The use of airport charges for funding general expenditures: The case of Chile

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A B S T R A C T

Chile increased boarding charges for international flights to finance campaigns for promoting the country as a tourist destination and to support a 'Fight Against Poverty' fund. We present a comparative review of airport charges in various countries around the world using a non-parametric comparative efficiency technique. The results indicate that average rates are relatively low in Chile considering traffic levels and quality of service provided. Nevertheless, financing non-airport activities from these charges may have adverse implications. It is an expensive way to finance public spending relative to alternatives and it would be more efficient if tourism promotion campaigns were funded by the industry itself. Increasing boarding charges increases travel costs which is counterproductive to the promotion of Chile as a tourist destination: among international passengers, the tourist segment is the most price-sensitive.

1. Introduction

In Chile airport services are provided by a public body, the General Civil Aviation Authority (DGAC) with passenger terminals at the main airports tendered out to private operators. The DGAC is funded from charges paid by passengers, commercial airlines and private pilots, with the largest source of revenue being from boarding charges. For passengers that board international flights, the charge was $26 until 2006. Passengers on domestic flights pay a lower boarding charge that varies by the category of the airport used. In 2007 the government raised the boarding charge for international passengers by $4. This increase is part of an international effort, headed by France's ex-President Jacques Chirac, to raise funds for international peacekeeping and relief efforts – the 'Chirac tax'.

The government has stated that the additional resources generated will be used to fund various activities not specifically related to the airport sector, such as promoting Chile as a tourist destination and contributing to a 'Fight Against Poverty in Latin America' fund established within the framework of UN's peacekeeping missions. This initiative, however, potentially adverse economic implications for air transport. Firstly, airport charges and rates may be an inefficient form of raising revenue and produce social losses higher than alternative fiscal policies. Secondly, international tourism directly benefits people and firms linked to the sector, and there may be equity reasons for these groups to finance tourism promotion campaigns. Those engaged in the sector are also generally the best informed about the optimal amount to be spent on these campaigns. Lastly, increasing boarding charges could be counterproductive as a tourist promotion strategy because it directly impacts travel costs. While other countries charge higher rates than Chile (including special tourist taxes in Mexico, Dominican Republic and elsewhere), Chile is more geographically distant and has less tourist appeal.

2. Current situation

Table 1 shows the income of the DGAC in 2004[1]. The boarding charge is differentiated by domestic and international flights, and by airport category in the case of domestic flights (Table 2). The rate also varies depending on the distance of the flight, both for international and domestic movements. However, nowadays this latter characteristic is irrelevant because there are practically no flights below the established distance limit, and as such there is, in effect, no differentiation in the boarding charge in this context.

Landing charges are differentiated by domestic and international flights, by the maximum take-off weight of the aircraft (PMD) and by the airport category for domestic flights (Table 3). The landing charge includes the air traffic control services for approach, take-off and landing, parking for 2 h and first-aid and fire service. Route service charges are differentiated by the distance of the flight in national airspace and also by domestic and international flights (Table 4). For flights over Chilean airspace but that do not stopover in Chile, the rate is twice that in the last column of the table. The charge includes communications, radio assistance, air traffic, alternative airfields, warning and meteorological services.

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Table 1
Income of the General Civil Aviation Authority (DGAC) 2004.

Charge	Income ($'000)	Percentage	Cumulative percentage
Boarding charge	65,718	61.5	61.5
Landing charge	17,523	16.4	77.9
Route service charges	6016	5.6	83.5
Fuel sale duties	4365	4.1	87.6
Concession charges	3495	3.3	90.9
ILS charge	2874	2.7	93.6
Lighting	1982	1.9	95.4
Parking	1409	1.3	96.7
Cargo duties	1112	1.0	97.8
Others	2384	2.2	100.0
Total	106,877		

Source: General Civil Aviation Authority (DGAC).

Table 2
Boarding charges in Chile, May 2005.

Type of airfield	Domestic flights ($)	International flights ($)
Category one	7.75	26.00
Category two	5.90	
Category three	Exempt	

Note: passengers on domestic flights for distances equal to or below 270 km pay a flat rate of $3.05. Passengers on international flights for distances equal to or below 500 km pay the dollar equivalent of a domestic category one airfield boarding charge of $7.75. Domestic round trip flights pay two boarding charges, one for each airfield used. International round trips pay the international boarding charge upon leaving the country and the boarding charge of the foreign airport upon return.

The income and expenses projected by the DGAC between 2005 and 2010 are seen in Table 5. The income in 2005 includes a loan for funding a second runway in the Arturo Merino Benítez airport. The table shows that the DGAC projects an increase in income from boarding charges and airport rates compared to 2004.

The Airports Authority of the Ministry of Public Works, Transport and Telecommunications[2] spends $15 millions per year in the sector mainly on the upkeep of airfield and airport runways. Even though these funds come from the national budget, logically they should be incorporated into the airport charges since they are directly attributable expenses to the services provided in the sector. At present, this is not done and airport charges and rates only fund the DGAC budget without producing additional income to cover the contributions made by the Airports Authority of the MOP in the sector.

3. Benchmarking

To evaluate charge levels among countries, it is very important to control differences in the quality of the services and security levels, especially given that airport services in Chile are considered to be the best in the region in terms of quality and security. To compare a homogenous sample only information from airports of developed countries and of some airports in Argentina and Brazil is used in the empirical analysis undertaken below.

An international comparison must also consider that traffic levels are different among airports and services. If there were scale economies or diseconomies in the airport services industry, a comparison would need to take these differences into account in order to be valid. The data envelope analysis used controls for differences in the service levels provided by each airport.

[2] Dirección de Aeropuertos del Ministerio de Obras Públicas, Transportes y Telecomunicaciones (MOP).

Table 3
Landing charges in Chile, May 2005.

Aircraft weight	Domestic flights ($)			International flights ($)
	Type of airfield			
	Category one	Category two	Category three	
Up to 49 tons	0.60 ton^{-1}	0.43 ton^{-1}	0.26 ton^{-1}	2.76 ton^{-1}
Over 49 tons and up to 89 tons	156 ton^{-1}	111 ton^{-1}	Not applicable	4.12 ton^{-1}
Over 89 tons				4.69 ton^{-1}
Minimum load	2.98	2.98	2.98	$15.71

Table 4
Route services charges in Chile, May 2005.

Aircraft weight	Domestic flights	International flights
Up to 10 ton	0.0048 km^{-1}	0.062 km^{-1}
Over 10 tons and up to 49 tons	0,026 km^{-1}	0.094 km^{-1}
Over 49 tons	0,026 km^{-1}	0.114 km^{-1}
Minimum load up to 10 tons	170	16.85
Minimum load over 10 tons and up to 49 tons	902	45.50
Minimum load over 10 tons	902	91.35

Note: international flights that do not have stopovers in Chile are subject to the rates in the last column increased by 100%.

Comparisons of Chile's fees with other countries can be done at various levels. Table 6 provides some base data where Chile's individual airport charges are ranked to those of other countries[3]. The type of information seen in the table does not take into account the differences in service quality at airports, including security and traffic levels. Thus, a data envelope analysis (DEA) is undertaken to control the scale of operations (passengers and flights).[4] In addition, as already mentioned the airport sample is restricted to countries that have roughly the same quality of airport services as Chile. DEA is commonly used to evaluate efficiency among production units when there are multiple inputs and/or products. This technique overcomes the problems that arise when relative efficiency is evaluated using partial indicators such as those presented in Table 6.

A database is constructed with the information of the airport charges described in the previous section and information on the number of operations (domestic and international flights) and passengers (disaggregated between domestic and international) for a list of 376 airports around the world.[5] This database only contains one Chilean airport, the Arturo Merino Benítez airport of Santiago. In order to only compare this airport with airports of a similar service quality, the final database used only considers the 88 airports of developed countries, Brazil and Argentina, and Arturo Merino Benítez airport.

The numbers of flights and international and domestic passengers are used as the outputs of each airport.[6] The charge per passenger boarded, the landing charge of an Airbus A310 plane and the landing charge of a B747 plane were used as the inputs. The Airbus A310 plane is similar in weight, and therefore in the charge it pays, to a B737. A variable returns to scale technology is assumed.

[3] A low ranking implies that Chile's charges are low compared to world airport while a high ranking implies the opposite. A cost item related to security was added to the boarding charge in order to make the comparison with international data since this additional cost is included in the boarding charges in many countries.

[4] See Coelli et al. (2001) for an introduction to empirical measures of efficiency.

[5] The information on airports comes from the International Civil Aviation Organization (2003b).

[6] The results are nearly identical if both types of passengers are combined. Not all the airports (Arturo Merino Benítez in particular) had disaggregated international and domestic flight information, so the aggregate figure was used.

Table 5
Income and expense projection DGAC, 2005–2010 ($ million).

Operational income	**118.2**	**120.6**	**125.9**	**130.6**	**136.5**	**142.7**
Boarding charge	73.9	76.0	80.0	83.5	88.0	92.7
Concessions	3.4	3.3	3.2	3.3	3.3	3.4
Airports rates	32.9	33.4	34.7	35.8	37.2	38.7
Fuel	4.4	4.3	4.2	4.2	4.1	4.1
Other income	1.5	1.5	1.5	1.5	1.5	1.6
Cannon concessions	2.2	2.2	2.3	2.3	2.3	2.3
Non operational income	**30.1**	**1.5**	**1.5**	**1.6**	**1.6**	**1.7**
Total income	**148.3**	**122.0**	**127.4**	**132.1**	**138.1**	**144.4**
Personnel expenses	57.3	57.9	58.8	59.6	60.5	61.4
Operational expenses	32.0	28.5	28.0	28.4	28.9	29.3
Concessionaire payment 1st program	14.9	16.5	18.0	15.7	15.0	13.5
Concessionaire payment 2nd program	27.6	6.4	9.9	16.7	19.1	21.0
Tourism dollar payment	0.0	1.8	1.9	1.9	2.0	2.1
Financial investment	6.5					
Total expenses	**138.3**	**111.0**	**116.6**	**122.4**	**125.5**	**127.3**
DGAC investment	10.0	11.0	10.6	9.7	12.7	17.1
Total expenses	**148.3**	**122.0**	**127.4**	**132.1**	**138.1**	**144.4**

Source: DGAC.

Table 6
Comparison of international and regional charges.

Level	Chile ($)	Ranking (a low rank implies a relatively low charge while a high rank implies a relatively high charge)		
		Worldwide (%)	Developed countries (%)	Latin America (%)
Passenger charge	26.1	81.5	74.5	59.1
Landing A310	704	31.5	13.6	54.5
Landing B747	1851	29.7	20.3	54.5
Aggregate A310 + 130 Pax	4098	69.0	66.1	59.1
Aggregate B747 + 260 Pax	8625	59.1	62.7	59.1

Source: International Civil Aviation Organization (2003a).

The results are presented in Table 7 (the italicized row is the Arturo Merino Benítez airport). There are eight airports on the efficiency frontier: Charles de Gaulle (France), Frankfurt (Germany), Athens (Greece), Schiphol (Holland), O'Hare International (US), Dallas Fort-Worth (US), Miami International (US), and San Francisco International (US). Arturo Merino Benítez rates 20th among 88 airports with an efficiency index of 0.65.[7] This means that there are airports that can provide the same level of services as AMB but at 65% of the charge rates.

The results indicate that airport charges in Chile, including boarding charges, are not high by international standards. Santiago's airport is among the 25% cheapest airports when considering developed countries (plus Brazil and Argentina) and differences in the scale of operations are taken into account. However, Chile is no global leader in this area, since there are many airports with lower charges for similar scales of operation.

4. Financing non-airport activities with sector charges

Someone could interpret the above results as indicative that there is room for increasing some airport charges to fund expenses not related to the industry, as proposed by the Chilean government. Airport charges could be used as an indirect tax for funding general expenses. This taxation alternative offers benefits from a political-administrative point of view: it does not require parliamentary approval because airport charges are not formally considered taxes. However, from an economic perspective, at least three criticisms can be made of using airport charges in this way.

4.1. Efficiency of the use of airport charges as a source of taxation revenue

While airport charges are not legally considered taxes because they are paid in exchange the provision of a service in economic terms they can be considered specific indirect taxes. This is because the costs of providing airport services could well be funded from the general budget of the State, and therefore funding by specific charges and rates simply substitutes the funding from traditional taxation sources. Furthermore, if these charges are used to fund general expenses not related to the airport industry then the equivalence between these charges and specific indirect taxes is even more direct.

Taking airport charges to be indirect taxation, then one can analyze whether an increase in boarding charges, or other airport charges, is sensible way to fund tourist promotion activities or other State expenses from a public finance perspective. All taxes produce distortions. Therefore, the relative distortion produced by an increase in the boarding charge, or other airport charge, can be compared to that produced by an increase in another tax that could raise the same amount of revenue.

There are reasons for suspecting that an increase in boarding charges would be inefficient compared to other sources of public financing. Current charges are set aiming at self-financing whereby all costs related to the country's airports' activities are financed by them. Given the production technology of these services, characterized by large-scale economies, self-financing airport charges have to be set above the short-run marginal costs of the services.[8] From the point of view of welfare, this implies an economic loss associated with flights not made and passengers not carried. Fig. 1

[7] Eliminating Athens Airport from the analysis does not affect Arturo Merino Benítez's relative position or its efficiency index.

[8] Evidence of this in Chilean can be found in CITRA (1999) and Gómez-Lobo and González (2005).

Table 7
DEA results for developed countries plus Brazil and Argentina (charges in $).

	Country	Airport	Passengers('000)		Total Flights	Charges per plane		Boarding Charge	Efficiency Index
			Domestic	International		A310	B747		
1	FRANCE	CH DE GAULLE	5,071	42,859	515	602	1,439	30.5	1.00
2	GERMANY	FRANKFURT	8,071	39,446	446	758	1,524	28.2	1.00
3	GREECE	ATHENS	5,223	6,895	175	272	714	26.4	1.00
4	NETHERLANDS	SCHIPHOL	142	39,167	417	884	2,361	18.3	1.00
5	UNTD STATES	O'HARE INTL	57,490	9,465	875	1,045	2,749	23.0	1.00
6	UNTD STATES	DALLAS-FT WORTH	50,538	4,613	771	1,277	3,358	5.0	1.00
7	UNTD STATES	MIAMI INTL	16,419	15,249	417	595	1,566	10.0	1.00
8	UNTD STATES	SAN FRAN INTL	26,227	7,717	368	1,300	3,419	0.5	1.00
9	NETHERLANDS	PRINSES JULIANA	222	1,043	51	419	1,102	20.1	0.97
10	NETHERLANDS	HATO	72	794	16	419	1,102	20.1	0.97
11	UNTD STATES	SAIPAN, MARIANAS	82	595	11	694	1,827	9.7	0.95
12	IRELAND	DUBLIN	657	13,547	170	939	2,470	7.9	0.90
13	IRELAND	CORK	306	1,448	24	939	2,470	7.9	0.88
14	IRELAND	SHANNON	157	1,734	27	939	2,470	7.9	0.88
15	FRANCE	ORLY	17,337	5,674	216	602	1,439	30.5	0.83
16	REPUBLIC OF KOREA	GIMPO INTL	17,743	4,298	154	1,000	2,572	13.5	0.68
17	REPUBLIC OF KOREA	INCHEON INTL	266	14,279	87	1,000	2,572	13.5	0.68
18	REPUBLIC OF KOREA	JEJU INTL	8,968	352	61	1,000	2,572	13.5	0.68
19	REPUBLIC OF KOREA	GIMHAE INTL	7,662	1,506	61	1,000	2,572	13.5	0.68
20	CHILE	ARTURO MERINO B	2,600	2,897	65	704	1,851	26.1	0.65
21	UNTD STATES	DULLES INTL	13,917	3,944	328	1,108	2,915	12.9	0.65
22	UNTD STATES	LOGAN INTL	19,795	4,301	426	1,243	3,271	12.5	0.63
23	UNTD STATES	SEATTLE-TACOMA	24,684	2,352	396	1,210	3,184	16.3	0.61
24	ITALY	MALPENSA	4,260	14,201	233	1,375	3,616	12.4	0.61
25	AUSTRALIA	KINGSFORD INTL	14,608	8,179	167	913	2,402	21.6	0.59
26	AUSTRALIA	MELBOURNE INTL	12,082	3,316	126	913	2,402	21.6	0.59
27	AUSTRALIA	BRISBANE	9,058	2,641	103	913	2,402	21.6	0.59
28	AUSTRALIA	ADELAIDE	3,824	242	41	913	2,402	21.6	0.59
29	AUSTRALIA	PERTH INTL	3,104	1,588	42	913	2,402	21.6	0.59
30	AUSTRALIA	CAIRS	1,790	665	22	913	2,402	21.6	0.59
31	AUSTRALIA	DARWIN	782	145	13	913	2,402	21.6	0.59
32	AUSTRALIA	NORFOLK ISLAND	56	16	1	913	2,402	21.6	0.59
33	ITALY	FIUMICINO	12,229	12,911	284	1,375	3,616	12.4	0.58
34	ITALY	LINATE	4,967	2,169	85	1,375	3,616	12.4	0.58
35	ITALY	TESSERA	1,440	2,738	60	1,375	3,616	12.4	0.58
36	ITALY	CAPODICHINO	2,408	1,448	52	1,375	3,616	12.4	0.58
37	ITALY	FONTANAROSSA	2,253	677	30	1,375	3,616	12.4	0.58
38	ITALY	CASELLE	1,442	1,338	46	1,375	3,616	12.4	0.58
39	ITALY	GAL GALILEI	547	489	18	1,375	3,616	12.4	0.58
40	ITALY	CIAMPINO	4	672	11	1,375	3,616	12.4	0.58
41	SPAIN	BARAJAS	16,718	17,060	371	2,020	5,315	10.0	0.58
42	FINLAND	HELSINKI-VANTAA	2,998	7,003	158	1,492	3,941	11.8	0.57
43	NORWAY	GARDERMOEN	7,222	6,709	189	1,684	3,514	14.6	0.55
44	NORWAY	FORNEBU	4,274	3,497	125	1,684	3,514	14.6	0.55
45	NORWAY	FLESLAND	2,745	727	69	1,684	3,514	14.6	0.55
46	NORWAY	VAERNES	2,476	227	49	1,684	3,514	14.6	0.55
47	NORWAY	SOLA	1,917	755	50	1,684	3,514	14.6	0.55
48	NORWAY	KJEVIK	701	114	17	1,684	3,514	14.6	0.55
49	CANADA	CALGARY INTL	5,537	2,256	163	733	1,928	35.6	0.55
50	SPAIN	PALMA MALLORCA	4,805	14,318	164	2,020	5,315	10.0	0.54
51	DENMARK	KASTRUP	1,654	16,279	285	1,737	4,570	14.4	0.53
52	CANADA	VANCOUVER INTL	7,869	7,608	277	817	2,150	35.4	0.52
53	UNTD KINGDOM	MANCHESTER INTL	2,824	16,259	182	1,878	3,448	18.7	0.52
54	CANADA	DORVAL INTL	4,036	4,133	171	871	2,290	36.1	0.50
55	NEW ZEALAND	CHRISTCH INTL	3,107	1,087	81	1,140	3,000	23.7	0.49
56	SPAIN	BARCELONA	10,076	10,470	268	2,020	5,315	10.0	0.49
57	SPAIN	MALAGA	2,188	7,633	87	2,020	5,315	10.0	0.49
58	SPAIN	TENERIFE	1,341	7,604	56	2,020	5,315	10.0	0.49
59	SPAIN	GRAN CANARIA	2,945	6,140	85	2,020	5,315	10.0	0.49
60	SPAIN	ALICANTE	1,408	5,089	51	2,020	5,315	10.0	0.49
61	SPAIN	LANZAROTE	1,315	3,607	40	2,020	5,315	10.0	0.49
62	SPAIN	IBIZA	1,286	3,097	45	2,020	5,315	10.0	0.49
63	SPAIN	FUERTEVENTURA	716	2,814	28	2,020	5,315	10.0	0.49
64	SPAIN	VALENCIA	1,432	476	33	2,020	5,315	10.0	0.49
65	SPAIN	MENORCA	907	1,895	29	2,020	5,315	10.0	0.49
66	SWEDEN	ARLANDA	6,696	11,401	273	1,573	4,001	17.9	0.47
67	SWEDEN	LANDVETTER	1,346	2,795	69	1,573	4,001	17.9	0.47
68	SWEDEN	STURUP	1,247	808	29	1,573	4,001	17.9	0.47
69	ARGENTINA	MIN. PISTARINI	94	5,443	57	1,094	3,153	30.5	0.47
70	ARGENTINA	AEROPARQUE	4,470	582	104	1,094	3,153	30.5	0.47
71	PORTUGAL	LISBON	2,285	6,927	109	1,420	3,902	19.7	0.46
72	PORTUGAL	FARO	249	4,330	31	1,420	3,902	19.7	0.46
73	PORTUGAL	FUNCHAL	1,153	1,047	22	1,420	3,902	19.7	0.46

(*continued on next page*)

Table 7 (*continued*)

	Country	Airport	Passengers('000)		Total Flights	Charges per plane		Boarding Charge	Efficiency Index
			Domestic	International		A310	B747		
74	PORTUGAL	PORTO	753	1,930	43	1,420	3,902	19.7	0.46
75	PORTUGAL	PORTO SANTO	172	2	5	1,420	3,902	19.7	0.46
76	ISRAEL	BEN GURION INTL	442	7,864	62	1,511	3,924	21.5	0.43
77	ISRAEL	J HOZMAN	1,178	27	22	1,511	3,924	21.5	0.43
78	BRAZIL	GUARARAPES INTL	2,682	134	53	1,508	3,566	30.0	0.41
79	AUSTRIA	SCHWECHAT	525	11,244	184	2,312	4,867	21.1	0.39
80	JAPAN	NEW TOKYO INTL	692	22,241	129	3,288	8,649	22.5	0.39
81	FRANCE	LAMENTIN MART	1,291	118	22	1,513	3,931	34.3	0.37
82	BRAZIL	GUARULHOS INTL	6,940	6,151	177	1,713	4,004	36.0	0.36
83	BRAZIL	BRASILIA INTL	6,185	9	119	1,713	4,004	36.0	0.36
84	BRAZIL	SALGADO FILHO	2,698	165	51	1,713	4,004	36.0	0.36
85	BRAZIL	VAL DE CAES	1,135	37	35	1,713	4,004	36.0	0.36
86	CANADA	LESTER PEARSON	12,304	15,739	370	2,506	6,591	23.7	0.34
87	SWITZERLAND	COINTRIN	1,055	5,804	110	3,180	8,427	14.7	0.31
88	SWITZERLAND	ZURICH	1,116	19,698	274	3,396	9,022	27.9	0.30

illustrates this in a simplified manner, where the marginal cost of providing an additional service – in this case a flight – is constant and equal to *c*. The airport charge applied to users, which in this case are passengers, is equal to *P*. For the sake of simplicity, we assume that this equals the average cost of the service, and fully funds the airport system. The social or "deadweight" loss associated in applying a price above the marginal cost is the triangle ABC.

If the airport charge per passenger increases by $*t*, the final charge rises to $P+t$, reducing the number of flights from Q_0 to Q_1. This increase in the charge produces an increase in the social loss, which can be broken down into the loss of consumer surplus associated with the fewer trips made by passengers carried out as a result of the increased cost – triangle ECF – and a decline in net revenue to the airport resulting form these fewer trips – rectangle BDEC.[9]

The size of the social loss depends mainly on the price-elasticity of demand for flights and the margin of the revenue for covering the fixed costs. The greater the elasticity of demand, the greater the reduction in flights as a result of any increase in the charge and the greater the consequential losses for consumers and the airport operator. Generally, the greater the differences between average and marginal costs, the larger the loss of revenue for the airport.[10]

These effects can be compared with alternative methods of revenue generation either through a transfer of spending from other state programs or by taxing other goods or services. One erroneous belief is that the impact of the proposed increase in the boarding charge would be irrelevant, since it is only a relatively small part of the cost of an international air ticket.[11] But what should be measured is the distortion or loss of allocative efficiency resulting from generating a given level of revenue. According to the Ramsey principle, this allocative inefficiency depends on the consumption elasticity of the good relative to variations in prices.

In general, other sectors of the economy, except public services such as electricity distribution, drinking water supply and land phone lines, operate under more or less perfectly competition conditions, where scale economies are limited and thus prices do not deviate significantly from the marginal cost of production. This implies that the first order social loss is not significant compared to what occurs in services whose user prices deviate considerably from marginal costs. Therefore, that an indirect tax in an industry with decreasing costs is likely to generate more serious economic distortions than similar taxes where there are limited scale effects.

In Chile, transport services are not subject to a value added tax (VAT) implying that there is already a distortion in the fiscal system favoring air transport. As a second-best alternative, it may be more efficient to indirectly apply a tax on this activity to compensate for the absence of VAT to equalize the tax situation across sectors. However, air transport is only one activity within the transport sector and it could be better to eliminate the distortion produced by the VAT exemption by applying this tax to all activities in the sector. This would not, however, justify hypothecating of the revenue to such expenditures as tourism promotion, but rather it is normally a more efficient way of raising general tax revenues.

4.2. *Equity in the use of airport charges as a source of tax revenue*

Funding a tourism promotion campaign through an increase in the international boarding charge is likely to prove to be inequitable.[12] First, it is necessary to consider whether a campaign of this nature should be funded with public resources at all since it could be directly funded by the tourist industry itself at all. One possible justification is that the potential beneficiaries of increased tourism are numerous and highly dispersed, and it is therefore difficult to identify or organize them to develope such campaigns. There is also a problem of incentives (free-rider issues), that induce each agent to invest less than is optimal in promotion hoping to ride on the back of the advertising of others.

Assuming that a public financing campaign of this nature is justified, there is the additional issue whether funding it through an international air travel tax is the right choice. Generally, people who travel internationally are a minority and generally have few links with domestic tourist industries. Additional, for a country like Chile, foreign tourists are a small share of the passengers that board international flighs.[13] Therefore, the increase in the boarding

[9] This is a first order social loss, in contrast to triangle ECF that is considered second order and is insignificant in the face of low *t* values.

[10] The reduction in international passengers also affects the income of the concessionaires. Since their incomes are generally linked to the number of passengers their incomes will decline.

[11] The proposed increase is $4, while a round trip ticket for international flights exceeds $200.

[12] Here horizontal equity is emphasized more than vertical equity. The latter refers to equity in income distribution. The former refers to not taxing some people more than others in a discriminatory manner, even when both have similar economic situations. With regard to the distributional impact of an increase in the boarding charge, it is probable that this measure is progressive but this is an empirical issue that has not been evaluated or compared with other tax alternatives.

[13] According to the Annual Tourism Statistics Book, INE-SERNATUR (2004), 758,635 tourists entered Chile by air in 2004. According to information from the Civil Aviation Body (www.juntadeaeronáuticacivil.cl), 1,833,761 passengers entered Chile in 2004. As such, tourists are 41.4% of all passengers. Furthermore, most tourists that visit Chile do so overland and do not pay airport boarding charges.

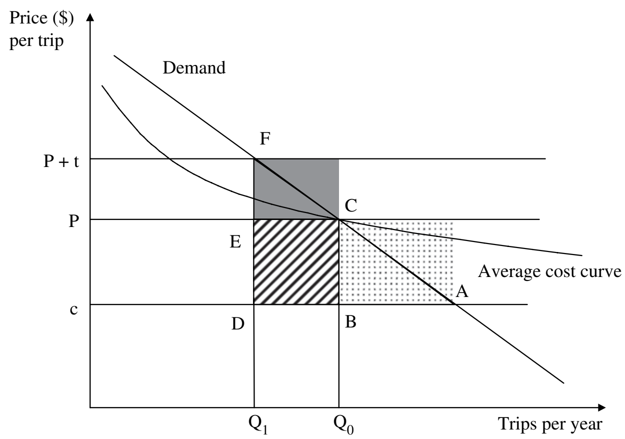

Fig. 1. The decreasing cost problem.

charge, or of any airport charge, mainly affects Chileans who board international flights each year. Levying a tax on this group is as unfair as levying taxes on any other minority group in the country.

It would be more appropriate for the tourist industry to directly fund promotion campaigns, although public sector involvement would probably be needed to overcome the free-rider problem. One can posit, for example, a situation with the government collecting and supervising a special tax on tourism on behalf and in cooperation with the industry. This has the advantage that the tourist industry includes the agents best equipped with the necessary information to evaluate the appropriateness, characteristics and scale of a promotional campaign. The involvement of the direct beneficiaries in the funding of the scheme serves as a filter for avoiding excessive and unnecessary spending.

If it is not viable for the tourist industry to directly finance a promotion campaign abroad, but the authorities feel a campaign is of strategic importance, it should be funded from general taxes to reflect the broad spread nature of the benefits which have many of the characteristics of a quasi-public good. The same may be said of funding some other public activities including peacekeeping missions abroad of the kind implicit in the Chirac initiative.

4.3. *Effectiveness of the use of airport charges as a source of tax revenue*

As Fig. 2 shows, an additional tax t, whose revenue is used to finance tourism promotion, produces two effects. Firstly, an increase in the demand for trips to Chile arising from the promotion activities – shift of the demand curve to the right – and second a reduction in trips as a result of the increased cost of flying to Chile due to the tax. If the cost of flights does not rise, the number of flights would increase from Q_0 to Q_1, but the airport charge increase of t reduces the number of people willing to travel, giving a final number of flights of Q_2 negating at least part of the tourism promotion effort.

The benefits of the tourism promotion campaign, and the corresponding increase in trips, can be achieved without incurring the costs of a higher price for air services. For this, it is necessary that the revenue for funding the promotions come from other sources.[14] Taxing an activity goes against any initiative to promote it. Ideally, authorities should use specific taxes to discourage the consumption of some good – notably tobacco or alcohol – or to correct some externalities arising from its consumption, as in the case of carbon fuels.

The impact of higher airport charges on tourism depends on the price-elasticity of demand and the effectiveness of the tourism promotion effort on demand. In practice, tourist traffic tends to be price-sensitive as seen in Table 8, which summarizes various demand elasticity estimates. The elasticity of demand for leisure flights is normally greater than unity and greater than the elasticity for business flights with the exception of long distance domestic business flights.

[14] There will be some off-setting effects because any tax in Chile, direct or indirect, has to be paid for somewhere in the system and thus tourists will encounter some higher prices once in the country and this may affect the number that come.

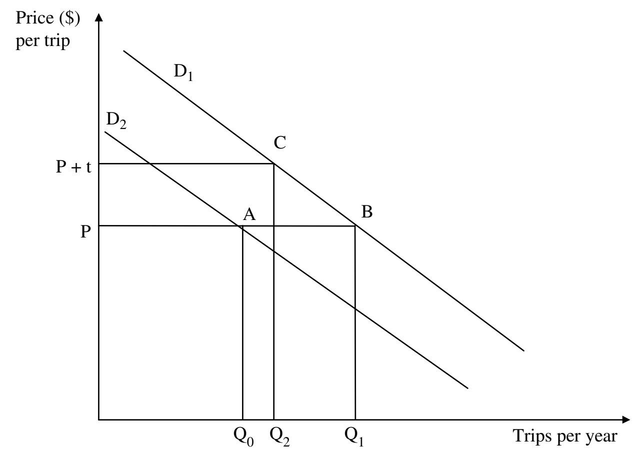

Fig. 2. Impact of tourism tax.

Table 8
Estimates of price-elasticity of demand for flights

Type of trip	Median	Range of 50% of average values[a]
Long distance		
International business	−0.26	−0.475; −0.198
International leisure	−1.04	−1.70; −0.56
Domestic business	−1.15	−1.428; −0.836
Domestic leisure	−1.10	−1.228; −0.787
Short distance		
Business	−0.70	−0.783; −0.595
Leisure	−1.52	−1.743; −1.228

[a] Corresponds to the interval where 50% of the estimates nearest to the median are located, or the range defining the second and third quartile of the estimate distribution.
Source: Ministry of Finance, Canada (2003).

Comparing the Chilean situation with other countries we find that, in Mexico the boarding charge is $22.34, but tourists must pay an additional tax of $19.65 for entering the country. In the Dominican Republic, the boarding charge plus various taxes add up to nearly $70 and tourists must also pay an additional $10. The corresponding figures for Peru are a boarding charge of $28.24, plus a $15 tourist tax and Costa Rica has a boarding charge of $29.34.

After the increase in Chilean charges in 2006, tourists are not paying any more in boarding and other charges than in other regional countries. However, in general, the cost of a flight from Europe and North America to Chile is more expensive because of distance involved. In addition, Chile is competing with countries such as Peru and Mexico that also have highly varied and attractive tourist locations. Thus, to foster tourism to Chile, travel costs must be lower than in these other countries.

5. Conclusions

Comparing boarding charges and route services of 88 airports of developed countries, plus some airports in Brazil and Argentina, demonstrates that the corresponding charges in Chile are among the lowest 25% of the sample and thus not excessive by international standards. One could also argue that they could be lower if airport efficiency was improved. The fact that such charges in Chile are relatively low, and could be increased, does not, however, imply that the funds generated should be used to finance general government expenses or to support particular programs of expenditure, such as the promotion of tourism to the country. While proposals to use airport charges as a source of general tax income are attractive for government since they do not require congressional approval, it may be an inefficient and inequitable way of increasing tax revenue.

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