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Research Paper

The Edmonton and Calgary Aviation Markets - A Tale of Two More Cities

by Gord Baldwin and Lisa Di Piétro

Transportation Division
Main Building, Room 1506, Ottawa, K1A 0T6

Telephone: 1 866 500-8400

This paper represents the views of the authors and does not necessarily reflect the opinions of Statistics Canada.

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How to obtain more information :
National inquiries line: 1 800 263-1136
E-Mail inquiries: infostats@statcan.ca

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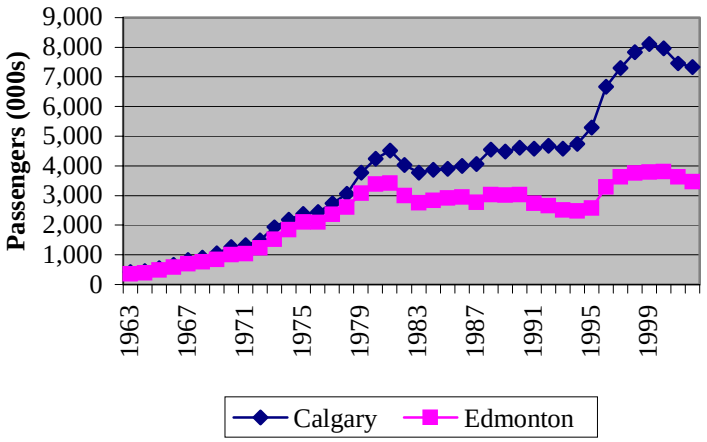
Introduction

Passenger air traffic movements in Calgary and Edmonton were roughly equal in 1963 but, since that time, the Calgary market has grown much larger than that of Edmonton. This Paper examines a number of factors, as well as differences in the airport infrastructures in the two cities, to explain the different air traffic growth patterns. Very similar to the debate over Montreal (Dorval/Pierre Elliott Trudeau airport and Mirabel airport) versus Toronto (Pearson airport),[*] the reasons for growth in the aviation markets of Calgary and Edmonton (International airport and City Centre airport[1]) often returned to the debate over a divided aviation market as the result of two airports versus one at their major competitor. In both Montreal and Edmonton, it was often suggested that if flights could be consolidated into one airport, they would cease to lose "market share" to the competing aviation market. This paper will examine possible reasons for the differences in the aviation passenger growth in these two major Canadian markets. While the often cited factor was multiple airports, this analysis will pay particular attention to the major socio-economic variables used in airport passenger forecasting by Transport Canada, the US Federal Aviation Administration and others to see if they help to explain the different growth patterns.

Trends in the Calgary and Edmonton Aviation Markets

The total number of passengers enplaned and deplaned at Calgary and Edmonton (International airport and City Centre airport) were similar in 1963. It is shown in Chart 1 that the growth in both tracked quite similarly until the late seventies. The two markets have diverged since, in good times and bad with the passenger volumes at Calgary eclipsing those at Edmonton.

Chart 1 - Enplaned and Deplaned Passenger Traffic, Calgary and Edmonton, 1963-2002



Source: Statistics Canada, Catalogue no. 51-203, Statistics Canada/Transport Canada Internal Reports, Statistics Canada, Catalogue no. 51-501

[*]Gordon Baldwin, The Toronto and Montreal Aviation Markets—A Tale of Two Cities, CTRF Proceedings 1997

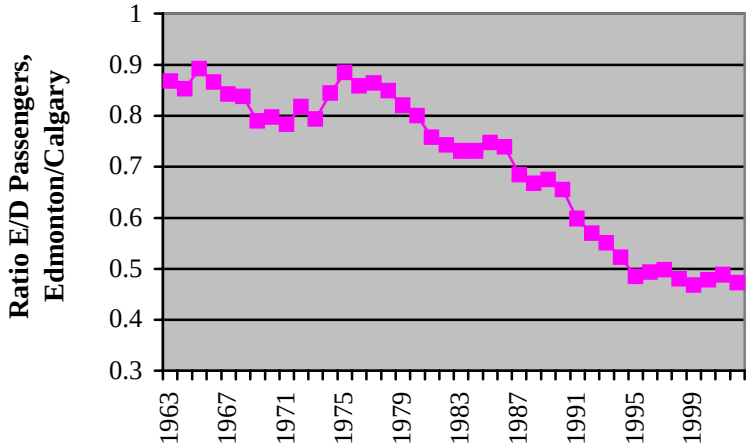
In 1963, Calgary's enplaned and deplaned passenger total of 425 thousand was 15% greater than that of the combined total of 369 thousand at the two Edmonton airports. By 2002, the number of passengers handled at Calgary exceeded the passengers handled at Edmonton by 3.9 million passengers, 111% greater.

In a 1995 plebiscite, Edmontonians voted to consolidate air passenger service at Edmonton International, which took place in 1996. Many had felt that the frequency of the downtown Edmonton to Calgary air service operated out of the Edmonton City Centre airport funnelled passengers from Edmonton on to the major routes of carriers operating to or from Calgary. Editorials prior to the plebiscite stated that the move to one airport in Edmonton would result in "Edmonton regaining much of the traffic that has been bled off in the past to Calgary".[2] The reason for the loss of traffic was often given as "the presence of two [airports] is splitting our traffic. Instead of using the economies of scale, putting all travellers through one airport, we divide our own market".[3]

The inconvenience of passenger transfers between airports, often cited in the Montreal versus Toronto debate, also was heard here: "With the current two airport situation, passengers who don't want the hassle of being shuttled between airports find it more convenient to bypass Edmonton and make their connections at Calgary instead".[4] The Edmonton Chamber of Commerce stated that "The prospect of [airport] consolidation was an important factor in the planning and decision-making behind the announcements of Royal Airlines, Horizon and Westjet to serve the Edmonton market…".[5]

Chart 2 shows the passenger traffic at Edmonton (both airports) relative to the enplaned and deplaned passenger traffic at Calgary over the period 1963-2002. The declining aviation market of Edmonton relative to Calgary's aviation traffic is shown from the mid-1970's on. Are there explanations other than the often cited "two airports" issue which could help explain this decline? The decline has appeared to flatten in the mid to late 1990's, the period following the movement of most commercial aviation passenger traffic from Edmonton City Centre airport to Edmonton International airport. This may support the position of those that the "two airports" scenario in Edmonton was a major cause for the growth of the aviation passenger market in Calgary at the expense of the Edmonton market. In this paper, the focus will be an examination of the socio-economic variables used in aviation forecasting models in an attempt to determine if there were underlying socio-economic trends that help to explain the different aviation passenger trends.

Chart 2 - Ratio of Enplaned and Deplaned Passenger Traffic, Edmonton/Calgary, 1963-2002



Source: Aviation Statistics Centre, Statistics Canada

Factors Affecting Air Traffic Growth

Both Transport Canada and the Federal Aviation Administration (FAA) have developed top-down forecasting models for aviation. The models are national rather than airport/city specific and tend to use aggregate variables. Among the key socio-economic variables considered for their forecasts are[6]:

- Adult Population (those older than 20) (Transport Canada and FAA);
- Gross domestic product (Transport Canada and FAA);
- Personal disposable Income (Transport Canada and FAA).

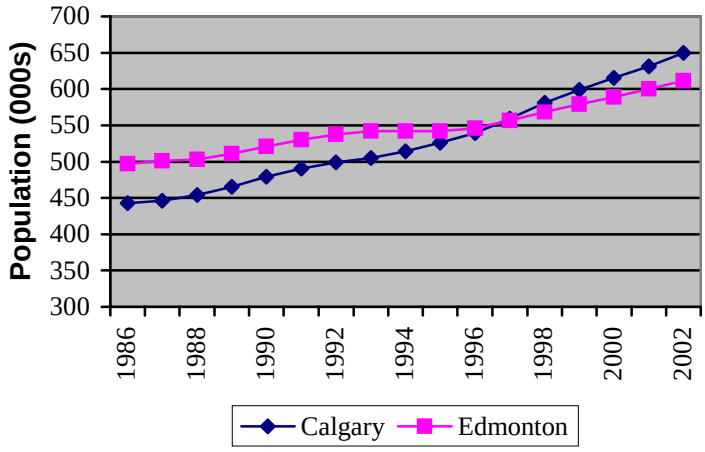
The trends for these variables or proxies for these variables will be examined for the Calgary and Edmonton markets to see if they may explain the different trends observed in these two areas of Alberta.

Population

Population is an important determinant for demand for air travel as a large population centre can generate more origin-destination traffic by the nature of the population around the airport region. The domestic origin-destination passenger total for Calgary grew 24.6% from 1986 to 1996 and a further 7.4% from 1996 through 1999. Edmonton's market declined 5.7% and 1.3% during the same periods. The Canada-United States (transborder) origin-destination data showed a similar picture with Calgary increasing 114.1% from 1986 to 1996 and a further 18.9% from 1996 through 2000. Edmonton's transborder market grew at 72.7% and 10.5% respectively.[7]

In Chart 3, it can be seen that the population trends between the two cities have been relatively constant, both growing with Calgary passing Edmonton only in 1996 for the population aged 20-64. It would appear that population alone would not explain the difference in the larger Calgary aviation market.

Chart 3 - Census Metropolitan Area Population, Edmonton and Calgary, Age 20-64 years, 1986-2002



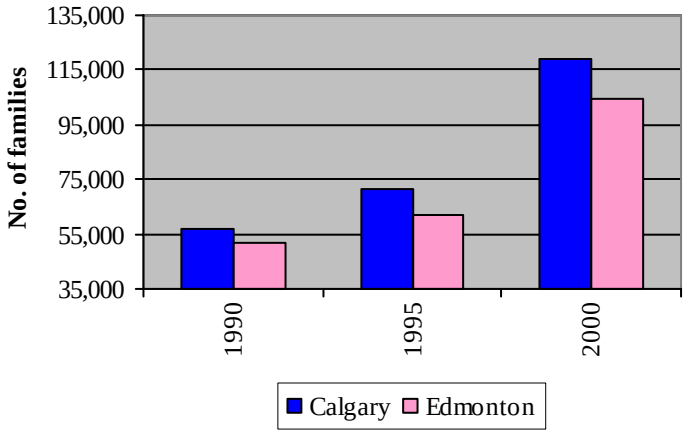
Source: Statistics Canada, CANSIM Table 051-0016,
1996 census boundaries

Income

There is a strong relationship between income and the propensity to use aviation travel. Transport Canada has tried using "average per capita personal income" and "average family income" as the variables to represent "income" in their aviation forecasting models. "There was no significant difference in the performance of the model, whichever of these highly correlated variables was used".[8] The Federal Aviation Administration states that "Non-business travel has grown over the years [as] the incomes of average Americans have grown".[9] The Canadian Transport Commission

also concluded in a study on inter-city air travel that the "proportion increased steadily with income".[10]

Chart 4 – Census Families with Family Income $70,000 and over, Calgary and Edmonton, 1990, 1995 and 2000



Source: Statistics Canada, Profiles of Census Tracts catalogues 95-375 and 95-378, 1991 Census; 95-209 and 95-210, 1996 Census; 95F0495XCB01004, 2001 Census

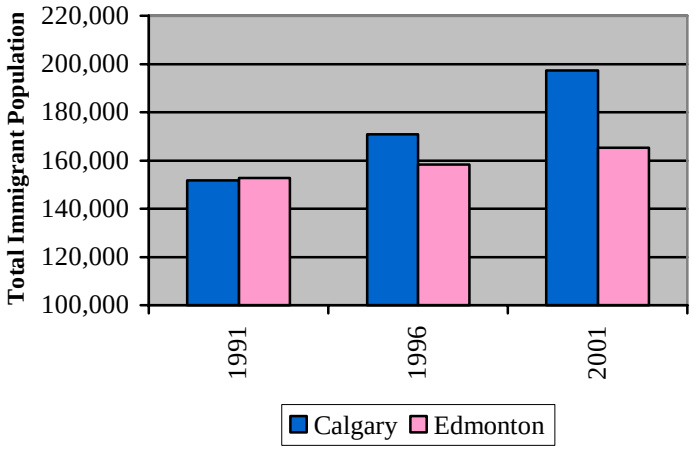
Chart 4 shows that at the time of the 1991, 1996 and 2001 censuses, Calgary had more Census families[11] with family income of $70,000 or greater than did Edmonton. With a higher income is a higher propensity to travel by air. This should favour the demand for air travel from Calgary over that generated by the Edmonton market.

Immigration

Immigration is a variable not used by either Transport Canada or the FAA in their forecasting models but which may be another important variable explaining the aviation markets.[12] The 1991, 1996 and 2001 Census data indicate that both Calgary and Edmonton census metropolitan areas have been somewhat influenced by immigration.

As can be seen in Chart 5, in 2001, the total immigrant population in Calgary stood at 200 thousand, up 30% from a decade ago. In 2001, the foreign-born people represented 21% of the total population[13] in Calgary. This compares to an immigrant population of 165 thousand or 18% of the total population in Edmonton. Between 1991 and 2001, the total immigrant population in this city grew by only 8%.

Chart 5 - Total Immigrant Population, by Census Metropolitan Areas, Calgary and Edmonton, 1991, 1996 and 2001

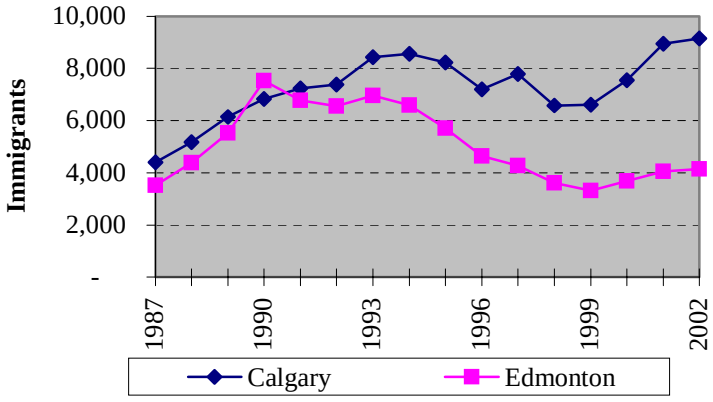


Source: Statistics Canada, Catalogue nos. 93-338 - 1991 Census, 95-209-XPB and 95-210-XPB - 1996 Census, and 95F0495XCB01004 - 2001 Census

Chart 6 depicts the annual immigration during the period 1987-2002. As it can be seen, during this period, the foreign-born population in Calgary exceeded that in Edmonton, except in 1990. Since then, the gap between the two cities has widened, and by 2001, the new immigrants favoured Calgary in a proportion of two to one.

This could help to explain the differences seen in the aviation growth in the two markets: "recent immigrants with a high propensity to generate international travel to their countries of origin (at least for the first and second generation)". [14] The Visiting Friends and Relatives (VFR) market would tend to be positively influenced in two ways in a market with a larger proportion of foreign born residents. This could have a stimulative effect on new Canadians returning to visit their countries of origin. A large immigrant community could also be a draw for those from the "home country" to visit relatives in Canada.

Chart 6 - Immigration by Census Metropolitan Area, Calgary and Edmonton, 1987-2002



Source: Statistics Canada, CANSIM Table 051-0015

Migration

Migration data, derived by comparing addresses supplied on personal income tax returns, indicate that Calgary has a very mobile population.[15] The net migration rate of 17.7 per 1,000 population, led all other census metropolitan areas in Canada, including Edmonton, in 2001/02. Table 1 shows the net migration figures for Calgary and Edmonton for a five year period. Depending on where the migrants came from, this also could have a positive influence on air travel.

Table 1 – Net Migration, Calgary and Edmonton, 1997/98-2001/02

	1997/98	1998/99	1999/00	2000/01	2001/02
Calgary	24,420	16,838	15,190	16,563	17,208
Edmonton	11,440	8,163	8,210	7,885	12,485

Source: Statistics Canada, The Daily, September 25, 2003; September 26, 2002; September 25, 2001, September 26, 2000

Gross Domestic Product

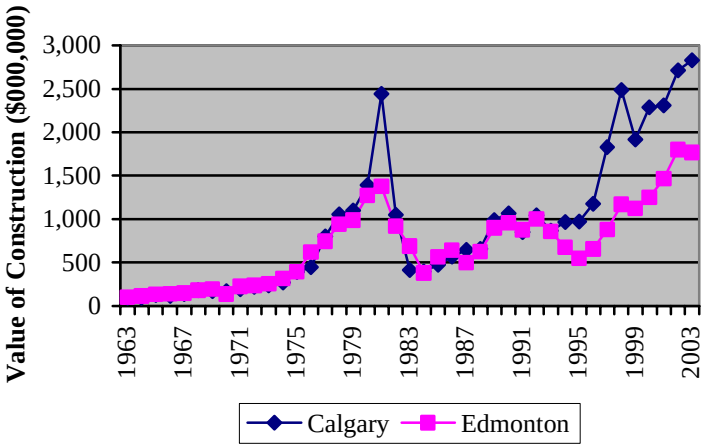
The variable gross domestic product is used in both the Transport Canada and FAA aviation forecasting models. As economic activity increases, so does the demand for commercial aviation services. As economic activity declines, so does the demand for commercial aviation services. In the absence of a city-based gross domestic product, three variables have been examined:

- value of building permits
- employment, and
- head offices.

Value of Building Permits

The traffic to or from a particular city is strongly tied to the economic activity of this city. One of the leading indicators to measure the economic activity of a city is the value of building permits. In Chart 7, it can be seen that prior to the mid 1990s, with few exceptions, the value of planned construction activities for residential and non-residential sectors tracked quite similarly, in both Calgary and Edmonton. However, since 1995, the value of building permits issued by the city of Calgary outpaced by at least 50% the value of building permits issued by the city of Edmonton. In 1998, the value gap between the two cities widened to reach 113%.

Chart 7 - Value of Total Residential and Non-residential Building Permits, by Census Metropolitan Area, 1963-2003

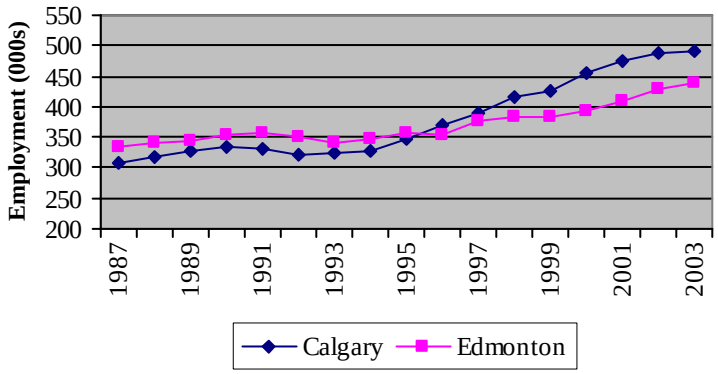


Source: Statistics Canada, CANSIM Table 026-0003 - Computed annual total from monthly series.

Employment

In Chart 8, the full time employment is shown for the period 1987- 2003. Edmonton was the leader from 1987 through 1995. Since 1996, Calgary has had the higher number of persons who usually work 30 hours or more per week at their main or only job.

Chart 8 - Full Time Employment, Calgary and Edmonton, 1987-2003



Source: Statistics Canada CANSIM Table 282-0052, both sexes, 15 years and over

Head Offices

Much of the previous analysis and discussion concentrated on personal travel. Another important component of the aviation market is business travel. What factors could influence the volume of business traffic to or from a particular city? One variable could be the presence of head offices. Not only does head office employment in Calgary swamp that of Edmonton, it also has been growing while Edmonton's has declined.[16]

A loss of head office employment in Edmonton could have a negative effect on the demand for business travel originating in Edmonton as well as lessening the demand for trips to Edmonton as a destination.

Table 2 - Head Office Employment, Calgary and Edmonton, 1999 and 2002

	1999	2002	Annual Growth %
Calgary	11,946	16,167	10.6
Edmonton	3,574	3,415	-1.5

Cities are defined using their Census Metropolitan Area.

Source: Statistics Canada catalogue no. 11F0027MIE--No. 019, Table 5, page 15

Conclusion

The Edmonton commercial aviation passenger market has been in a long-term decline in relative size when compared to the Calgary commercial aviation passenger market. While the enplaned and deplaned passenger count has grown at Edmonton over the past four decades, the growth has been stronger at Calgary especially during the past two decades. Size of the municipalities' population does not appear to explain the differences. Income may be one explanatory factor, due not to the average incomes but due to the larger concentration of higher incomes in Calgary. Those with higher incomes do tend to use air travel more. The immigrant population of Calgary has grown faster in the last decade and net migration to Calgary from elsewhere in Canada has been higher than in Edmonton. Both could stimulate the Visiting Friends and Relatives travel market. With respect to the economic activity stimulating the demand for commercial aviation services, Calgary has recently led Edmonton in the value of building permits, full-time employment and head offices employment. The previous examination of the Montreal/Toronto situation appeared relatively clear, with Toronto beating Montreal on all the socio-economic variables examined as well as aviation passenger traffic.[17] In the case of Calgary/Edmonton, the socio-economic variables have favoured Calgary, especially in recent years yet the relative decline of Edmonton's passenger aviation traffic has slowed. This has occurred after the moving of most commercial aviation passenger flights from Edmonton City Centre airport to Edmonton International airport. This may support the position that Edmonton was losing aviation passenger traffic to Calgary before the consolidation of commercial aviation flights at Edmonton international airport.

Note

The views and opinions expressed in this paper are those of the authors and do not necessarily reflect those of Statistics Canada. We would like to thank Marie-Claire Lauzon, Library and Information Centre, Statistics Canada for her research help. We would like to thank Tim Davis, Rolf Hakka, Robert Masse, Bruce Meyer all of Statistics Canada and Dave Johnston (retired Canadian Airlines International Ltd.) for their valuable comments, corrections and criticisms while retaining all responsibility for any remaining errors.

Endnotes

[1] The airport in downtown Edmonton changed names three times during the period of study: Edmonton Industrial Airport, Edmonton Municipal Airport and Edmonton City Centre Airport. Only the present name will be used in this study.
[2] The Edmonton Journal, editorial by Bob Ambrose, Friday October 13, 1995, page A19
[3] The Edmonton Journal, Thursday October 12, 1995, page A18, "Vote for international a vote for Edmonton"
[4] The Edmonton Journal, September 17, 1995, page E!, Dennis Hryciuk, "THE AIRPORT DEBATE, ROUND 2: TO MAKE CONNECTIONS"
[5] Edmonton Chamber of Commerce, Commerce News, November 1, 1995, page 5, v17, n8, "Consolidation at Edmonton International Airport a vote in city's future"
[6] Transport Canada, Assumptions Report 2003-2017, page 3. Federal Aviation Administration, FAA Aviation Forecasts Fiscal Years 1979-1990, page 46, Federal Aviation Administration, FAA Aviation Forecasts Fiscal Years 1996-2007, pages VIII-10 and II-12.
[7] Statistics Canada, catalogue 51-204 and 51-205.
[8] Transport Canada, PODM: Air Passenger Origin-Destination Model, TP2195E, Volume 1: Summary Report; page II-3
[9] Federal Aviation Administration, FAA Aviation Forecasts, Fiscal years 1996-2007, page II-12
[10] R. Daigle, Personal Travel and Transportation Expenditures in Canada, page 27, (Research Branch, Canadian Transport Commission, Ottawa, August 1978)
[11] Census family refers to a now-married couple (with or without never-married sons and/or daughters of either or both spouses), a couple living common-law (with or without never-married sons and/or daughters of either or both partners) or a lone parent of any marital status, with at least one never-married son or daughter living in the same dwelling.
[12] While not a direct variable, Transport Canada's population forecasts do include immigration estimates.
[13] Richard Fisher in Transport Canada's, Canadian Aviation Forecast Conference, December 8, 1994 Conference Proceedings, page 83.
[14] Richard Fisher in Transport Canada's, Canadian Aviation Forecast Conference, December 8, 1994 Conference Proceedings, page 83.
[15] Statistics Canada, The Daily, September 25, 2003, *Migration 2001/02*. Moves across town or within the same census division are not counted as migration.
[16] John R. Baldwin, Desmond Beckstead and Mark Brown, Hollowing-out, trimming down or scaling-up? An analysis of head offices in Canada, 1999-2002, Statistics Canada catalogue no. 11F0027MIE--No. 019, Table 5, page 15
[17] Gordon Baldwin, The Toronto and Montreal Aviation Markets—A Tale of Two Cities, CTRF Proceedings 1997