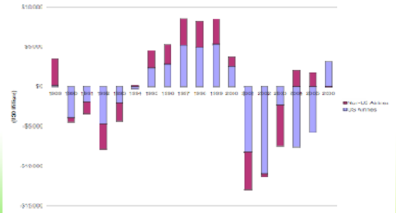
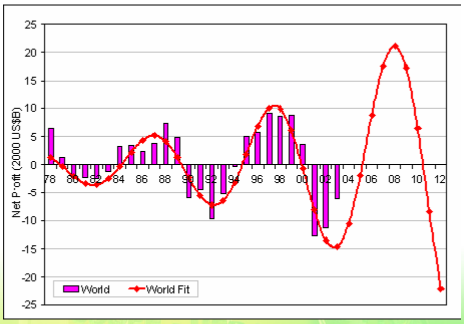




An Analysis of Profit Cycles in the Airline Industry (Jiang and Hansman, 2006)





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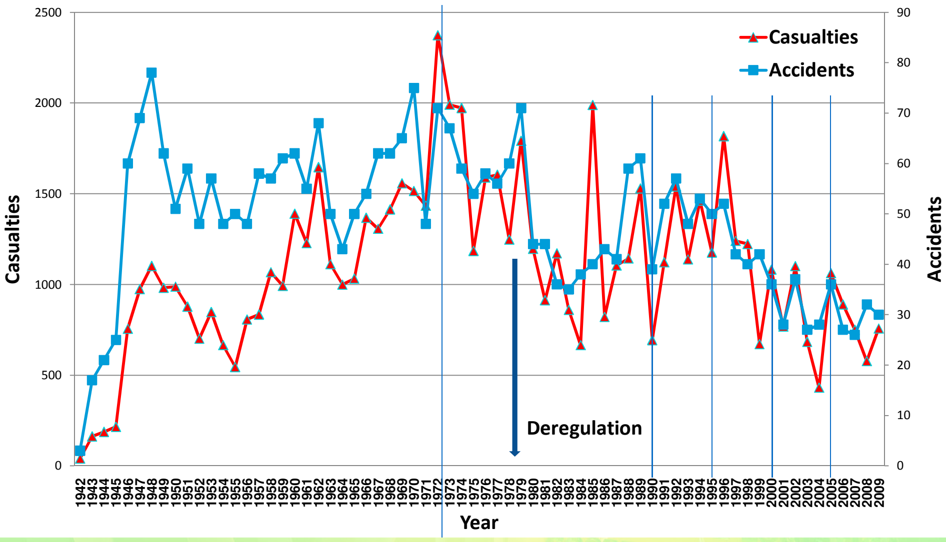
Air Transport Accidents and Casualties



Source: Flight Safety Foundation, 2010

US Passenger Airline System* Quarterly Operating Profit/Loss Margin (In Percent)
Ranked by 4th Quarter 2009 Margin
(Operating Profit/Loss as Percent of Total Operating Revenue)

4Q 2009 Rank	Airline Group	4th Quarter 2008 (%)	1st Quarter 2009 (%)	2nd Quarter 2009 (%)	3rd Quarter 2009 (%)	4th Quarter 2009 (%)	4th Quarter Operating Profit/Loss $(Millions)
1	Low-Cost	3,9	2,9	7,0	4,2	5,5	267
2	Regional	4,9	4,3	7,2	8,3	3,9	69
3	Network	-6,7	-4,0	-0,5	1,4	-1,2	-275
	21-Carrier Total	-4,4	-2,4	1,2	2,3	0,2	61

Source: Bureau of Transportation Statistics; Form 41, Schedule P1.2
* System = domestic + international

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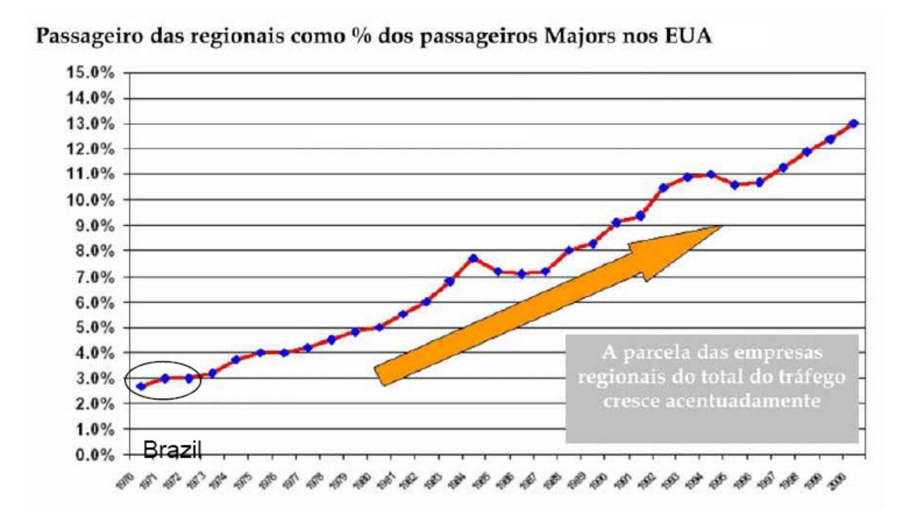

Source: Lecture TRIP

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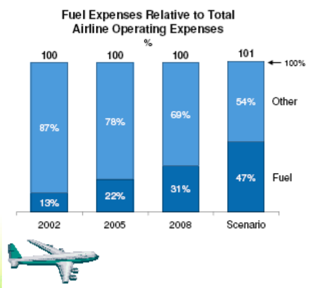
US Passenger Airline System* Fuel Costs Per Available Seat-Mile
Ranked by 4th Quarter 2009 Fuel Cost Per ASM (Cents Per ASM)
(Fuel Expense Per Available Seat Mile in cents)

4Q 2009 Rank	Airline Group	4th Quarter 2004	4th Quarter 2008	3rd Quarter 2009	4th Quarter 2009	Pct. Change 4Q 2004-4Q 2009	Percent Of Operating Costs for Fuel 2004	Percent Of Operating Costs for Fuel 2009	4th Quarter Fuel Expense $(Millions)
1	Network	2,43	4,89	3,24	3,26	36,10	19,20	22,00	5.104
2	Low-Cost	1,70	3,58	3,15	3,20	88,20	22,00	31,10	1.433
3	Regional	3,33	3,90	2,28	2,46	-26,10	25,30	19,70	342
	21-Carrier Total	**2,38**	**4,57**	**3,17**	**3,20**	**34,50**	**19,90**	**23,20**	**6.879**

Source: Bureau of Transportation Statistics, Form 41; Schedule P6

* System = domestic + international



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US Passenger Airline System* Unit Costs
Ranked by 4th Quarter 2009 Unit Costs (Cents Per ASM)
(Operating Expenses per Available Seat Mile in cents)

4Q 2009 Rank	Airline Group	4th Quarter 2008	1st Quarter 2009	2nd Quarter 2009	3rd Quarter 2009	4th Quarter 2009	4th Quarter Operating Expenses $(Millions)
1	Network	16,2	13,9	13,5	13,7	14,9	23.251
2	Regional	14,2	13,3	12,4	11,8	12,5	1.738
3	Low-Cost	10,3	9,5	9,3	9,9	10,3	4.602
	21-Carrier Total	**14,9**	**13,0**	**12,6**	**12,8**	**13,8**	**29.591**

Source: Bureau of Transportation Statistics; Form 41, Schedule P1.2. T100; T2 Data

* System = domestic + international

2008
CASK TAM = R$ 0,18
CASK GOAL = R$ 0,17
CASK WEB = R$ 0,20
CASK AZU = R$ 0,25
CASK ONE = R$ 0,24
Source: ANAC

CASK = R$ 0,17

Estimate TGL 2010
CASK (TAM, GOAL) = R$ 0,15

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US Airline System* Passenger Revenue Yield
Ranked by 4th Quarter 2009 Revenue Yield (Cents Per RPM)
(Passenger Revenue per Revenue Passenger Mile in cents)

4Q 2009 Rank	Airline Group	4th Quarter 2008	1st Quarter 2009	2nd Quarter 2009	3rd Quarter 2009	4th Quarter 2009	4th Quarter Passenger Revenue $(Millions)
1	Regional	19,4	18,9	16,6	15,8	16,7	1.776
2	Low-Cost	13,5	12,1	11,5	11,4	12,5	4.376
3	Network	13,3	12,0	11,0	11,2	12,1	15.521
	21-Carrier Total	**13,7**	**12,4**	**11,4**	**11,5**	**12,5**	**21.673**

Source: Bureau of Transportation Statistics; Form 41; Schedule P1.2. T100; T2 Data
* System = domestic + international

Reduction of the Yield is faster than of CASK (Alert)

2008
Yield km TAM = R$ 0,24
Yield km GOAL = R$ 0,26
Yield km WEB = R$ 0,23
Yield km AZU = R$ 0,25
Yield km ONE = R$ 0,25
Source: ANAC

Yield km = R$ 0,14

Estimate TGL 2010
Yield average km = R$ 0,20

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Airlines and Demands of a Price-Competitive Environment

BRAZILIAN CONTEXT

- 21 airlines which give scheduled air services in domestic market and 4 in the international market of passengers;
- These airlines operate almost 400 aircrafts of some types since small turboprops till large wide-body jets.

- The air transportation has its demand derived from the economic activity;
- The demand is influenced by offers, quality and frequency of the services;
- The performance depends on the exchange rates (R$/USD$) and on the variation of fuel (oil) price; and
- The demand also depends on the evaluation of transportalternative(s).

CONDITIONS FOR THE DEVELOPMENT OF AIR TRANSPORTATION
… ARE POSITIVE, CONSIDERING…

- economic activity growth (PIB);
- supply expansion, quality and frequency of the services; and
- aerial fares competitiveness.

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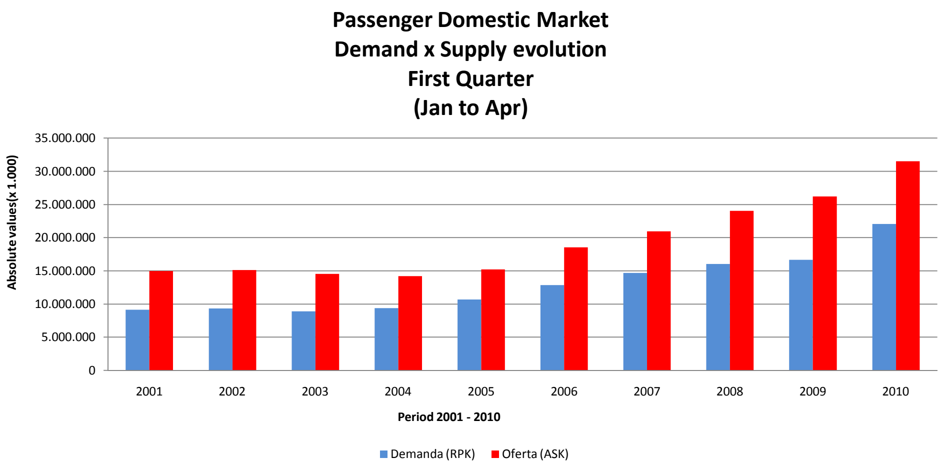
Airlines and Demands of a Price-Competitive Environment

An Initial Vision of Demand and supply Performance
Domestic market - First Quarter of the Year (2001-2010)



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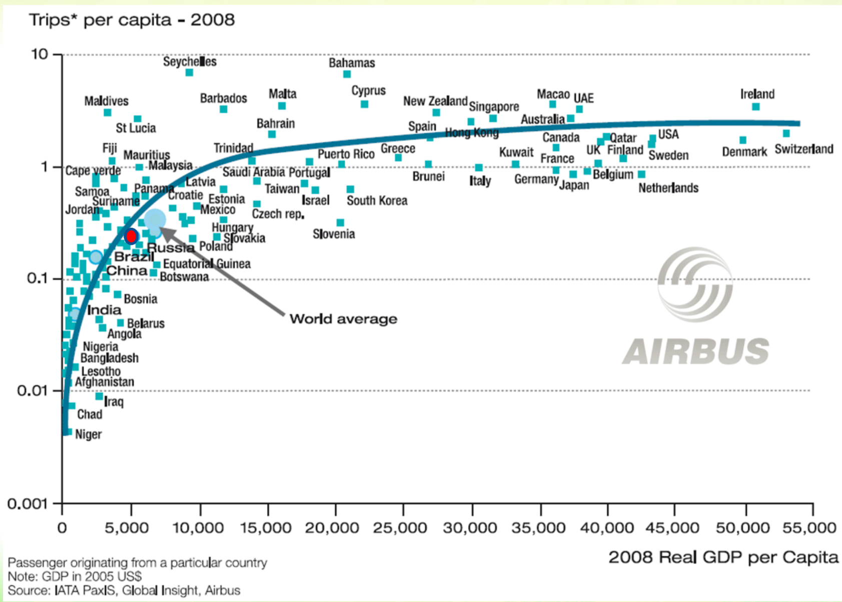

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2 - COMMERCIAL AVIATION IN BRAZIL AND THE WORLD

2008 (SOURCE: ATW JULY 2009)

Operational Revenue

Rank	Airline	Revenue ($000)
1	Lufthansa Group	35,028,169
2	Air France KLM *	31,659,360
3	FedEx	24,421,000
4	AMR Corp.	23,766,000
5	Delta Air Lines [1]	22,697,000
6	UAL Corp.	20,194,000
7	JAL Group *	20,055,072
8	Qantas Group	15,552,386
9	Continental Airlines	15,241,000
10	ANA Group *	14,313,712
11	British Airways *	12,776,357
12	US Airways Group	12,118,000
13	Emirates Airline *	11,893,130
14	Cathay Pacific	11,171,355
15	Southwest Airlines	11,023,000
16	SIA Group *	10,518,761
17	Air Canada	9,063,177
18	China Southern	8,232,471
19	Korean Air	8,067,954
20	Air China	7,719,086
21	Iberia Group	7,676,056
22	SAS Group	6,849,200
23	China Eastern	6,120,072
24	UPS Airlines	5,799,841
25	Thai Airways	5,737,681

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2008 (SOURCE: ATW JULY 2009)

"Revenue Passenger Kilometres" – RPK

Rank	Airline	RPK x 1.000.000
1	American Airlines	212,037
2	Air France KLM *	208,838
3	United Airlines	177,171
4	Delta Air Lines	170,147
5	Continental Airlines	133,299
6	Lufthansa	126,014
7	Southwest Airlines	118,304
8	Northwest Airlines	115,332
9	British Airways *	114,346
10	Emirates Airline *	101,763
11	US Airways	97,503
12	Cathay Pacific [1]	90,975
13	Singapore Airlines *	90,128
14	JAL Group	86,594
15	Qantas	83,861
16	China Southern	83,184
17	Air Canada	74,718
18	Air China	66,013
19	ANA *	56,957
20	Thai Airways	56,377
21	Ryanair	55,461
22	Korean Air	55,054
23	China Eastern	53,785
24	Iberia Group	52,885
25	EasyJet	47,690

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2008 (SOURCE: ATW JULY 2009)

Operational Fleet

Rank	Empresa Aérea	Aircraft number
1	Delta Air Lines [2]	749
2	American Airlines	612
3	Southwest Airlines	538
4	United Airlines	398
5	Air France KLM	373
6	US Airways	348
7	Continental Airlines	344
8	FedEx	342
9	SkyWest Airlines	267
10	Lufthansa	254
11	China Southern	253
12	ExpressJet	242
13	China Eastern	229
14	British Airways	227
15	UPS Airlines	221
16	American Eagle	220
17	Air China	219
18	Japan Airlines	204
19	Air Canada	197
20	Ryanair	179
21	Qantas Group	175
22	Atlantic Southeast	167
23	EasyJet	158
23	JetBlue Airways	147
25	ANA	141

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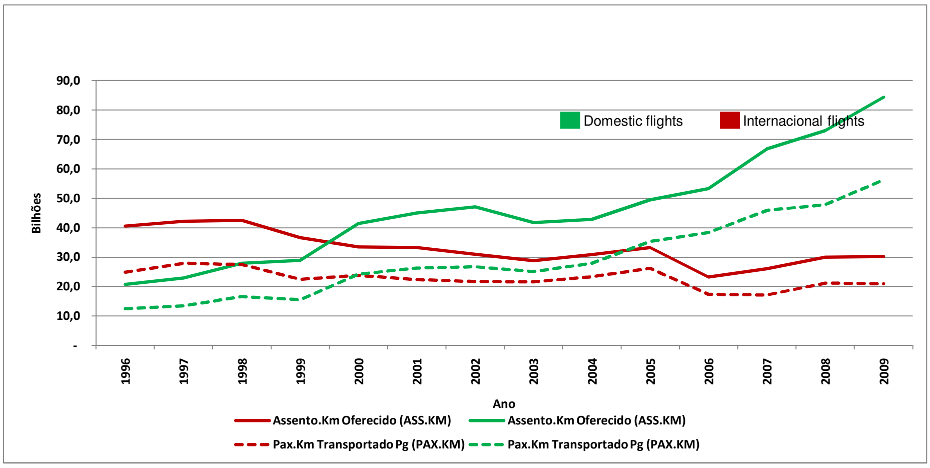
3 - EVOLUTION AND PERSPECTIVES

Supply X Demand of the Brazilian Companies



Source: ANAC

TGL Expectation: growth of RPK between 13 and 17% per year

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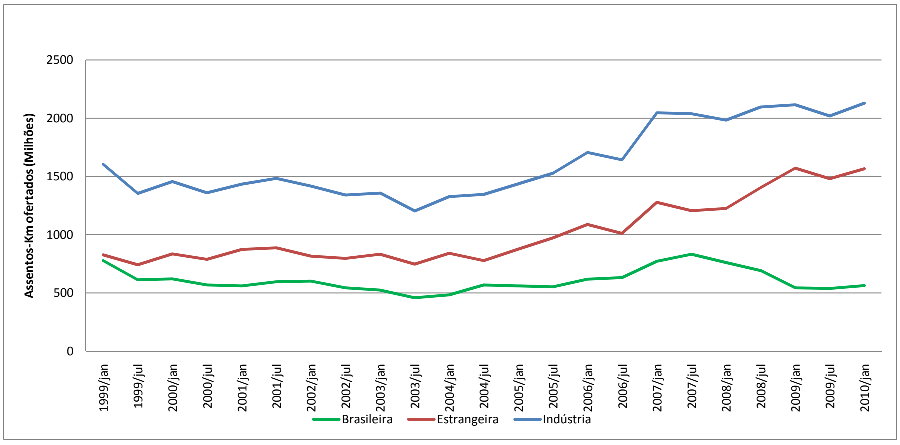
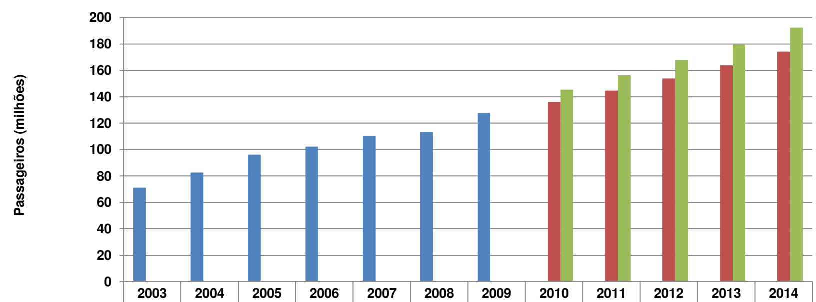
Airlines ASK per week in international flights



Source: BITA Jan 2010 (Source: HOTRANs ANAC)

Demand Forecast

INFRAERO AIRPORTS



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Histórico	71,22	82,71	96,08	102,19	110,57	113,26	127,71					
Cenário com Restrição								135,88	144,58	153,83	163,68	174,15
Cenário Tendencial								145,38	156,34	167,84	179,68	192,35

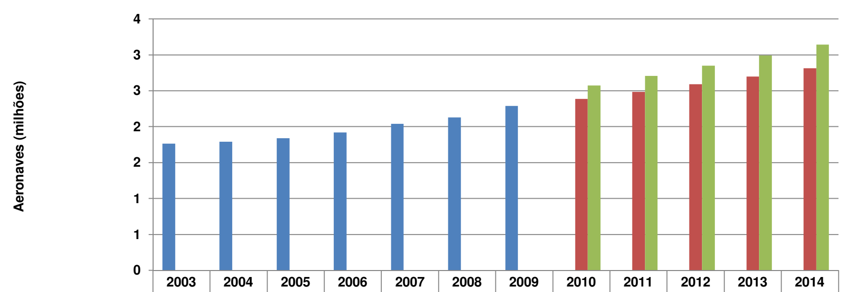
Historical source: INFRAERO
Forecast: TGL

Rates of growth:

- Scenario with Restriction 6.4% a.a.
- Trend Scenario 8.5% a.a.

Forecast of Movement of Aircraft

INFRAERO AIRPORTS



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Histórico	1,77	1,79	1,84	1,92	2,04	2,13	2,29					
Cenário com Restrição								2,39	2,49	2,59	2,70	2,81
Cenário Tendencial								2,57	2,71	2,85	2,99	3,14

Historical source: INFRAERO
Forecast: TGL

Rates of growth:

- Scenario with Restriction 4.2% a.a.
- Trend Scenario 6.6% a.a.

Fleet Forecast

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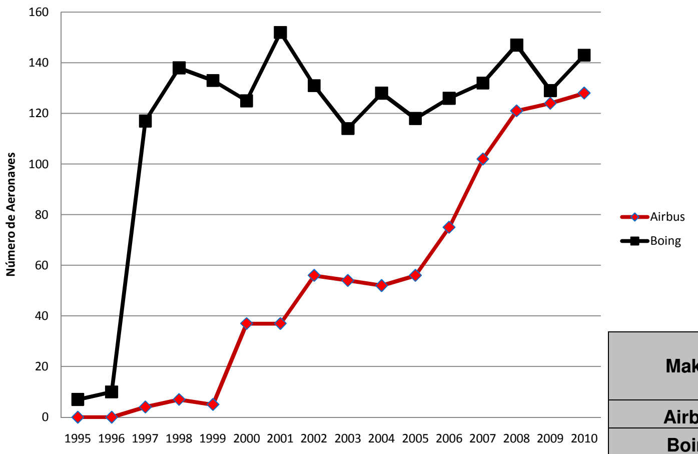
Passenger Aircrafts of National Network Airlines



Maker	IATA Number Of Aircraft 2008
Airbus	1636
Boing	2603
Embraer	70
Other	1363
Total	5672

Source: ANAC up to 2008 other years TGL estimative

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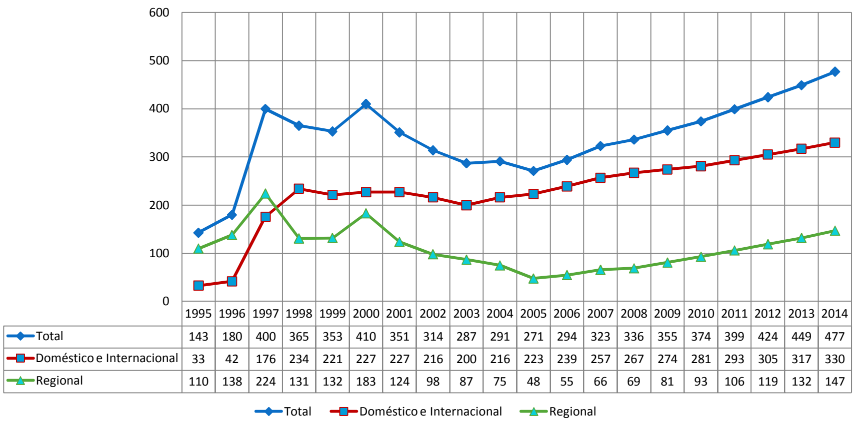
Aircraft Fleet of the Scheduled National Airlines



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Total	143	180	400	365	353	410	351	314	287	291	271	294	323	336	355	374	399	424	449	477
Doméstico e Internacional	33	42	176	234	221	227	227	216	200	216	223	239	257	267	274	281	293	305	317	330
Regional	110	138	224	131	132	183	124	98	87	75	48	55	66	69	81	93	106	119	132	147

- Domestic and International are aircraft with more than 90 seats
- Regional are aircraft up to 90 seats

Source: ANAC up to 2008, other years TGL estimative

Additional demand of Aircrafts from 2010 (January) to 2014 for Scheduled Aviation

Category	Total Fleet at 2010	Additional Aircrafts	Total Fleet at 2014
TMA ≤ 90	93	54	147
90 < TMA ≤ 172	184	36	220
172 < TMA ≤ 220	75	5	80
TMA ≥ 220	22	8	30
Total	**374**	**103**	**477**

Obs.: The replacement of aircraft in operation are not enclosed.
Preliminary estimate of the TGL for the year of 2014.

National Scheduled Airlines

Source: ANAC Yearbooks

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Revenue of the National Scheduled Airlines

Domestic and International (R$)

ÍTENS	2003	2004	2005	2006	2007	2008	Annual Rate
Passenger	12.068.574.890	13.354.286.771	13.877.281.998	12.487.075.221	12.173.533.593	15.881.066.748	1,056
Leasing	297.571.883	445.031.214	406.176.081	452.725.689	316.373.520	362.511.043	1,040
Mail	218.193.293	214.427.313	37.489.671	260.841.686	208.172.775	310.300.059	1,073
Cargo	1.185.868.300	1.422.034.967	1.353.156.503	1.381.590.756	1.753.350.486	1.713.627.270	1,076
Others	30.127.031	62.088.403	327.666.084	118.309.842	160.340.333	294.089.649	1,577
Total	13.800.335.396	15.497.868.669	16.002.262.941	14.700.543.194	14.611.770.707	18.561.594.768	1,061

Domestic (R$)

ÍTENS	2003	2004	2005	2006	2007	2008	Annual Rate
Passenger	7.839.332.466	8.710.186.465	8.923.591.210	9.266.157.005	9.484.759.713	12.455.288.998	1,097
Leasing	233.112.926	295.742.709	262.230.130	343.513.334	281.601.524	296.487.596	1,049
Mail	217.988.701	214.403.785	34.680.057	260.841.686	207.761.771	309.433.493	1,073
Cargo	576.300.186	726.802.531	704.213.733	808.775.130	767.362.398	872.420.559	1,086
Others	30.127.031	62.088.403	327.666.084	112.072.319	149.642.944	270.525.636	1,551
Total	8.896.861.310	10.009.223.893	10.252.381.214	10.791.359.473	10.891.128.350	14.204.156.283	1,098

International (R$)

ÍTENS	2003	2004	2005	2006	2007	2008	Annual Rate
Passenger	4.229.242.423	4.644.100.306	4.953.690.788	3.220.918.216	2.891.803.057	3.425.777.750	0,959
Leasing	64.458.957	149.288.505	143.945.951	109.212.355	34.771.996	66.023.447	1,005
Mail	204.592	23.528	2.809.614		411.004	866.566	1,335
Cargo	609.568.114	695.232.436	648.942.770	572.815.626	782.958.912	841.206.710	1,067
Others			492.604	6.237.524	10.697.389	23.564.012	3,630
Total	4.903.474.086	5.488.644.775	5.749.881.727	3.909.183.721	3.720.642.357	4.357.438.486	0,977

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Airlines

Domestic and International (%)

ÍTENS	2003	2004	2005	2006	2007	2008
Passenger	87	86	87	85	83	86
Leasing	2	3	3	3	2	2
Mail	2	1	0	2	1	2
Cargo	9	9	8	9	12	9
Others	0	0	2	1	1	2
Total	100	100	100	100	100	100

Domestic (%)

ÍTENS	2003	2004	2005	2006	2007	2008
Passenger	88	87	87	86	87	88
Leasing	3	3	3	3	3	2
Mail	2	2	0	2	2	2
Cargo	6	7	7	7	7	6
Others	0	1	3	1	1	2
Total	100	100	100	100	100	100

International (%)

ÍTENS	2003	2004	2005	2006	2007	2008
Passenger	86	85	86	82	78	79
Leasing	1	3	3	3	1	2
Mail	0	0	0	0	0	0
Cargo	12	13	11	15	21	19
Others	0	0	0	0	0	1
Total	100	100	100	100	100	100

Source: ANAC

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Airlines and Demands of a Price-Competitive Environment

Tráfego Doméstico e Internacional (R$)

DISCRIMINAÇÃO	2003	2004	2005	2006	2007	2008	Taxa anual
Receita	13.780.768.681	15.497.114.535	16.019.659.092	14.804.252.558	14.612.210.303	18.561.594.768	1,061
Despesa	13.434.033.500	14.998.241.349	15.920.229.448	15.220.441.006	16.007.558.700	20.034.438.682	1,083
Resultado	346.735.181	498.873.186	99.429.645	-172.598.448	-1.395.348.397	-1.472.843.914	
Lucratividade (%)	2,52	3,22	0,62	-1,17	-9,55	-7,93	
Ass.Km Oferecido(000)	70.597.311	73.773.739	82.805.898	76.597.767	92.938.997	106.449.052	1,086
Pax.Km Transp.Pg(000)	46.680.998	51.230.750	61.520.962	55.812.549	63.123.377	70.996.520	1,087
Aproveitamento Pg (%)	66	69	74	73	68	67	
Break-even (%)	64	67	73	73	74	72	

Tráfego Doméstico (R$)

DISCRIMINAÇÃO	2003	2004	2005	2006	2007	2008	Taxa anual
Receita	8.890.644.411	10.008.469.760	10.252.381.214	10.870.624.373	10.891.128.351	14.204.156.282	1,098
Despesa	8.503.030.078	9.223.946.884	10.163.601.168	10.601.231.714	11.546.127.095	14.749.507.720	1,116
Resultado	387.614.333	784.522.876	88.780.047	270.482.659	-654.998.744	-545.351.438	
Lucratividade (%)	4,36	7,84	0,87	2,49	-6,01	-3,84	
Ass.Km Oferecido(000)	41.767.983	42.893.590	49.505.160	38.413.073	66.837.945	75.966.072	1,127
Pax.Km Transp.Pg(000)	25.092.523	27.894.146	35.351.107	38.506.951	45.941.304	49.603.587	1,146
Aproveitamento Pg (%)	60	65	71	72	69	65	
Break-even (%)	57	60	71	70	73	68	

Tráfego Internacional (R$)

DISCRIMINAÇÃO	2003	2004	2005	2006	2007	2008	Taxa anual
Receita	4.890.124.270	5.488.644.775	5.767.277.878	3.933.628.185	3.721.081.952	4.357.438.486	0,977
Despesa	4.931.003.422	5.774.294.466	5.756.628.280	4.619.209.292	4.461.431.604	5.284.930.961	1,014
Resultado	-40.879.152	-285.649.690	10.649.598	-443.081.106	-740.349.653	-927.492.476	
Lucratividade (%)	-0,84	-11,08	0,18	-11,38	-19,90	-21,29	
Ass.Km Oferecido(000)	28.829.328	30.880.149	33.300.738	23.286.131	26.101.052	30.482.980	1,011
Pax.Km Transp.Pg(000)	21.588.476	23.336.604	26.169.855	17.397.277	17.182.073	21.392.933	0,998
Aproveitamento Pg (%)	75	76	79	75	66	70	
Break-even (%)	76	80	78	84	79	85	

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4 - FINAL CONSIDERAÇÕES

- **There is a high potential of continuous growth of the air transportation in Brazil.**
- **The domestic market is the main anchor for the national scheduled airlines;**
- **In particular, regional air transportation has indications for higher rates of growth;**
- **The structure of the sector costs deserves attention, mainly in relation at of fuel costs and taxes, and the exposition to the exchange rate variations;**
- **The rate of YIELD reduction is higher than that of CASK. This is matter of concern because it may increase the financial risk of national airlines;**
- **It is absolutely necessary to establish an operational coordination between airlines, ANAC, DECEA and Infraero to prevent infrastructure barriers to the supply development.**

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Publication: BITA – Boletim de Indicadores de Transporte Aéreo www.tgl.ufrj/bita.html