The Effect of Liberalised Air Transport Bilaterals on Foreign Traffic Diversion

The Case of Canada

Martin Dresner and Tae Hoon Oum*

1. Introduction

Between 1978 and 1982 the United States government signed “liberal” or “partially liberal” air transport bilaterals with 23 countries (Haanappel, 1983). The agreements were implemented in parallel with the United States’ domestic air transport deregulation, and were designed to enhance competition on US international air routes, and so lead to lower prices and increased passenger traffic. The liberal bilaterals differed from the existing “Bermuda” agreements in that they expanded the number of permitted international routes, restricted the ability of governments to reject market-driven rates, and encouraged competitive, rather than cartel, price setting by carriers.1 In 1995, the US government resumed its efforts to increase competition on US international air routes by initiating an “open skies” policy, signing new liberal agreements or amendments with over 20 countries; one of these was Canada (Air Transport Association of America, 1995).

The Canadian government has been much less market driven in its approach to promoting competition in international air transport, notwithstanding its long-awaited open skies agreement with the United States. Previous studies (Dresner and Tretheway, 1987; Mitchell, 1991) have shown that Canadian bilateral agreements tend to restrict, rather than facilitate, international competition. Three of Canada’s most liberal agreements, with the United Kingdom, The Netherlands, and Germany, contain clauses limiting the pricing freedom of carriers operating to and from Canada. The restrictive

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1 The original Bermuda agreement was signed by the US and the UK in 1947 (Bermuda I), and was replaced in 1976 (Bermuda II). The Bermuda I agreement became the model for many post-1945 bilateral air agreements signed around the world.
nature of Canadian bilateral agreements is significant in view of the more liberal US approach and the ability of Canadian international traffic to divert to US international routes, if prices and services are better. In addition, the restrictive agreements could impede the implementation of Canada’s revised international air transport policy with a goal (among others) to “…ensure consumers benefit from increased price and service competition...” (Canada, Transport Canada, 1994).

The purpose of this paper is twofold. First, it examines the effect of the restrictive Canadian air transport policy in the light of the more liberal policy pursued by the US. Second, it investigates whether Canada’s limited experience with liberalised agreements has increased Canadian international air traffic. Specifically, the following questions are addressed. First, what effect has the Canadian liberal air policy had on the share of foreign visitors travelling direct to Canada (rather than diverting through the US)? In particular, have Canada’s three most important “facilitating” agreements with the UK, The Netherlands, and Germany contributed to an increased share of visitors travelling direct from those countries to Canada? Second, what effect have US liberal bilateral air agreements with countries had on the share of visitors from those countries travelling direct to Canada? We believe that the answers to these questions are important in that they may indicate how liberal agreements affect consumer welfare. If Canadian facilitating agreements are shown to generate visitor traffic to Canada, and if US liberal agreements are shown to divert Canadian international traffic to US international air routes, then the presence of liberal agreements may indicate welfare gains to consumers.

The structure of the paper is as follows: Section 2 describes US and Canadian international air policies and briefly reviews the results of previous studies on liberal agreements. Section 3 uses trend analysis to assess the effects of bilateral policy on Canadian international air traffic. Section 4 employs econometric analysis to examine bilateral effects on passenger volume and on the share of visitors travelling direct to Canada from overseas points. Finally, Section 5 summarises key results and draws conclusions from the analysis.

2. US and Canadian International Air Policy

The international airline industry is largely regulated by bilateral agreements that establish the conditions of air transport between two countries. Until the advent of the liberal bilateral, the vast majority of agreements contained one clause regulating capacity, and a second clause allowing either of the governments that signed a bilateral to reject fare levels (single disapproval regime). The liberal bilateral, on the other hand, typically allowed the airlines freely to determine capacities without government interference, and

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2 The Canada-US transborder market is omitted from this analysis as it represents a unique international market for Canadian carriers and passengers. For analyses of this market, see: Dresner et al. (1989); Gillen et al. (1991); Oum (1991); Dresner (1992, 1994); and Gesser (1992).
restricted government disapproval authority over fare levels. In some of the liberal bilaterals, both governments had to reject fares before they were disapproved (double disapproval regime). In other agreements, only the country in which a flight originated could reject a fare. Other features generally incorporated in the liberal agreements included: (1) the multiple designation of airlines, allowing each government to designate a number of carriers to serve routes between the two states; and (2) a reduction in route restrictions, resulting in the authorisation of more routes between more cities in the two countries. The United States has been the major force behind the signing of liberal bilaterals.3 Between 1978 and 1982, the US signed 23 liberal or partially liberal agreements, and since 1995 has signed over 20 additional liberal or open skies bilaterals.

While the US was signing pro-competitive liberal bilaterals, the Canadian government, in general, pursued a traditional international aviation strategy, more protective of airline interests. Mitchell (1991) states that Canadian international air policy was defined as an attempt to promote growth in the airline industry without the “destructive impact of competition”. The centrepiece of the policy was a “division of the world (DOW)” formula, whereby international markets were divided between the two major Canadian international carriers (Air Canada and Canadian), so that each carrier would have exclusive jurisdiction over its respective regions of the world.4 Other Canadian carriers were allowed only very limited access to Canadian international routes. According to Mitchell (1991, p.21), the DOW policy “intended that cooperation should be established between the two [primary Canadian international] carriers so that, to the extent possible, their initiatives would support the carriage of passengers on Canadian carriers”.5

The restrictive nature of Canadian international air policy was evident in the bilateral agreements signed by Canada. Dresner and Treheway (1987) examined thirteen agreements signed between 1978 and 1986, and found that eight allowed only single designation of air carriers (that is, each country could designate only one carrier per route); that seven required a carrier or government agreement on capacity levels; and that all

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3 A few other countries have signed a limited number of liberal or partially liberal agreements, most notably the United Kingdom.
4 For details on the Division of the World policy, see Oum (1992). It was not until 1994, nearly 30 years after its inception, that the Canadian government replaced the Division of the World policy (Canada, Transport Canada, 1994). The new “use-it-or-lose-it” policy allows for the replacement of a designated carrier if it is not using, or is “under-utilising” its route rights granted by a bilateral agreement. (A route is considered “under-utilised” if the designated carrier provides less than twice-weekly service with its own aircraft, or less than near-daily service on a code-sharing basis using its own equipment for a significant portion of the route.) In addition, the new policy: (1) provides for the allocation of a second designated carrier to serve an international market if that market is in a country with at least 300,000 scheduled one-way passengers per year (Canada, Transport Canada, 1995); and (2) allows a foreign carrier to gain operating rights on a route to Canada if no Canadian carrier has an interest in a route. Under the previous policy, the Canadian government would generally not negotiate route rights unless a Canadian carrier had interest in using those rights.
5 In 1989, Canadian acquired Wardair, which had route authority to London, Paris, and Frankfurt, all historically within Air Canada’s service territory. After Canadian started to serve these cities, the division of the world between Air Canada and Canadian became blurred (Oum, 1992). Canada formally repealed its DOW policy in 1994 when it announced its new international air policy (Canada, Transport Canada, 1994).
thirteen specified that the preferred means of price-setting was through the industry rate-setting association, IATA, or by airline agreement (rather than through market forces).  

Within the last fifteen years, Canada has cautiously altered its bilateral approach and signed a limited number of bilateral agreements with more liberal features. Three of the most important “liberalised” agreements are those with Germany (Canada, 1983), the UK (Canada, 1988), and The Netherlands (Canada, 1990). The agreement with the UK allows carriers open access to any routes between the two countries, allows carriers limited freedom to set prices without the approval of both governments, and allows multiple designation of carriers. The bilateral with The Netherlands allows carriers freedom to match prices on routes without government approval, and does not restrict a carrier’s ability unilaterally to determine capacity levels. The bilateral with Germany allows for multiple designation of carriers, and allows carriers freedom to set capacity levels without government approval. However, unlike the bilaterals with the UK and The Netherlands, the German agreement tightly controls price competition by requiring competing carriers to agree on prices. Although the bilateral with Germany is somewhat more restrictive than those with the UK and The Netherlands, it is regarded as substantially more liberal than Canadian agreements with other countries (Mitchell, 1991). Therefore, following the classification of Mitchell (1991), in this paper the bilaterals with the UK, The Netherlands, and Germany are all classified as facilitating. The term “facilitating” is used to differentiate the Canadian agreements from the US “liberal” bilaterals, all of which have fewer restrictions than even the most facilitating Canadian agreement.  

There have been a number of econometric analyses attempting to assess the impact of liberal bilateral agreements on prices, passenger volume, economic welfare, and/or carrier market share. In general, the studies on US liberal agreements have found that they serve to reduce prices, increase passenger traffic, and increase consumer welfare. The one European study on liberal agreements, Caves and Higgins (1993), found that the existence of liberal bilaterals on UK international routes had no effect on prices or traffic. This result may have arisen because the UK international markets were not as liberalised as liberal US international markets. Airport capacity constraints in London, and residual restrictions in the UK liberal bilaterals, may have contributed to the statistically insignificant results.

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6 The Canadian agreements may be even more restrictive than they appear to the public. According to Mitchell (1991), of the 60 bilateral agreements Canada had in place at that time, 20 had attached confidential instruments. These confidential addenda probably enforce revenue sharing, capacity restrictions and/or price-setting agreements not included directly in the bilateral agreements. It should be noted that the US does not have confidential addenda to its bilateral agreements.

7 For example, the Canadian bilateral with the UK has provisions that restrict carriers from setting prices, without the approval of both governments, unless they are at least 60 per cent of a reference fare level or meet certain round-trip and advanced-booking restrictions. Canada’s bilateral with The Netherlands has provisions that restrict the number of carriers on a route to two per country.

3. Trends in Canada's International Traffic and Traffic Diversion

Before we use formal models to assess the impact of liberal agreements on Canadian international traffic, it would be helpful to see if there are any traffic trends related to bilateral policy that may be evident. Data were collected from two sources: Statistics Canada (1975-94); and the US Department of Transportation (1977-94). These data sources track foreign visitor arrivals to Canada and the United States, respectively, by nationality or country of residence. The Canadian source provides data on the number of residents of selected foreign countries arriving in Canada, while the US source divides arrivals (by air) into the country between US citizens and foreigners. Cross-border traffic between Canadian and US residents is excluded from both data sources.

Figure 1 shows the growth in visitor traffic to Canada and the United States for the period 1977 to 1994, indexed to 1 for the year 1977. It can be seen that for every year since 1978, visitor traffic has been higher into the United States than into Canada, relative to the base year 1977. The average annual growth rate for the period was 6.39 per cent for visitors to Canada, compared to 7.71 per cent for visitors to the United States. The higher growth in US international traffic, relative to Canadian international traffic, is consistent with expectations, given the relatively more liberal US air bilateral policy.

Figure 2 shows the percentage of visitor traffic to Canada passing through the United States rather than travelling direct to Canada. Visitor traffic diverted through the United States increased significantly from 37 per cent in 1977 to 45 per cent in 1986, before declining to 38 per cent in 1993 and 39 per cent in 1994. Although there is no direct evidence that the US liberal bilateral policy contributed to the foreigners’ travel patterns to Canada, the increase in traffic diversion to the US did correspond to the first signing of liberal agreements by the US. Also note from the figure that the diversion trends, until the mid-1980s, were fairly uniform across geographical regions, and that diversion levels were consistently lower for European traffic than for other visitors.

In summary, the trend analysis shows stronger international traffic growth for the US than for Canada, and increased traffic diversion from Canada to the US, consistent with expectations from the US liberal bilateral policy. In the next Section, a more formal attempt is made to examine the effect of bilateral policy on Canadian international traffic patterns.

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9 Transborder traffic, and all arrivals over land borders, are excluded. Arrivals to Canada include an insignificant number of visitors arriving by sea. The actual 1977 totals were 722,000 arrivals to Canada and 6,408 million arrivals to the United States.

10 Included are all non-US resident visitors to Canada arriving via the United States, except for same-day cross-border visitors (for example, to see Niagara Falls from the Canadian side for a few hours). Visitors arrive either by land or by air from the US. Visitors from the “south” include those arriving from Latin America, the Caribbean, and Bermuda. As a referee pointed out, not all visitors travelling to Canada through the US may be visitors who wish to travel to Canada direct. Many of these visitors may be jointly visiting Canada and the US, and may have been happy to travel to Canada through the US. Unfortunately, our data source does not allow us to differentiate between the joint Canada-US visitors and those who would have preferred to travel direct to Canada.
Figure 1
Non-Resident Traffic Growth to Canada and the US

Figure 2
Non-Resident Traffic to Canada — Diversion through the US
4. Modelling the Effect of Liberal Bilaterals

A model for estimating the share of passengers travelling directly to Canada (as opposed to first passing through the United States) was formulated as follows:\textsuperscript{11}

\[ SHARE = \alpha_0 + \alpha_1 \ast \text{NATLANTIC} + \alpha_2 \ast \text{USEXCH} + \alpha_3 \ast \text{CDNLIB} + \alpha_4 \ast \text{USLIB} \]  

(1)

where:

- \( SHARE \) is: (1) the ratio of direct foreign visitors to total (direct + US transit) visitors; or (2) the natural logarithm of the ratio of direct foreign visitors to US transit visitors, depending on the model (henceforth referred to as \( LOGIT \)).\textsuperscript{12}
- \( NATLANTIC \) is a dummy variable for North Atlantic routes. It is used to account for the greater numbers of Europeans who travel direct to Canada, compared to visitors from other parts of the world (as shown previously in Figure 2).
- \( USEXCH \) is the Canadian/US exchange rate in Canadian dollars per US dollars.\textsuperscript{13} An increase in this ratio (that is, more Canadian to US dollars) indicates a devaluation in the Canadian dollar relative to the US dollar.
- \( CDNLIB \) is a dummy variable set to 1 for those observations where visitors can travel directly to Canada under a facilitating bilateral agreement. (For example, the Netherlands-Canada facilitating agreement entered into force in 1990. This variable would be coded 0 for all Netherlands observations prior to 1990, and 1 for all Netherlands observations in and subsequent to 1990.)
- \( USLIB \) is a dummy variable set to 1 for those observations where visitors could have travelled direct into the United States under a liberal agreement before entering Canada. (For example, the US signed a liberal agreement with The Netherlands in 1978. All Netherlands observations prior to 1978 are coded 0, and all those Netherlands observations in and subsequent to 1978 are coded 1.)

The two versions of the model were estimated using panel data for the years 1975 to 1994 for 22 countries in which visitor data were reported in the series collected by Statistics Canada (1975-94).\textsuperscript{14} Exchange rate information was gathered from the International Monetary Fund (1975-95). Canadian bilateral information was collected from

\textsuperscript{11} Normally share or logit models include relative prices and service variables of the alternatives. However, it was not possible in our case to include those variables, because of the lack of data.
\textsuperscript{12} The tradition of using the logarithm of the odds or the ratio of two shares is well established in mode-split literature in transport economics. It essentially borrows the advantage of using a "logistic" or "logit" functional form in modelling a market or modal share. The main advantages of using a logit form are twofold. First, it constrains the predicted share from the model to lie between 0 and 1. Second, it allows for a nonlinear relationship between market share and any of the continuous independent variables. For an interesting application of the logit model to an aggregate data set, see Boyer (1977) and Levin (1978). For cautions of applying logit models to aggregate demand data, see Oum (1979).
\textsuperscript{13} The exchange rate used was the market rate of exchange based on the average exchange rate during the year.
\textsuperscript{14} Statistics Canada (1975-94) also provided data on numbers of visitors from Bermuda, Israel, and Mexico. However, supporting data for these countries were not reliable.
Table 1

Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Maximum</th>
<th>Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Passengers</td>
<td>41,774</td>
<td>73,494</td>
<td>404,600</td>
<td>900</td>
</tr>
<tr>
<td>Total Passengers*</td>
<td>74,160</td>
<td>114,910</td>
<td>582,100</td>
<td>4,000</td>
</tr>
<tr>
<td>Ratio Direct to Total Passengers</td>
<td>0.51</td>
<td>0.15</td>
<td>0.82</td>
<td>0.11</td>
</tr>
<tr>
<td>Canada/US Exchange Rate</td>
<td>1.21</td>
<td>1.11</td>
<td>1.39</td>
<td>0.99</td>
</tr>
</tbody>
</table>

* Total Passengers includes the foreign passengers who flew direct to Canadian airports and those who entered Canada through the US by air or land, and stayed in Canada one or more nights.

Dresner and Tretheway (1987), Mitchell (1991), and from copies of the agreements published in the *Canada Treaty Series*. US bilateral information was gathered from the Air Transport Association of America (1996), and from Dresner and Windle (1992). Table 1 provides descriptive statistics of variables of interest, while Table 2 shows a country-by-country listing of the types of bilateral agreements for the US and Canada.

Table 1 shows that on average 41,774 visitors per year entered Canada direct from the countries in our data set. The maximum number of visitors, 404,600, entered Canada in 1994 from Great Britain, while the minimum, 900, entered Canada in 1975 from South Africa. The second row in the table provides similar statistics on total (direct + US transit by air and land) visitors to Canada. The third row in the table shows the mean value of the variable representing the ratio of direct to total passengers. The mean value for the ratio was 0.51, indicating that slightly more than 50 per cent of total visitors travelled to Canada direct. Finally, the last variable in the table is the Canada/US exchange rate, representing the amount of Canadian currency it takes to purchase a US dollar. It had a mean value of 1.21. The Canadian dollar was at its lowest in 1986 (C$1.39) and at its highest in 1976 (C$0.99), relative to the US dollar.

Table 2 shows the liberal bilateral country classification used in the estimations. As illustrated in the table, three countries signed facilitating agreements with Canada, while the US signed five liberal agreements with countries in our data set. The table shows that the US signed its liberalised agreements much earlier (1978-80) than Canada (1983-90).

The two versions of the model were estimated using the “POOL” procedure in the econometric package, *Shazam*. The *POOL* procedure is a generalised least squares es-
## Table 2

*Liberal/Facilitating Bilateral Classification by Year*  
*(N/A = Not Applicable)*

<table>
<thead>
<tr>
<th>Country</th>
<th>Canada</th>
<th>United States</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Restrictive</td>
<td>Facilitating</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>1975-94</td>
<td>N/A</td>
<td>1975-94</td>
<td>N/A</td>
</tr>
<tr>
<td>Austria</td>
<td>1975-94</td>
<td>N/A</td>
<td>1975-94</td>
<td>N/A</td>
</tr>
<tr>
<td>Belgium</td>
<td>1975-94</td>
<td>N/A</td>
<td>1975-77</td>
<td>1978-94</td>
</tr>
<tr>
<td>Denmark</td>
<td>1975-94</td>
<td>N/A</td>
<td>1975-94</td>
<td>N/A</td>
</tr>
<tr>
<td>Finland</td>
<td>1975-94</td>
<td>N/A</td>
<td>1975-79</td>
<td>1980-94</td>
</tr>
<tr>
<td>France</td>
<td>1975-94</td>
<td>N/A</td>
<td>1975-94</td>
<td>N/A</td>
</tr>
<tr>
<td>Greece</td>
<td>1975-94</td>
<td>N/A</td>
<td>1975-94</td>
<td>N/A</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>1975-94</td>
<td>N/A</td>
<td>1975-94</td>
<td>N/A</td>
</tr>
<tr>
<td>Ireland</td>
<td>1975-94</td>
<td>N/A</td>
<td>1975-94</td>
<td>N/A</td>
</tr>
<tr>
<td>Italy</td>
<td>1975-94</td>
<td>N/A</td>
<td>1975-94</td>
<td>N/A</td>
</tr>
<tr>
<td>Japan</td>
<td>1975-94</td>
<td>N/A</td>
<td>1975-94</td>
<td>N/A</td>
</tr>
<tr>
<td>New Zealand</td>
<td>1975-94</td>
<td>N/A</td>
<td>1975-94</td>
<td>N/A</td>
</tr>
<tr>
<td>Norway</td>
<td>1975-94</td>
<td>N/A</td>
<td>1975-94</td>
<td>N/A</td>
</tr>
<tr>
<td>Portugal</td>
<td>1975-94</td>
<td>N/A</td>
<td>1975-94</td>
<td>N/A</td>
</tr>
<tr>
<td>South Africa</td>
<td>1975-94</td>
<td>N/A</td>
<td>1975-94</td>
<td>N/A</td>
</tr>
<tr>
<td>Spain</td>
<td>1975-94</td>
<td>N/A</td>
<td>1975-94</td>
<td>N/A</td>
</tr>
<tr>
<td>Sweden</td>
<td>1975-94</td>
<td>N/A</td>
<td>1975-94</td>
<td>N/A</td>
</tr>
<tr>
<td>Switzerland</td>
<td>1975-94</td>
<td>N/A</td>
<td>1975-94</td>
<td>N/A</td>
</tr>
<tr>
<td>Taiwan</td>
<td>1975-94</td>
<td>N/A</td>
<td>1975-79</td>
<td>1980-94</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>1975-87</td>
<td>1988-94</td>
<td>1975-94</td>
<td>N/A</td>
</tr>
</tbody>
</table>

It is noteworthy that the t-statistics for most variables improved significantly after correcting for autocorrelation.

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15 The ordinary least squares regressions run initially showed the error terms in the models to be highly auto-correlated.
Table 3

Estimation of Share and Ratio Models

Dependent Variable Version 1: Ratio of Direct to Total Passengers
Dependent Variable Version 2: Log (Ratio of Direct to US Transit Passengers)
(t-statistics in parentheses)

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Version 1 (Direct Share)</th>
<th>Version 2 (LOGIT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada/US Exchange Rate</td>
<td>0.020</td>
<td>0.116</td>
</tr>
<tr>
<td></td>
<td>(0.79)</td>
<td>(0.93)</td>
</tr>
<tr>
<td>Canadian Facilitating Bilateral</td>
<td><strong>0.023†</strong></td>
<td><strong>0.118†</strong></td>
</tr>
<tr>
<td></td>
<td>(2.08)</td>
<td>(2.01)</td>
</tr>
<tr>
<td>US Liberal Bilateral</td>
<td><strong>-0.039</strong></td>
<td><strong>-0.197</strong></td>
</tr>
<tr>
<td></td>
<td>(-3.28)</td>
<td>(-3.30)</td>
</tr>
<tr>
<td>North Atlantic</td>
<td>0.152*</td>
<td>0.683*</td>
</tr>
<tr>
<td></td>
<td>(5.11)</td>
<td>(5.40)</td>
</tr>
<tr>
<td>Constant</td>
<td><strong>0.534</strong></td>
<td>0.102*</td>
</tr>
<tr>
<td></td>
<td>(12.97)</td>
<td>(0.540)</td>
</tr>
<tr>
<td>( R^2 ) (Buse Raw Moment)</td>
<td>0.95</td>
<td>0.47</td>
</tr>
<tr>
<td>Log-Likelihood Value</td>
<td>862</td>
<td>162</td>
</tr>
<tr>
<td>Number of Observations</td>
<td>440</td>
<td>440</td>
</tr>
</tbody>
</table>

* Significant at the 1% level
† Significant at the 5% level

Table 3 reports the results from the two estimations. The dependent variable for Version 1 is the ratio of direct to total (direct + US transit) visitor traffic to Canada. The dependent variable for Version 2 is the natural logarithm of the ratio of direct to total visitors (LOGIT). In each of the estimations, the two variables of most interest (Canadian Facilitating Bilateral and US Liberal Bilateral) are significant at the 5 per cent level or better. In Version 1, the existence of a Canadian facilitating agreement is shown to increase the share of direct to total traffic by 2.3 per cent. Based on the average number of annual visitors for the observations coded 1 for the presence of a Canadian facilitating agreement (306,662), this amounts to an additional 7,053 passengers per year.\(^\text{16}\) A US

\(^\text{16}\) A direct traveller volume model was also estimated on the same data. Although the coefficients for Canadian facilitating and US liberal bilateral variables were only marginally significant (both t-statistics about 1.89), the point estimates of the regression coefficients yielded similar quantitative effects of these variables on the volume of direct traffic. A facilitating bilateral increases direct passengers to Canada by 8,536, while a US liberal bilateral decreases direct traffic to Canada by 2,831 passengers.
Table 4
Effects of Canada’s Facilitating Bilaterals and US Liberal Bilaterals on the Share of Direct Travellers to Canada

<table>
<thead>
<tr>
<th></th>
<th>North Atlantic</th>
<th>Other Markets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilitating Bilateral (when US has liberal bilateral)</td>
<td>2.51% increase</td>
<td>2.94% increase</td>
</tr>
<tr>
<td>Facilitating Bilateral (when US has no liberal bilateral)</td>
<td>2.32% increase</td>
<td>2.88% increase</td>
</tr>
<tr>
<td>US Liberal Bilateral (when Canada has no facilitating bilateral)</td>
<td>4.12% decrease</td>
<td>4.89% decrease</td>
</tr>
</tbody>
</table>

Note: the percentage effects on direct shares in the table are calculated from the LOGIT model reported in Table 3, holding values of all other variables in the model constant.

liberal agreement, on the other hand, is shown to lower the share of passengers travelling direct to Canada. Based on the coefficient of the US liberal bilateral (−0.039), and the average number of total passengers for observations coded 1 for a US liberal bilateral agreement (72,186), this would imply a decrease of 2,815 passengers travelling direct to Canada.

It is not straightforward to translate coefficient sizes of the LOGIT model into percentage changes or volumes. However, it is possible to simulate the effect of changing the value of a variable in the model while keeping the values of the others constant. Table 4 reports the simulated effects of Canada facilitating bilaterals and US liberal bilaterals on the share of direct travellers to Canada. The first row indicates that if Canada were to sign a facilitating bilateral with a country with whom the US already has a liberal bilateral, it would increase the share of direct visitor volumes from that country by 2.51 per cent (if it is a European country), or by 2.94 per cent (if it is a non-European country). These translate to increases of 7,722 and 9,045 passengers, respectively. The second row indicates that if Canada were to sign a facilitating bilateral with a country with which the US does not have a liberal bilateral, it would increase the share of direct visitor volumes from that country by 2.32 per cent (for a European country), or by 2.88 per cent (for a non-European country). The third row indicates that the signing of a US liberal bilateral with a country with which Canada has no facilitating bilateral would reduce the share of direct visitors to Canada by 4.12 per cent (European country) or by 4.89 per cent (non-European country). These percentages translate to reductions of 2,974 and 3,530 passengers travelling direct to Canada, respectively. Overall, the logit model (Version 2) yields slightly larger effects from the signing of Canada’s facilitating and US liberal bilaterals, as compared to the direct share model (Version 1).

17 The UK is the only case in our sample where Canada signed a facilitating bilateral, while the US did not sign a liberal agreement during our sample period.
It is interesting to note that the coefficient of the Canadian/US exchange rate variable is positive in both estimations, but not statistically significant (see Table 3). This indicates that the Canadian vs US dollar exchange rate does not appear to influence a foreign visitor's choice of travel routing to Canada (direct vs via US). This result may be because international air prices are set in US dollars, so that a devaluation of the Canadian dollar (relative to the US dollar) will not affect air prices on Canadian international routes. The coefficients of the North Atlantic variable in both estimations are highly significant and positive, confirming our observation from Figure 2 that Europeans are more likely than other visitors to travel to Canada direct. The coefficient of the North Atlantic dummy variable in Version 1 (0.152) indicates that, compared to visitors from other regions, 15.2 per cent more Europeans travel to Canada direct (rather than through the US).

In summary, both the direct-share and logit models provide statistically significant evidence that the existence of a Canadian facilitating agreement serves to increase the share of passengers travelling direct to Canada, rather than passing through the US. On the other hand, the existence of a US liberal agreement with a country results in a smaller share of visitors from that country travelling direct to Canada.

5. Summary and Conclusions
At the outset of this paper two questions were posed. First, what effect has the Canadian liberal air policy had on the share of foreign visitors travelling direct to Canada, and in particular, have Canada's three most important facilitating agreements with the UK, The Netherlands, and Germany contributed to an increase in visitors travelling direct to Canada? Second, what effect have the US liberal bilateral air agreements had on the share of visitors travelling direct to Canada?

In order to pursue answers to these questions, two types of share models were estimated. In both cases, facilitating agreements on Canadian international routes were shown to contribute significantly to the share of passengers travelling direct to Canada. In particular, the existence of a Canadian facilitating agreement was shown, on average, to increase the number of passengers travelling direct to Canada, from the country with which the agreement was signed, by 7,100 to 9,000 passengers, depending on the type of share model. The existence of a US liberal agreement decreased the number of visitors travelling direct to Canada, from the country with which the US had an agreement, by 2,800 to 3,500 on average, depending on the type of share model.

In conclusion, evidence was found that Canadian facilitating bilaterals appear to expand Canadian international air markets. This finding is in general agreement with previous work on the effect of liberalised agreements on traffic flows. However, the findings differ from those of Dresner and Windle (1992), who found that partially liberalised agreements did not affect passenger flows on US international air routes. The Canadian facilitating agreements are not fully liberalised, in that they retain pricing limitations. The difference in findings between this study and Dresner and Windle
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(1992) may be due to differences between Canadian international and US international air choices. It could be that, since US travellers choose between liberal, partially liberal, and non-liberal direct routeings, partially liberal routes did not attract additional traffic compared to the liberal alternative. Since no Canadian international routes are completely liberalised, the choice facing Canadian travellers on direct routes is mainly between facilitating and non-facilitating routes, thereby increasing the chance that facilitating routes are chosen.

Finally, US liberal bilaterals were found in the present study to divert passengers from direct air routes to Canada to routes that pass through the United States. It may be possible for Canada to avoid this diversion by further liberalising its facilitating agreements, or by liberalising those agreements that still have both pricing and capacity restrictions.

References


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