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Are there more seats available to Canadian domestic aviation travellers today than 10 years ago?

Working Paper

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Overview

The Canadian aviation industry experienced many changes over the past ten years, from the *Canada – United States Open Skies Air Transport Agreement* to the rise of low-cost carriers on domestic markets. There were also some external shocks (the tragic events of September 11, 2001 in the United States, the war in Iraq, the outbreak of SARS) which affected the industry tremendously. In this rapidly evolving environment, how did the Canadian aviation industry react? How did the Canadian air carriers change their services to adapt to this new environment? The purpose of this research is to examine the seating capacity at Canadian airports over the past 10 years. This research focuses on the overall trend of the seating capacity at the national and provincial levels.

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Data sources and methodology

Data used in this research paper are based on the Aircraft Movement Statistics (AMS). These monthly data are reported by the air traffic control units at the NAV CANADA control towers and flight service stations. The research has focused on the commercial civil itinerant movements. Local aircraft movements (i.e. flights that remain in the vicinity of the airport), military movements as well as private and government movements are excluded from the scope of the study. Over the last few years, commercial civil itinerant movements accounted for about 59% of all aircraft movements at airports with control towers and flight service stations in Canada.

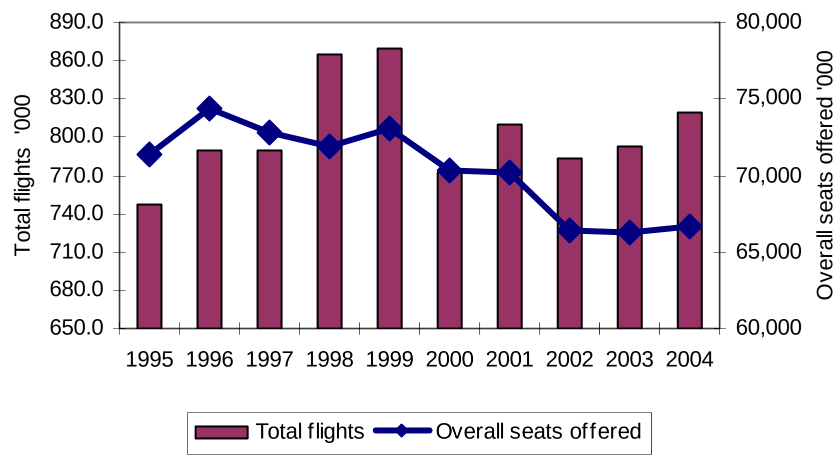
From all the commercial civil itinerant movements reported by control towers and flight service stations in Canada, the research has retained the domestic departing flights operated by Level I, II and III Canadian carriers. The term “departing flights” makes reference to take-off movements from a given airport, excluding both simulated / practice approaches and flights transiting the control tower or flight service station zone to another destination. The distinction between domestic and international markets is solely based on the airport “arrived from” or “departed to”, as recorded on the aircraft movement records. Please note that the information on the “arrived from” or “departed to” airport was missing from about 2% of all the aircraft movement records. These records were excluded from the study. Level I, II and III Canadian carriers are defined as all Canadian-owned air carriers that realized annual gross revenues of $1 million or more for the air services for which the air carrier held a licence.

From a methodological point of view, the seating capacity is derived as the combination of the number of domestic departing flights operated by Level I, II and III Canadian carriers and the number of seats available. The number of domestic departing flights operated by Level I, II and III Canadian carriers is obtained directly from AMS database. The number of seats available is derived from the aircraft type information available on the aircraft movement records. The aircraft type is matched against a parametric file available at the Aviation Statistics Centre of Statistics Canada to derive the number of seats available. The parametric file is kept up-to-date on a regular basis using various sources of information on aircraft fleet. For any given aircraft type, the configuration allowing the maximum number of seats is usually recorded on the parametric file. As a consequence, the research is estimating the maximum seating capacity.

More flights in the sky but less seating capacity

The analysis of the Aircraft Movement Statistics and the calculation of seating capacity performed showed that between 1995 and 2004, the number of domestic flights increased by 9.7%, while the seating capacity offered by these flights declined by 6.5%.

Chart 1
Comparison between total flights and total seats offered



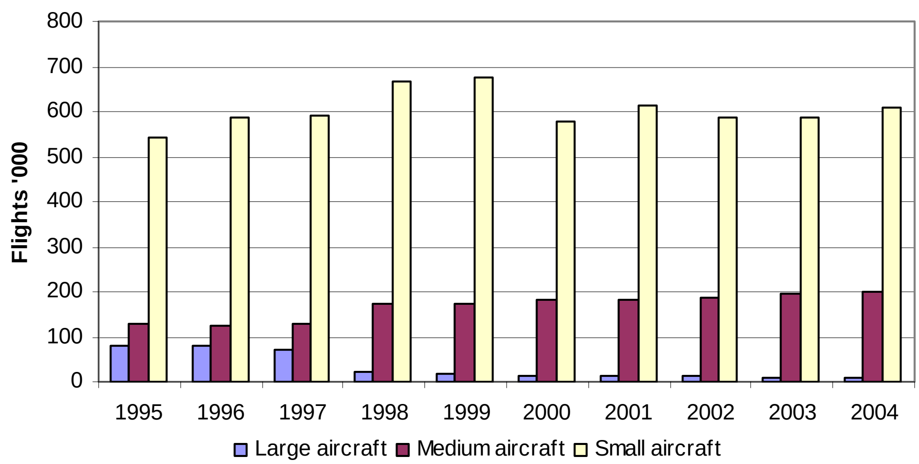
As shown in Chart 1, there were 820,094 flights flown between Canadian destinations by Canadian airlines in 2004. By comparison, there were 747,439 flights recorded in Canada in 1995. The number of flights between Canadian destinations peaked in 1999 as a total of 868,994 flights were recorded.

Chart 1 also shows that a total of 71.4 million seats were offered to domestic travellers in 1995. However, there was a 6.5% decline in the seating capacity by the end of 2004 as a total of 66.7 million seats were offered during that year.

Large aircraft is out, smaller aircraft is in

One might ask, "How can there be a reduction in seating capacity when there are more flights flown between cities?" The explanation lies with the size of the aircraft. According to Aircraft Movement Statistics, the Canadian airline industry shifted away from the large aircraft in favour of the smaller aircraft. Large aircraft flew between Canadian cities 78,116 times, 10.5% of all domestic flights flown in 1995. Ten years later, the large aircraft commuted only 7,655 times, 0.9% of all flights recorded in Canada. This marked a decline of 90.2%. The largest decline in the utilization of large aircraft came between 1997 and 1998, with a year-over-year decrease of 66.5%.

Chart 2
Total number of flights by aircraft category



As shown in Chart 2, the medium aircraft were in demand more than ever with the declining popularity of large aircraft. The utilization of medium aircraft jumped 57.4% during the 10 year period, from 128,216 flights in 1995 to 201,810 flights in 2004.

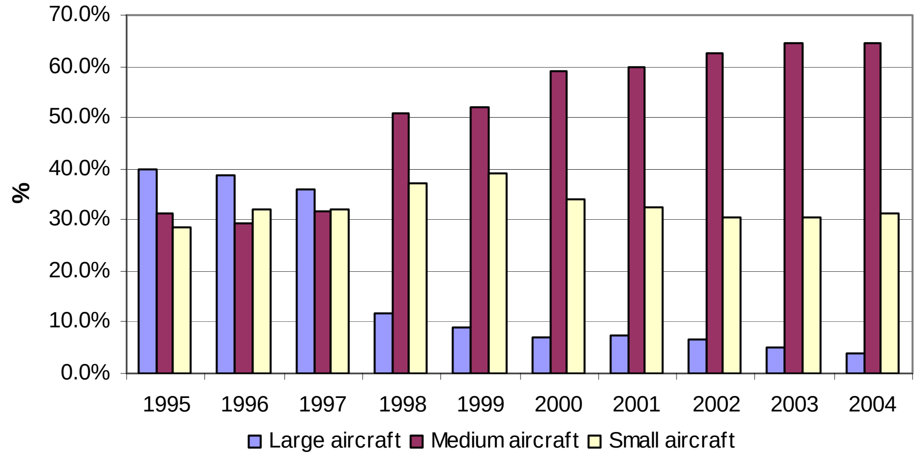
During the ten year period, the utilization of the small aircraft went up by 12.8%, from 541,107 flights in 1995 to 610,629 flights in 2004. However, the largest year-over-year growth during the ten years span came in 1998, with an additional 75,965 flights flown. This peak actually coincided with the decline of large aircraft utilization.

Aircraft category definitions

- Large aircraft provide seating capacity of more than 300 seats. Models like Boeing 747, Tristar 500 and Airbus 333 are included.
- Medium aircraft provide seating capacity between 151 and 300 seats. Models like Airbus 320, Boeing 757 and Boeing 727 are included.
- Small aircraft provide seating capacity of less than 151 seats. Models like Boeing 731, BAC 146 and Short 360 are included.

As shown in chart 3, although the large aircraft represented only 0.9% of the flights flown in 2004, this type of aircraft provided over 4% of the industry seating capacity. During the same year, the medium aircraft offered over 43.0 million seats to travellers, while the seating capacity was 22.3 million seats 10 years ago. By the end of 2004, the medium aircraft provided 64.6% of all seats available to domestic travellers. Approximately 20.4 millions seats were offered by the small aircraft in 1995. The seating capacity then went on to reach 28.3 million seats in 1999. However, by the end of 2004, the seating capacity dropped down to the initial level reached 10 years ago at 20.9 million seats.

Chart 3
Proportion of seating capacity by aircraft category

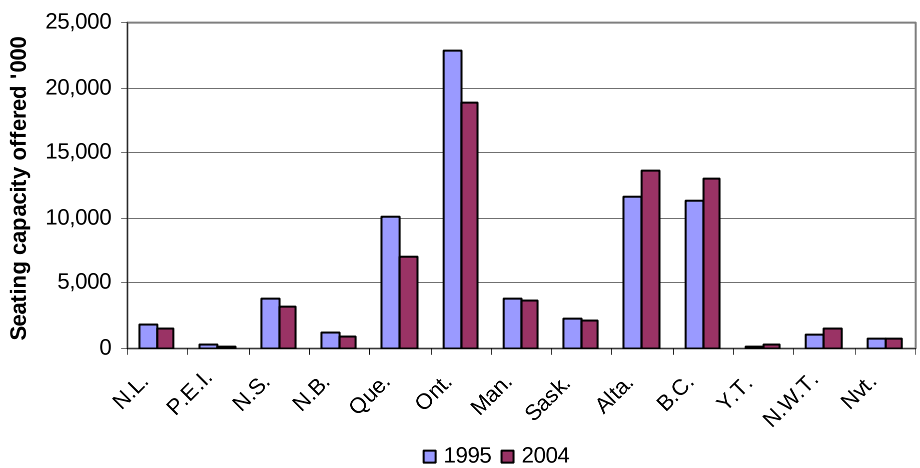


Seating capacity: Different sides of the country, different stories

The seating capacity was generally declining in Eastern provinces, mainly Québec and Ontario, while increasing in Western provinces and territories, mainly Alberta and B.C. For the purpose of this study, a flight with a seating capacity of 150 leaving Edmonton and heading to Montreal will be associated to the province of Alberta.

As shown in Chart 4, British Columbia provided 11.4 million seats to domestic travellers in 1995. Ten years later, with an additional 1.6 million seats, British Columbia posted an increase of 14.2% in its provincial seating capacity. Furthermore, Alberta also recorded an increase of 16.6% in its provincial seating capacity, a jump from 11.7 million seats in 1995 to 13.6 million seats in 2004.

Chart 4
Annual provincial and territorial seating capacity comparison



On the other hand, all Atlantic provinces posted a decline in their provincial seating capacity. The provinces reported a combined loss of 1.5 million seats. The lowest decline in their provincial seating capacity was 17.3%. Notably, Prince Edward Island reported a decline of 37.5% in its seating capacity during the 10 year period.

Ontario continued to provide the most seating capacity available to travellers in the country. However, Ontario offered a total of 22.9 million seats in 1995, while the seating capacity was 18.8 million seats in 2004.

Table 1
Provincial and territorial market share of the seating capacity

	1995	Rank	2004	Rank	Percentage points change	Seating capacity gain / loss
NL	2.7%	8	2.3%	9	-0.4%	-371,821
PE	0.4%	12	0.2%	13	-0.1%	-93,939
NS	5.4%	5	4.8%	6	-0.6%	-667,271
NB	1.8%	9	1.3%	10	-0.4%	-370,794
QC	14.2%	4	10.6%	4	-3.6%	-3,040,600
ON	32.0%	1	28.2%	1	-3.8%	-4,021,194
MB	5.3%	6	5.6%	5	0.3%	-74,488
SK	3.2%	7	3.2%	7	0.0%	-169,434
AB	16.3%	2	20.4%	2	4.0%	1,938,303
BC	15.9%	3	19.5%	3	3.5%	1,616,423
YT	0.3%	13	0.4%	12	0.1%	79,252
NT	1.6%	10	2.4%	8	0.8%	486,582
NU	1.0%	11	1.1%	11	0.1%	30,156

As illustrated in Table 1, with the addition of seats made available to travellers, British Columbia and Alberta both recorded positive percentage point gains in the provincial seating market share over the 10 year period. By the end of 2004, British Columbia and Alberta reported gains in the domestic market share: 3.5 percentage points and 4.0 percentage points respectively. In term of market share ranking, the rankings for both provinces remained unchanged, British Columbia being third and Alberta being second.

Both Northwest Territories and Yukon increased slightly in their provincial proportions. The increase in the relative importance of these two territories corresponded with an increase of 43.4% in their provincial seating capacity.

Despite the decline in the seating capacity during the past 10 years, Ontario still continues to offer the most seating capacity to Canadian domestic travellers. By the end of 2004, Ontario represented 28.2% of all seats offered to domestic travellers, down from 32.0% in 1995.

Seating capacity declined over time: intra-provincial seating lost the most

Over the 10 year study period, the seating capacity for inter-provincial travel (from one province to another) dropped by 4.1%, while the seating capacity for intra-provincial travel (within the province) declined by 11.6%.

As shown in Table 2, the overall seating capacity dropped almost 4.7 million seats between 1995 and 2004. However, the intra-provincial capacity reported a larger number of seats lost. The intra-provincial capacity reported a loss of 2.7 million seats, while inter-provincial capacity showed a decline of 2.0 million seats.

Table 2
Seating capacity by type of travel

	Intra-provincial seating capacity			Inter-provincial seating capacity		
	1995	2004	% change	1995	2004	% change
NL	798,976	325,148	-59.3%	1,111,384	1,213,391	9.2%
PE	871	862	-1.0%	249,515	155,585	-37.6%
NS	339,840	114,501	-66.3%	3,509,687	3,067,755	-12.6%
NB	342,323	49,674	-85.5%	910,962	832,817	-8.6%
QC	3,474,005	2,181,548	-37.2%	6,642,790	4,894,647	-26.3%
ON	8,137,373	6,497,385	-20.2%	14,717,050	12,335,844	-16.2%
MB	587,927	735,557	25.1%	3,189,836	2,967,718	-7.0%
SK	692,857	527,216	-23.9%	1,605,159	1,601,366	-0.2%
AB	3,324,751	3,663,567	10.2%	8,338,966	9,938,453	19.2%
BC	4,483,746	5,186,119	15.7%	6,877,116	7,791,166	13.3%
YT	32,317	26,297	-18.6%	149,672	234,944	57.0%
NT	603,442	818,058	35.6%	518,123	790,089	52.5%
NU	376,221	377,985	0.5%	344,440	372,832	8.2%
CA	**23,194,649**	**20,503,917**	**-11.6%**	**48,164,700**	**46,196,607**	**-4.1%**

In 1995, there were 71.4 million seats made available to travellers, while 32.5% of the seats were reported to be intra-provincial travel and the remaining 67.5% of the seats were offered for inter-provincial travellers. Although the overall seating capacity went down by 6.5% ten years later, the proportion of seating capacity between intra and inter provincial travel remained steady over time.

All provinces east of Manitoba reported a loss in seating capacity. For most of these provinces, the loss of capacity mostly came from the area of intra-provincial travel. New Brunswick posted a loss of over 80% in its intra-provincial capacity over the 10 year period. Although Ontario did not register the largest decline in capacity growth, the decline in intra-provincial capacity in Ontario represented 60.9% of all intra-provincial capacity loss.

Size does not matter…with an underlying upside

The last step of this analysis consisted in classifying the airports by size, according to the definitions supplied in the box below. The results of these calculations showed that all three categories of airports reported lower seating capacity over the 10 year period.

As shown in Table 3, the seating capacity of the large airports underwent a reduction of 2.4 million seats, a loss of 1.8 million seats for the medium airports and a decline of 500 thousand seats for the small airports, according to Aircraft Movement Statistics. Ten years later, the seating capacity between two airports of the same size, i.e. Large-Large (from large airport to large airport), incurred a combined loss of close to 4 million seats.

Table 3
Total number of seats offered between airport categories

Total number of seats offered		Year		
From	**To**	**1995**	**2004**	**Change %**
Large airports	Large airports	11,984,917	10,320,201	-13.9%
	Medium airports	12,701,117	10,681,136	-15.9%
	Small airports	6,341,041	7,673,526	21.0%
Total Large airports		**31,027,075**	**28,674,863**	**-7.6%**
Medium airports	Large airports	12,549,257	10,727,656	-14.5%
	Medium airports	3,989,329	3,671,462	-8.0%
	Small airports	4,864,397	5,246,766	7.9%
Total Medium airports		**21,402,983**	**19,645,884**	**-8.2%**
Small airports	Large airports	5,985,729	7,063,775	18.0%
	Medium airports	4,398,211	4,740,959	7.8%
	Small airports	8,545,351	6,575,043	-23.1%
Total Small airports		**18,929,291**	**18,379,777**	**-2.9%**
Overall seating capacity		**71,359,349**	**66,700,524**	**-6.5%**

On the other hand, the seating capacity offered between Large-Small airports and Medium-Small airports (both directions) posted positive growth over the past 10 years. The seating capacity of Large-Small airports went up by 1.3 million seats, while Small-Large airports also provided seating at a higher capacity, increasing by 1.1 million seats. Furthermore, the Medium-Small and Small-Medium airports also offered more seats to domestic travellers, 382,000 seats and 343,000 seats respectively.

Airport category definitions

- Large airports provide 10% or more of the national seating capacity
- Medium airports provide a national seating capacity of 2% to 10%
- Small airports provide less than 2% of the national seating capacity

During the period from 1995 to 2004, the number of airports belonging to the category of Large airports did not change overtime. Furthermore, there was only one airport which changed its category over the ten year period. In 2003, a previously small airport was promoted to the category of Medium Airport. This particular airport was then returned to the category of Small Airport in 2004.

Conclusion

In the rapidly evolving environment in which the aviation industry has evolved over the last ten years, the Canadian air carriers have adapted by increasing the number of flights while at the same time decreasing the seating capacity. Between 1995 and 2004, the number of domestic flights increased by 9.7%, while the seating capacity offered by these flights declined by 6.5%. The research has shown that this apparent contradiction is explained by the more extensive use of medium-size aircrafts (between 150 and 300 seats), at the detriment of large-size aircrafts (more than 300 seats). The study has also shown that seating capacity has generally declined in Eastern provinces, mainly in Québec and Ontario, but has increased in Western provinces and territories, mainly in Alberta and British Columbia. Both intra-provincial and inter-provincial seating capacities have generally declined in Canada over the 10 year period, the decrease having been more significant on the intra-provincial markets. Finally, seating capacity has declined for flights between large airports as well as between large and medium airports. Seating capacity did increase however for flights between large and small airports as well as between medium and small airports.

This research has limited itself to describe how the supply of commercial domestic aviation services in Canada has reacted to changes in the economic and regulatory environment over the last ten years. Yet, this study did not attempt to evaluate the impact of changes to specific economic and regulatory factors. For instance, what is the impact of the amalgamation of Air Canada and Canadian Airlines in 2000 on the overall seating capacity offered on the domestic market? On the seating capacity offered by province and territory? How about the security charge and the impact on the seating capacity offered on shorter distance markets? How much of the increase in the seating capacity in the West and the decrease in the East impact the demand for alternative mode of passenger transportation like bus and train? These are some of the questions a subsequent study on seating capacity would likely address.