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REGIONAL DIFFERENCES IN FARES, RATES AND COSTS FOR INTERNATIONAL AIR TRANSPORT 1985

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I. INTRODUCTION

1. This study has been prepared pursuant to ICAO Assembly Resolution A21-26 [Clauses 1b) and d)], which directs the Council to undertake analyses of regional differences in the level of international passenger fares and corresponding differences in the level of airline costs. Covering the year 1985, this study is the eleventh in an annual series, the one for the year 1984 having been published as Circular 199.

2. For 17 international route groups, comprising all international routes, passenger, freight and mail revenue yield data are presented in Chapter II for scheduled services along with passenger and freight revenue yield data for non-scheduled operations. For the same route groups regional differences in the costs related to the scheduled service passenger yields are presented in Chapter III. Finally, in Chapters IV and V, certain of the causes of regional differences in costs are identified and indications given of the kind of measures that might be taken to reduce costs and fares in those regions where they are high.

3. The sources of data used in the study are given in Appendix 1 together with information on the sample sizes on which revenue and cost data are based. The method of analysis used in the study is presented in Appendix 2 together with information on the margins of uncertainty which should be borne in mind when considering the results of studies of this kind.

4. Overviews of published passenger fares and freight rates are available in separate annual publications issued by the Organization in response to Clause 1a) of Assembly Resolution A21-26. Circular 198 covers September 1985 and Circular 204 covers September 1986.

II. LEVELS OF FARES AND RATES

Passenger Traffic

1. Estimates of average unit passenger revenues in 1985 by route group are presented in Table II.1.

2. The first column of data in Table II.1 shows the average revenue per passenger-kilometre for scheduled passenger traffic on each route group. The data are presented without distinction among class of travel or among fare type. Thus they represent the over-all weighted average for all individual routes on all route groups and for all the fares that apply. The over-all average revenue per passenger-kilometre was estimated at 6.74 cents for 1985, but the route group averages vary from a high of 14.0 cents in local Middle East to a low of 5.0 cents on routes across the Mid Atlantic and the South Pacific.

3. The second column of data shows the average revenue per passenger-kilometre for non-scheduled passenger traffic recorded for each route group. The figures here range from a high of 14.9 cents in local Middle East to a low of 2.6 cents on routes across the Mid Atlantic. On some route groups, notably those where the revenue yield is comparable to or above that from scheduled services, the non-scheduled traffic concerned is of a very limited volume and highly specific nature, carried on an ad hoc basis at a relatively high cost (e.g. on routes between North America and Central America/Caribbean), while on other route groups the traffic is of greater volume and carried on a more regular basis at a lower cost (e.g. in local Europe). The third and fourth data columns of Table II.1 show the reported non-scheduled revenue per passenger-kilometre for traffic carried by scheduled airlines and for traffic carried by non-scheduled operators; there are in some cases significant differences between the two figures in the same route group.

4. The final four columns of Table II.1 show unit revenues for scheduled services and non-scheduled flights in terms of the average revenue per seat-kilometre. The effect of the higher load factors generally achieved by non-scheduled flights compared with scheduled services is brought out by this presentation. The per seat-kilometre revenues for non-scheduled operations are in most cases much closer to the revenues for scheduled services than the comparable per passenger-kilometre revenues.

5. On a world-wide basis the estimated average revenue per passenger-kilometre for scheduled services (excluding incidental revenues) at 6.74 cents in 1985 showed a decrease of about 3 per cent over the 6.96 cents recorded for 1984. Among the individual route groups, several of the sixteen route groups for which comparable data are available showed little change from 1984, most others recording decreases in revenue yield to a greater or lesser degree. Route groups showing significant decreases were local Europe (from 13.1 to 12.5 cents), local Africa (from 10.1 to 9.6 cents), between Europe and

TABLE II.1
ESTIMATED AVERAGE UNIT PASSENGER REVENUES BY
INTERNATIONAL ROUTE GROUP¹, 1985
(U.S. cents)

Route Groups ²	Revenue per Passenger-Kilometre				Revenue per Seat-Kilometre			
	Scheduled services <u>3/</u>	Non-scheduled flights			Scheduled services <u>3/</u>	Non-scheduled flights		
		All categories	By international scheduled airlines	By other carriers		All categories	By international scheduled airlines	By other carriers
1. Between North America and Central America/Caribbean	7.1	12.0	12.0	-	4.5	9.4	9.4	-
2. Between and within Central America and the Caribbean	10.7	-	-	-	6.9	-	-	-
3. Between Canada, Mexico and the United States	6.4	2.8	2.8	-	3.6	2.3	2.3	-
4. Between North America/Central America/Caribbean and South America	8.1	3.5	3.5	-	4.8	2.3	2.3	-
5. Local South America	9.5	7.7	7.7	-	5.0	6.6	6.6	-
6. Local Europe	12.5	3.5	3.7	3.4	7.9	3.0	3.2	2.9
7. Local Middle East	14.0	14.9	14.9	-	8.2	8.8	8.8	-
8. Local Africa	9.6	5.3	5.3	-	5.5	3.9	3.9	-
9. Between Europe and Middle East	8.8	3.5	3.5	3.4	4.9	3.0	3.1	3.0
10. Between Europe/Middle East and Africa	7.0	4.1	5.7	3.4	4.3	2.9	3.1	2.7
11. North Atlantic	5.5	3.2	3.5	2.7	3.6	2.8	3.1	2.4
12. Mid Atlantic	5.0	2.6	2.6	-	3.3	2.1	2.1	-
13. South Atlantic	7.1	6.3	7.6	3.0	4.4	4.5	5.7	2.5
14. Local Asia/Pacific	6.6	8.1	8.1	-	4.6	5.5	5.5	-
15. Between Europe/Middle East/Africa and Asia/Pacific	5.9	5.8	7.5	3.0	4.1	3.7	4.3	2.3
16. North and Mid Pacific	5.1	4.4	4.4	-	3.5	3.5	3.5	-
17. South Pacific	5.0	-	-	-	3.2	-	-	-

Notes:

1. Data for scheduled services, where presented, are considered representative for all airlines operating in the route group concerned. Data for non-scheduled flights represent only carriers for which substantive information was available, and are only presented where they include two or more carriers. The representative nature of the data for both scheduled services and non-scheduled flights is described in Appendix 1 and the margins of uncertainty to be taken into account regarding the scheduled service data are discussed in Appendix 2.
2. More detailed definition of the route groups may be found in Appendix 3 on the verso of the revenue questionnaire.
3. These figures do not generally include such incidental operating revenues as may be attributed to international passenger traffic. On individual route groups incidental operating revenues not included may represent up to an additional 3 per cent over the average revenue quoted.

the Middle East (from 9.2 to 8.8 cents), between Europe/Middle East and Africa (from 7.4 to 7.0 cents), local Asia/Pacific (from 7.0 to 6.6 cents), and across the South Pacific (from 5.5 to 5.0 cents). The relatively large increase shown for the routes between and within Central America and the Caribbean (from 9.5 to 10.7 cents) should be considered in the context of relatively low representation of the airlines operating on these routes in 1984 (4 carriers, against 6 for 1985) as well as the significant decrease in revenue yield recorded between 1983 and 1984 (from 10.3 to 9.5 cents).

For route groups not involving North America the decrease in average revenue per passenger-kilometre in part reflects the continued strengthening of the United States dollar and dollar-linked currencies against many other world currencies in 1985. The relative change between 1984 and 1985 would in many cases be significantly different if expressed in the national currencies of the airlines concerned. A brief evaluation of this effect is given in Chapter III, paragraph 14.

6. The analyses above relate only to the average unit revenues for all airlines combined on each route group. There can be wide variations around these averages shown amongst individual airlines. In the case of scheduled services the variation amongst airlines of the revenue per passenger-kilometre for each route group is shown in Table II.2. For a few route groups the unit revenues for individual airlines do not vary very much from the route group average (for example for the North Atlantic and South Pacific route groups). However, on most route groups the unit revenues differ significantly amongst airlines, reflecting differing route structures and traffic mix amongst other factors.

Freight and Mail Traffic

7. Average reported unit freight and mail revenues in 1985 by international route group are presented in Table II.3.

8. The first column of data in Table II.3 shows the average revenue per tonne-kilometre performed for all scheduled freight traffic on each route group whether carried on passenger, combination or all-freight aircraft. The variation among route group averages is even more marked than in the case of scheduled passenger traffic, ranging from a high of 64.1 cents in local Europe to a low of 21.4 cents on the South Atlantic routes. Comparing with data for the previous year, six route groups showed an increase. The largest increases were on routes between and within Central America and the Caribbean (from 49.5 to 58.7 cents), and within South America (from 30.0 to 40.4 cents). Most other route groups showed a decrease; the largest decreases were recorded for routes in local Middle East (from 58.0 to 40.0 cents) and in local Africa (from 52.1 to 45.6 cents). The relatively large changes in revenue yield on routes between and within Central America and the Caribbean and in local Middle East should be considered in the context of the low representation of the airlines operating on these routes in 1984 as well as the significant changes in freight revenue yield recorded between 1983 and 1984 (from 55.1 to 49.5 cents and from 43.5 to 58.0 cents respectively).

TABLE II.2

VARIATION IN SCHEDULED PASSENGER REVENUE YIELD AMONGST AIRLINES, 1985

Route Groups (short title)	Average Revenue per Passenger- Kilometre (All airlines, from Table II.1) (US cents)	Number of Airlines in this Analysis	Revenue per Passenger-Kilometre for Individual Airlines (US cents)																			
			1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20 & over
			Number of airlines																			
1. North-Central America	7.1	10				2	0	3	3	1	1											
2. Central America	10.7	6							1	1	1	0	1	0	0	0	1	1				
3. North America	6.4	12					4	4	3	0	1											
4. North-South America	8.1	17					1	0	4	6	1	1	0	1	1	1	1					
5. South America	9.5	8								3	2	2	1									
6. Europe	12.5	19						4	1	3	0	0	0	0	3	4	2	1	1			
7. Middle East	14.0	6												2	0	2	1	0	0	1		
8. Africa	9.6	12						2	0	2	4	2	0	0	1	0	1					
9. Europe-Middle East	8.8	22				1	1	0	6	4	2	3	2	1	1	0	0	1				
10. Europe-Africa	7.0	31			1	1	4	6	2	6	1	3	0	0	2	0	1	2	0	0	0	
11. North Atlantic	5.5	36			7	12	12	5														
12. Mid Atlantic	5.0	12			2	3	6	1														
13. South Atlantic	7.1	13				1	1	3	6	2												
14. Asia/Pacific	6.6	18				2	4	6	3	3												
15. Europe-Asia/Pacific	5.9	32			3	7	5	9	2	2	2	1	1									
16. North/Mid Pacific	5.1	11			2	2	6	1														
17. South Pacific	5.0	8				3	3	2														

Note:

1. In the ranges 20-21 and 30-31.

TABLE II.3

ESTIMATED AVERAGE UNIT FREIGHT AND MAIL REVENUES
BY INTERNATIONAL ROUTE GROUP¹, 1985
(U.S. cents)

Route Groups (short title)	Freight Revenue per Tonne-Kilometre Performed				Mail Revenue per Tonne- Kilometre Performed
	Scheduled services			Non-scheduled flights	Scheduled services
	Over-all	Passenger and combination aircraft	All-freight aircraft		
1. North-Central America	40.3	43.1	34.4	-	52.7
2. Central America	58.7	58.7	-	-	58.0
3. North America	33.2	33.2	35.6	-	42.1
4. North-South America	26.9	29.3	23.6	20.6	42.1
5. South America	40.4	43.4	20.3	35.8	47.6
6. Europe	64.1	63.6	65.8	32.1	57.1
7. Middle East	40.0	36.1	90.9	-	69.6
8. Africa	45.6	44.9	49.0	27.2	48.5
9. Europe-Middle East	37.7	41.8	35.1	22.5	62.6
10. Europe-Africa	26.0	26.2	25.7	35.5	45.3
11. North Atlantic	21.7	22.1	20.6	24.0	32.0
12. Mid Atlantic	22.7	22.8	18.8	-	48.2
13. South Atlantic	21.4	21.5	20.4	31.5	50.0
14. Asia/Pacific	32.9	34.1	26.2	45.9	43.7
15. Europe-Asia/Pacific	27.1	27.3	26.7	27.6	40.3
16. North/Mid Pacific	26.1	27.9	25.6	18.8	28.8
17. South Pacific	23.9	24.3	21.2	-	32.4

Note:

1. Data represent only carriers for which substantive information was available and are only presented where they include two or more carriers. The representative nature of the data is described in Appendix 1.

9. The second and third columns of data in Table II.3 show the average revenue per tonne-kilometre performed for scheduled freight traffic carried on passenger or combination aircraft and that obtained for traffic carried on all-freight aircraft. In comparing the two sets of figures it may be seen that the revenue yield from all-freight aircraft is generally lower than that achieved from passenger or combination aircraft, as the former are more likely to carry large shipments which are subject to quantity discount rates or low specific commodity rates. However, for some route groups where there is large cargo capacity offered at competitive rates on wide-body passenger and combination aircraft (for example on Europe-Africa and on routes across the North and South Atlantic) the difference in revenue yield is relatively small. The high freight revenue yield shown for all-freight aircraft in local Middle East is due to the specialized operations of one carrier in that region.

10. The fourth column of data in Table II.3 shows the average revenue per tonne-kilometre performed for all non-scheduled freight traffic on each international route group. The range of average unit revenues among route groups is not as great as for scheduled services, with a high of 45.9 cents for local Asia/Pacific routes and a low of 18.8 cents across the North and Mid Pacific. The figure for non-scheduled operations is actually higher than that for all-freight scheduled operations for five of the eleven comparable route groups. In some cases this reflects the specialized non-scheduled operations of one or two carriers. For most route groups there was a significant decrease in average unit revenue between 1984 and 1985. These decreases, in general, were accompanied by significant increases in reported non-scheduled freight traffic over the same period.

11. The final column of data in Table II.3 shows the average revenue per tonne-kilometre performed for all mail traffic on each route group (virtually all international mail is carried on scheduled services). The route group averages range from a high of 69.6 cents in local Middle East to a low of 28.8 cents on the North and Mid Pacific routes. Between 1984 and 1985, seven route groups show increases in unit mail revenues. The most significant increases were those for routes between Canada, Mexico and the United States (from 34.5 to 42.1 cents), in local Middle East (from 55.9 to 69.6 cents) and for routes between Europe and Middle East (from 55.6 to 62.6 cents). Decreases were recorded for most other route groups, the largest being for routes in local South America (from 63.1 to 47.6 cents), and in local Asia/Pacific (from 51.6 to 43.7 cents). Unit mail revenues in general remain significantly higher than unit freight revenues on scheduled services except for routes in local Europe where they were somewhat lower in 1985 and for routes between and within Central America and the Caribbean where they were about the same.

12. A notable feature of the mail unit revenue data is that for most of the route groups involving two or more regions there are substantial differences in the yield recorded by the carriers according to the region in which they are based. This distinction is particularly marked for the following route groups and regions: between Canada/Mexico and the United States, all airlines 42.1 cents, North American airlines 42.9 cents, Central American airlines 31.2 cents; North Atlantic, all airlines 32.0 cents, North American airlines 27.4 cents, European airlines 39.1 cents; North and Mid Pacific, all airlines 28.8 cents, North American airlines 22.8 cents, Asia/Pacific airlines

TABLE II.4

VARIATION IN SCHEDULED FREIGHT REVENUE YIELD AMONGST AIRLINES, 1985

Route Groups (short title)	Average Revenue per Tonne- Kilometre Performed (from Table II.3) (US cents)	Number of Airlines in this Analysis	Revenue per Tonne-Kilometre Performed for Individual Airlines (US cents)																
			0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100-110	110-120	120-130	130-140	140-150	150-160	160-170
			Number of airlines																
1. North-Central America	40.3	9				5	2	0	0	0	1	0	1						
2. Central America	58.7	5					1	1	0	0	0	0	1	1	1				
3. North America	33.2	12		1	2	6	1	2											
4. North-South America	26.9	19		1	9	3	0	1	0	2	0	0	1	0	0	0	0	2	
5. South America	40.4	8				4	2	1	0	0	0	0	1						
6. Europe	64.1	19				2	3	3	2	5	2	0	0	0	2				
7. Middle East	40.0	6			1	2	0	1	0	1	0	0	1						
8. Africa	45.6	12				3	4	4	1										
9. Europe-Middle East	37.7	20			4	9	3	2	0	2									
10. Europe-Africa	26.3	27		6	13	3	3	1	0	0	1								
11. North Atlantic	21.7	34	3	11	17	2	1												
12. Mid Atlantic	22.7	12		5	5	1	0	0	1										
13. South Atlantic	21.4	13		3	10														
14. Asia/Pacific	32.9	18			5	8	3	1	0	1									
15. Europe-Asia/Pacific	27.1	32			18	7	5	1	0	0	1								
16. North/Mid Pacific	26.1	12			9	2	1												
17. South Pacific	23.9	8		1	5	1	1												

52.8 cents. As far as the Atlantic and Pacific routes are concerned, these differences are to a large extent a result of the lower operating costs of the United States airlines which has led to comparatively low air mail conveyance rates being set by the United States authorities for originating mail.

13. In the case of unit freight revenues, the variation amongst individual airlines of the revenue per tonne-kilometre for scheduled services for each route group is shown in Table II.4. For a few route groups the unit revenues for individual airlines do not vary very much from the route group average (for example across the South Atlantic or the North-Central Pacific). However, as for passenger traffic, on most route groups the unit revenues differ significantly amongst airlines.

III. REGIONAL DIFFERENCES IN SCHEDULED PASSENGER FARES AND RELATED COSTS

Over-all Financial Results by International Route Group

1. Selected operational data and estimated financial results for the year 1985 are presented in Table III.1 over-all and by route groups.

2. The first column of data in the table shows that the number of scheduled airlines operating jet services in each route group ranged from a low of 13 on South Pacific routes to a high of 63 serving routes between Europe/Middle East and Africa. It should be noted that propeller aircraft operations of these airlines are excluded from the study, as are the operations of some 117 small international airlines which operate propeller-driven aircraft exclusively; together these operations with propeller aircraft represented about 0.4 per cent of world international seat-kilometres in 1985 with their highest representations in any single route group being 16 per cent between and within Central America and the Caribbean, 4 per cent in local Africa, and 3 per cent in local Europe. Supersonic aircraft operations, which were also excluded, represented slightly more than 0.1 per cent of world operations.

3. The operational data included in data columns 2 to 5 of Table III.1 all have a significant effect on unit operating costs (see Chapter IV). There are considerable differences among route groups in the volume of traffic, the average length of flight stages, the average number of seats per aircraft and the average passenger load factor.

4. Financial results are presented in columns 6 to 8. When consulting these data it should be borne in mind that the revenue figures do not generally take into account the incidental operating revenues. Those incidental revenues which may be directly attributed to passenger traffic include revenues from passengers paying less than 25 per cent of the normal applicable fare, commissions received on sales of transportation on other carriers, "no-show" and cancellation fees (expenses incurred against these revenue items are included in the cost figures shown in column 7); these incidental revenues also include on a net basis capacity equalization payments arising from pooled and/or joint services as well as from the sale of own capacity to other carriers. Revenues accruing from the provision of services other than for air transportation (such as service and maintenance sales or handling services for third parties) and the corresponding costs are excluded from all figures presented in this study. An analysis of incidental revenue data on this basis for 1985 indicates that for international routes as a whole, relevant incidental revenues not included in Table III.1 were about 0.08 cents per passenger-kilometre which, if added to the estimated world-wide unit revenue, increases it by some 1 per cent from 6.74 cents to 6.82 cents per passenger-kilometre. For individual route groups, the passenger-related incidental operating revenues may represent up to an additional 3 per cent over the average revenue quoted.

TABLE III.1

**BASIC OPERATIONAL DATA AND FINANCIAL RESULTS
FOR SCHEDULED PASSENGER SERVICES BY INTERNATIONAL ROUTE GROUP, 1985¹**

Route Group ²	Operational Data					Financial Results ³		
	1	2	3	4	5	6	7	8
	Number of airlines	Percentage of world's international traffic (available seat-kilometres)	Average length of flight stages	Average number of seats per aircraft ⁴	Average passenger load factor	Average revenue per passenger-kilometre ⁵	Average passenger costs per passenger-kilometre	Ratio revenue/costs ⁵
	No.	%	Km	No.	%	US cents	US cents	- 6/
I. <u>All World International Routes</u>	197	100.0	1 690	244	65	6.74	6.92	0.97
II. <u>International Route Groups:</u>								
1. Between North America and Central America/Caribbean	28	2.8	1 178	188	63	7.1	8.3	0.85
2. Between and within Central America and the Caribbean	18	0.3	678	134	64	10.7	10.8	1.00
3. Between Canada, Mexico and the United States	30	5.5	1 042	163	57	6.4	7.9	0.80
4. Between North America/ Central America/Caribbean and South America	30	2.8	1 990	226	59	8.1	7.7	1.05
5. Local South America	15	0.6	873	154	53	9.5	10.4	0.90
6. Local Europe	44	9.1	810	133	63	12.5	11.8	1.05
7. Local Middle East	17	1.3	861	181	59	14.0	12.5	1.10
8. Local Africa	31	0.4	841	131	57	9.6	10.6	0.90
9. Between Europe and Middle East	42	4.2	2 042	211	56	8.8	9.5	0.90
10. Between Europe/Middle East and Africa	63	5.2	2 675	237	62	7.0	7.3	0.95
11. North Atlantic	48	27.8	3 850	315	66	5.5	5.8	0.95
12. Mid Atlantic	21	2.1	3 705	256	65	5.0	5.9	0.85
13. South Atlantic	19	1.8	3 369	256	63	7.1	7.1	1.00
14. Local Asia/Pacific	38	7.4	1 547	272	70	6.6	6.6	1.00
15. Between Europe/Middle East/ Africa and Asia/Pacific	56	16.9	3 335	304	69	5.9	5.8	1.00
16. North and Mid Pacific	15	9.4	4 935	337	69	5.1	5.4	0.95
17. South Pacific	13	2.4	4 423	316	65	5.0	5.6	0.90

Notes:

1. Excluding operational and financial data attributed to supersonic and propeller-driven aircraft.
2. More detailed definition of the route groups may be found in Appendix 3 on the verso of the revenue questionnaire.
3. The margins of uncertainty which should be considered in relation to these results are discussed in Appendix 2.
4. As defined by available seat-kilometres divided by aircraft-kilometres flown.
5. These figures do not generally include incidental operating revenues. For all international routes that part of this additional revenue which may be directly attributed to international passenger traffic is about 0.08 US cents per passenger-kilometre. On individual route groups it may represent up to an additional 3 per cent over the average revenue quoted.
6. Rounded to nearest twentieth for individual route groups.

TABLE III.2
ESTIMATED PASSENGER COSTS¹ PER PASSENGER-KILOMETRE
BY COST ITEM, 1985

Route Groups (short title)	Total Operating Costs	Aircraft Operating Costs		Other Operating Costs						
	(cf. Table III.1)	Aircraft operating costs excluding fuel and oil ²	Aircraft fuel and oil	Landing and associated airport charges	En-route facility charges	Station expenses	Passenger services	Commission	Ticketing, sales and promotion	General, adminis- trative and miscel- laneous
	(Sum columns 1-9)	1	2	3	4	5	6	7	8	9
I. <u>ALL</u>	6.92	1.77	1.53	0.23	0.11	0.68	0.86	0.65	0.62	0.47
% of total costs	100.0	25.6	22.1	3.3	1.5	9.8	12.5	9.5	9.0	6.7
II. <u>International Route Groups:</u> (US cents)										
1. North-Central America	8.3	2.3	1.7	0.2	0.0	1.2	0.9	0.6	0.6	0.8
2. Central America	10.8	2.6	2.4	0.4	0.1	1.0	0.8	1.0	1.2	1.3
3. North America	7.9	2.2	1.6	0.2	0.0	1.2	0.10	0.6	0.5	0.6
4. North-South America	7.7	2.1	1.8	0.2	0.1	0.6	0.8	0.9	0.8	0.4
5. South America	10.4	2.4	2.8	0.6	0.3	0.8	0.9	1.2	1.0	0.4
6. Europe	11.8	2.8	1.9	0.8	0.4	1.6	1.3	1.1	1.4	0.5
7. Middle East	12.5	3.9	2.4	0.6	0.1	1.5	1.1	1.1	0.7	1.1
8. Africa	10.6	2.9	3.0	0.5	0.1	1.1	0.7	0.7	0.7	0.9
9. Europe-Middle East	9.5	2.9	1.9	0.3	0.2	1.0	1.0	0.7	0.7	0.8
10. Europe-Africa	7.3	1.8	1.9	0.2	0.2	0.6	0.8	0.6	0.6	0.6
11. North Atlantic	5.8	1.5	1.3	0.1	0.1	0.5	0.8	0.5	0.5	0.5
12. Mid Atlantic	5.9	1.5	1.6	0.2	0.1	0.4	0.7	0.4	0.5	0.5
13. South Atlantic	7.1	1.7	1.9	0.2	0.2	0.5	0.8	0.7	0.8	0.3
14. Asia/Pacific	6.6	1.9	1.4	0.2	0.1	0.6	0.8	0.8	0.6	0.2
15. Europe-Asia/Pacific	5.8	1.4	1.4	0.2	0.1	0.4	0.8	0.6	0.5	0.4
16. North/Mid Pacific	5.4	1.3	1.4	0.1	0.0	0.4	0.8	0.7	0.4	0.3
17. South Pacific	5.6	1.4	1.4	0.1	0.0	0.5	0.8	0.5	0.5	0.4

Notes:

- "Passenger" costs have been derived for each route group taking into account the contribution made by the revenue earned for the carriage of freight and mail on passenger flights towards covering total costs for these flights. Due to the margins of uncertainty in the estimates of individual cost items the figures should be regarded as indicative only.
- This item includes flight operations expenses (cockpit crew salaries and expenses, rentals and insurance of flight equipment), aircraft maintenance and overhaul, and aircraft standing charges such as depreciation and interest charges.

5. The average operating cost per passenger-kilometre for all international routes was 6.92 cents (column 7), the figures for individual route groups ranging from a high of 12.5 cents in local Middle East to a low of 5.4 cents on North and Mid Pacific routes. These estimated costs include such items as depreciation and interest charges, and sales commission paid, but exclude costs attributable to the carriage of freight and mail.

6. The ratio of passenger revenues to passenger costs for international routes as a whole is estimated at 0.97 for the calendar year 1985, varying between individual route groups from 0.80 to 1.10. Taking into account relevant incidental revenues associated with international passenger traffic and margins of uncertainty in estimated revenues and costs (discussed in Appendix 2), the revenue/cost ratio for all international passenger traffic in 1985 is assessed as lying between 0.96 and 1.02, with a most likely value of 0.99.

7. Components of the total passenger costs are presented in Table III.2. The primary breakdown is between "aircraft" operating costs, being those directly attributable to the operation of aircraft on each route group, and "other" operating costs. All the itemized data carry relatively wide margins of uncertainty and should be regarded as indicative only. Nevertheless, it appears that most of the individual items vary significantly among route groups.

Variations in Revenue/Cost Ratios amongst Airlines

8. The over-all financial results in Table III.1 show that differences in revenues between route groups broadly reflect differences in costs. However, there are cases where individual airlines earn significant profits on some route groups while making losses on other route groups, and operations of these airlines on the former route groups could therefore be said to have subsidized operations on the latter groups during the period in question. In studies covering previous years such apparent cross-subsidy between route groups applied not only in the case of individual airlines but carried across to the averages for some regional groups of airlines. Since 1983, however, no such consistent cross-subsidy has been identifiable.

9. Analysis did, however, reveal several route groups within which the results obtained by different regional groups of airlines show significant differences. In particular, on inter-regional route groups involving Latin America, airlines of that region as a group showed average revenue/cost ratios ranging from 0.05 to 0.25 below those of the other airlines concerned according to route group. Similarly on South Pacific routes Asia/Pacific airlines as a group showed a revenue/cost ratio 0.10 below that of North American airlines. European airlines achieved relatively higher ratios than other airlines on routes between Europe/Middle East and Africa where they showed a ratio 0.20 above that of the African airlines.

10. An examination was also carried out as to how the revenue/cost ratios varied amongst individual airlines operating in the same route group. These variations in revenue/cost ratios amongst airlines on a route group can be an

important factor in the negotiation of fares for the route group in question, particularly where unanimity or some form of concensus among the airlines is required on proposed fares.

11. The variations in 1985 are shown in Table III.3. On a few route groups the revenue/cost ratios for the airlines do not vary very much from the route group average (for example in local Europe). However, on most route groups the ratios vary significantly among the airlines and the average revenue/cost ratios do not therefore adequately portray the economics of the operations. On two route groups, Europe-Africa and Europe-Asia/Pacific, the revenue/cost ratios of individual carriers ranged from less than 0.7 to greater than 1.3.

Comparison of Results for 1985 with those for 1984

12. An over-all comparison between data for 1985 and corresponding data for 1984 shows a decrease of about 1 per cent in the estimated passenger cost per available seat-kilometre, from 4.55 to 4.50 cents. Since the world-wide average load factor remained virtually the same (at 65 per cent), the cost per passenger-kilometre shows a similar decrease of almost 1 per cent, from 6.96 to 6.92 cents. Unit revenues (excluding incidental operating revenues) on the other hand showed a decrease of about 3 per cent, from 6.96 cents per passenger-kilometre to 6.74 cents in 1985 and as a result the over-all revenue/cost ratio shows a deterioration between the two years, decreasing from 1.00 in 1984 to 0.97 in 1985.

13. As far as the individual route groups are concerned, the year-to-year cost changes show wide variations which are accentuated by differences in trends in load factors. Between 1984 and 1985, seven out of the 16 route groups for which comparable data are available showed increases in costs per passenger-kilometre. The most significant increases were recorded on routes between North America and Central America/Caribbean (from 7.9 to 8.3 cents), within and between Central America and Caribbean (from 9.8 to 10.8 cents) and across the North Atlantic (from 5.5 to 5.8 cents). Of the remaining nine route groups, eight showed decreases in unit costs between 1984 and 1985. The most significant decreases were recorded in local South America (from 10.9 to 10.4 cents), across the South Atlantic (from 7.9 to 7.1 cents) and across the South Pacific (from 6.2 to 5.6 cents).

14. The comparison of unit costs between 1984 and 1985 reflects a general decline in the price of fuel (see Chapter IV), with greater or lesser effects in the different route groups. Also, as with the revenue figures discussed in Chapter II, the comparison has been in some cases significantly affected by a strengthening of the United States dollar against many other world currencies. Within the Americas, where most fares and rates are transacted in United States dollars, the changes in unit revenues generally reflect market changes. Similarly, changes in unit costs in the Americas reflect operational changes, as the greater part of costs are generally borne in United States dollars, except for routes involving certain points in South America. Outside the Americas, where national currencies generally weakened compared with the United States dollar, the developments shown in revenues and costs are in effect deflated,

TABLE III.3

VARIATION OF REVENUE/COST RATIOS AMONGST AIRLINES, 1985

Route Groups (short title)	Average Revenue/Cost Ratio (All airlines, from Table III.1)	Number of Airlines in this Analysis	Revenue/Cost Ratio Range				
			Less than 0.7	0.7-0.9	0.9-1.1	1.1-1.3	Greater than 1.3
			Number of airlines				
I. <u>All World International Routes</u>	0.97	81	5	15	49	9	3
II. <u>International Route Groups:</u>							
1. North-Central America	0.85	9	2	2	3	2	
2. Central America	1.00	6		1	3	1	1
3. North America	0.80	12	2	5	4	1	
4. North-South America	1.05	17		5	9	3	
5. South America	0.90	8		3	3	1	1
6. Europe	1.05	18			10	6	2
7. Middle East	1.10	6			1	3	2
8. Africa	0.90	10	2	4	3	1	
9. Europe-Middle East	0.90	21		7	9	2	3
10. Europe-Africa	0.95	28	2	5	13	4	4
11. North Atlantic	0.95	33	2	13	11	7	
12. Mid Atlantic	0.85	12	2	5	4	1	
13. South Atlantic	1.00	13	1	3	6	3	
14. Asia/Pacific	1.00	18		4	10	4	
15. Europe-Asia/Pacific	1.00	31	2	7	13	6	3
16. North/Mid Pacific	0.95	11		4	6	0	1
17. South Pacific	0.90	8		5	3		

and notably so in Europe and Africa. For example, whereas between 1984 and 1985 average unit revenues and costs for routes within Europe showed decreases of about 5 and 3 per cent respectively when measured in United States dollars, in terms of European currencies they are estimated to have shown a decrease in the order of 2 per cent in average unit revenues and no change in unit costs. For routes within Africa average unit revenues and costs in terms of United States dollars showed a decline of about 5 per cent and an increase of 1 per cent respectively between 1984 and 1985, whereas in terms of national currencies they are estimated to have increased by some 1 and 7 per cent respectively.

15. Of the 16 route groups for which comparable data are available, only three showed an improvement in the revenue/cost ratio between 1984 and 1985. These involved routes between and within Central America and the Caribbean (from 0.95 to 1.00), between North America/Central America/Caribbean and South America (from 1.00 to 1.05), and across the South Atlantic (from 0.90 to 1.00). In the last two cases the most significant factor was an increase in load factor (3 and 2 percentage points respectively); on the routes between North and South America this was accompanied by a reduction of about 10 per cent in capacity offered by the North American carriers. The improvement in the revenue/cost ratio on routes between and within Central America and the Caribbean resulted from a favourable development in unit revenues which more than compensated for a reduction in load factor.

16. Of the remaining route groups, eight showed reductions in the revenue/cost ratio, while the change in the ratio of the remaining five route groups was not significant. The route groups which showed declines in the revenue/cost ratio were those between North America and Central America/Caribbean (from 0.90 to 0.85), between Canada, Mexico and the United States (from 0.85 to 0.80), local Europe (from 1.10 to 1.05), local Africa (from 1.00 to 0.90), between Europe and Middle East (from 1.00 to 0.90), between Europe/Middle East and Africa (from 1.00 to 0.95), across the North Atlantic (from 1.00 to 0.95) and across the North and Mid Pacific (from 1.00 to 0.95). A major cause of most of these decreases in revenue/cost ratios was the adverse development in unit revenues in relation to stable or increased unit costs. For routes between North America and Central America/Caribbean, between Canada, Mexico and the United States and across the North Atlantic a significant decrease in load factor (between 2 and 3 percentage points) was in part responsible for this development in costs. In the case of routes in local Europe, an increase in load factor (from 61 to 63 per cent) was achieved at the expense of a decrease in unit revenues which was greater than that of unit costs.

IV. FACTORS CAUSING REGIONAL DIFFERENCES IN COSTS

1. The financial analysis presented in Chapter III included estimates of the average cost per passenger-kilometre performed for each of 17 international route groups. This chapter is concerned with assessments of factors which caused this average cost to vary among the route groups. Some main factors can be identified and their effects quantified but a number of other factors do not lend themselves to individual assessment and are therefore dealt with in a summary manner, although their combined influence on cost differences is significant.

2. The factors which have been considered are:

- a) the effect on aircraft operating costs of differences among route groups in aircraft equipment being used;
- b) the effect of differences among route groups in the average length of flight stages;
- c) the effect of varying prices of fuel and oil in different parts of the world;
- d) the effect of different levels of airport user charges in different parts of the world;
- e) the effect of differences in the average load factor achieved on each route group; and
- f) other factors.

An examination of the influence exercised by each of the above on the operating costs for traffic in the route groups is made below and the resulting variations in the costs per passenger-kilometre from the world average are subsequently presented in Table IV.5 and discussed in paragraphs 20 and 21 of this chapter.

Aircraft Mix and Stage Length [factors a) and b)]

3. The volume of traffic on a route and the geographical characteristics of the route (in particular the lengths of flight stages) determine the sizes of aircraft that are engaged in the traffic, the number of seat-kilometres per departure and per flying hour that can be produced by these aircraft, and the possible utilization of the aircraft in terms of flying hours per year. For these reasons, the geographical characteristics of a route group strongly influence the operating costs per seat-kilometre that will be incurred on that route group. Effects on these costs of differences among the route groups in aircraft mix and average stage length are discussed below.

4. In general, the aircraft operating costs per aircraft-kilometre or per seat-kilometre on a long-haul flight are lower than on a short-haul flight, mainly because of the higher block speed that may be achieved on a long-haul flight and the generally higher aircraft daily utilization recorded. Similarly, large aircraft which may be used where traffic density is high have lower direct operating costs per seat-kilometre than small aircraft. The combined impact of these two factors may be illustrated by looking at the average aircraft operating costs incurred in international passenger service in 1985 for different categories of aircraft. Table IV.1 presents the average aircraft operating costs per block hour and per available seat-kilometre for five categories of aircraft, grouped according to their size and by the length of haul for which they were generally used. The average hourly cost varied from \$1 880 for narrow-body short-haul aircraft to \$5 810 for wide-body long-haul aircraft, but primarily because of their greater productivity the average aircraft operating cost per available seat-kilometre (adjusted to exclude costs attributable to freight and mail traffic) of the wide-body long-haul aircraft was, at 1.9 cents, lower than for any other category. At the other end of the spectrum the narrow-body short-haul aircraft averaged 2.9 cents per seat-kilometre, which is 53 per cent higher than the figure for wide-body long-haul aircraft.

5. Aircraft operational data for each route group (excluding utilization effects) are shown in Table IV.2. The average block speed achieved is shown to be significantly higher on route groups with a long average stage length such as the North Atlantic and the transpacific routes than on route groups with a short average stage length such as South America and Europe. This relative economic advantage for the operations of long-haul routes is amplified by the fact that large wide-body aircraft in 1985 accounted for a high proportion of the total capacity on long-haul routes but were being used less on the route groups with a short average stage length. The variation in average aircraft productivity resulting from variations in average block speed and average size of aircraft is very wide. For example, the seat-kilometres per aircraft block hour in the Central America, Europe and Africa route groups are in each case less than one-third of the seat-kilometres per block hour on the North/Mid Pacific route group.

6. Differences in aircraft fleet composition among route groups contribute to the differences in both aircraft and other operating costs, but mainly in the aircraft costs. The contribution to regional differences in aircraft operating costs arising from differences in aircraft mix (excluding the effects of differences in stage length, fuel prices and load factors) has been estimated and is presented in paragraphs 20 and 21.

7. Other operating costs as well as aircraft operating costs are of course also strongly influenced by the average length of flight stages operated in a route group. This is because certain important cost items, such as station expenses and landing charges, are primarily dependent upon the number of aircraft and passenger departures. Since the number of seat-kilometres (or passenger-kilometres) per departure increases proportionally with increasing stage length, the cost per seat-kilometre (or per passenger-kilometre) of station expenses and landing charges falls with increasing stage length. Estimated effects of differences in stage length on operating costs (both aircraft and other) are also presented in paragraphs 20 and 21.

TABLE IV.1

OPERATIONAL AND COST DATA FOR AIRCRAFT CATEGORIES 1985
(International Scheduled Passenger Services)

Grouping of Subsonic Aircraft	Primary Jet Types Operated On International Scheduled Services ¹	Percentage of World's International Traffic (available seat-kilometres)	Average Number of Seats ²	Average Length of Flight Stages Operated	Average Utilization ³	Aircraft Operating Costs ⁴	
						US\$ per block hour	US cents per available seat-kilometre ⁵
		X	No.	Km	Hours/Day		
ALL	-	100.0	244	1 690	8.5	4 070	2.2
A. Narrow-body, short-haul	B737 B757 DC9 MD80	8.2	113	740	6.8	1 880	2.9
B. Narrow-body, medium-haul	B727 TU154	9.0	147	1 117	7.8	2 520	2.6
C. Narrow-body, long-haul	B707 DC8 IL62	4.1	160	2 307	5.5	2 900	2.2
D. Wide-body, medium-haul	A300 A310 B767 L1011	13.1	248	1 788	7.9	4 720	2.5
E. Wide-body, long-haul	B747 DC10 L1011-500	65.6	331	3 998	10.2	5 810	1.9

Notes:

1. Only aircraft types providing more than 0.5 per cent of the world international scheduled available seat-kilometres in 1985 are listed in this column. The categorization of aircraft types is based on the average number of seats and average length of flight stages operated in 1985.
2. Available seat-kilometres divided by aircraft-kilometres flown.
3. Including domestic and non-scheduled operations of the international airlines concerned.
4. Data in these columns include flight operations expenses, aircraft fuel and oil (at the world average cost of 23.2 cents per litre), aircraft maintenance and overhaul, and aircraft standing charges such as depreciation and interest charges. If prevailing regional prices rather than the world average price were to be used for aircraft fuel and oil there would be no change in the per seat-kilometre cost data presented, but small changes in some of the per block hour data.
5. Aircraft operating costs have been adjusted in this case to exclude costs attributable to freight and mail traffic.

TABLE IV.2
AIRCRAFT OPERATIONAL DATA BY ROUTE GROUP, 1985

Route Groups (short title)	Average Length of Flight Stages	Average Block Speed	Percentage Distribution of Seat- Kilometres		Average Aircraft Productivity
	Kilometres	Kilometres per hour	Narrow- body	Wide- body	Available seat- kilometres per block hour (thousands)
<u>I. All World International Routes</u>	1 690	665	21	79	162
<u>II. International Route Groups:</u>					
1. North-Central America	1 178	633	48	52	119
2. Central America	678	577	100	0	77
3. North America	1 042	605	71	29	99
4. North-South America	1 990	715	26	74	162
5. South America	873	605	77	23	93
6. Europe	810	529	85	15	70
7. Middle East	861	522	44	56	95
8. Africa	841	607	85	15	79
9. Europe-Middle East	2 042	652	25	75	138
10. Europe-Africa	2 675	713	20	80	169
11. North Atlantic	3 850	752	3	97	237
12. Mid Atlantic	3 705	762	16	84	195
13. South Atlantic	3 369	765	10	90	195
14. Asia/Pacific	1 547	662	12	88	180
15. Europe-Asia/Pacific	3 335	728	7	93	221
16. North/Mid Pacific	4 935	790	1	99	266
17. South Pacific	4 423	791	5	95	250

Prices for Aircraft Fuel and Oil [factor c]

8. The estimated total consumption of aircraft fuel and oil on international subsonic jet passenger routes in 1985 was about 55 billion litres, and the total cost to the airlines was some U.S.\$12.8 billion for an average price per litre of 23.2 cents. While there was an increase in consumption over 1984 of about 5 per cent, the over-all fuel cost showed an increase of about 2 per cent and the average price paid per litre decreased over 1984 by about 3 per cent. Detailed estimates have been made of the average prices of fuel purchased in the different regions of the world (Table IV.3) and of the average prices of fuel consumed on the various route groups (Table IV.4).

9. On the route group basis the estimated fuel prices range from a low of 19.8 cents per litre for routes within North America to a high of 35.7 cents per litre for routes within Africa. Comparing the two sets of fuel price estimates in Tables IV.3 and IV.4, both of which are derived from the same data sources, it may be seen that the average prices paid for fuel for international services carried out entirely within Africa (35.7 cents per litre) are significantly higher than the average prices for all fuel uplifted in Africa for international services to, from and within that region (30.6 cents per litre). A similar situation prevails in the Central America/Caribbean region, where the price paid for fuel for intra-regional services (28.9 cents per litre) is significantly higher than the price paid for all fuel uplifted in the region (22.3 cents per litre) excluding Mexico, the comparable figures are 31.5 cents per litre for fuel for intra-regional service and 24.9 cents per litre for fuel uplifted in the region. Further analysis shows that airlines from outside these regions have generally paid lower prices for fuel in the region concerned than airlines based in the region, probably as a result of favourable terms of bulk purchasing arrangements covering a wider network of services.

Airport and Associated Charges [factor d]

10. Airport charges in 1985 represented 3.3 per cent of the total costs for international passenger operations. The basis on which these charges are levied varies from airport to airport but aircraft gross weight is the predominant element and a broad and simple comparison of the levels of airport charges in different parts of the world can be based on dollars paid per tonne of aircraft maximum take-off weight. Using this measure, estimated average airport charges in different regions of the world are shown in Table IV.3. The table shows that the world average was 5.4 dollars per tonne and that the average charges in regions ranged from 2.4 dollars in North America to 8.4 dollars in Europe. It is to be noted that en-route facility charges are not generally included in these estimates because of their limited significance (1.5 per cent of total costs) and because of the margin of uncertainty associated with their estimation on a regional basis.

11. Estimates of landing and associated airport charges have also been made on a route group basis and are shown in Table IV.4. The range of these estimates for route groups is from 1.8 dollars per tonne for traffic within North America to 9.3 dollars for traffic within Europe.

TABLE IV.3

ESTIMATED UNIT FUEL PRICES AND AIRPORT CHARGES BY REGION, 1985
(International Scheduled Services)

Item \ Area ¹	World	Africa	Europe	Asia/ Pacific	Middle East	North America	Central America/ Caribbean	South America
Aircraft fuel and oil (US cents/litre)	23.2	30.6	23.0	25.1	24.1	20.4	22.3	27.6
Landing and associated airport charges (US\$/departed tonne ²)	5.4	4.3	8.4	5.5	4.7	2.4	2.6	4.4

TABLE IV.4

ESTIMATED UNIT FUEL PRICES AND AIRPORT CHARGES BY ROUTE GROUP, 1985
(International Scheduled Services)

Route Groups (short title)	Aircraft Fuel and Oil Prices	Landing and Associated Airport Charges
	US cents per litre	US\$ per departed tonne ²
<u>I. All World International Routes</u>	23.2	5.4
<u>II. International Route Groups:</u>		
1. North-Central America	23.1	2.5
2. Central America	28.9	3.5
3. North America	19.8	1.8
4. North-South America	24.4	3.9
5. South America	29.4	4.8
6. Europe	23.1	9.3
7. Middle East	25.1	5.0
8. Africa	35.7	4.5
9. Europe-Middle East	24.0	6.4
10. Europe-Africa	27.4	5.6
11. North Atlantic	21.2	4.5
12. Mid Atlantic	24.3	5.9
13. South Atlantic	25.0	4.5
14. Asia/Pacific	25.8	5.6
15. Europe-Asia/Pacific	24.1	5.2
16. North/Mid Pacific	22.3	5.0
17. South Pacific	23.2	4.0

Notes:

1. More detailed descriptions of areas and route groups may be found in Appendix 3 on the verso of the revenue and cost questionnaires.
2. Tonnes of aircraft maximum take-off weight.

Load Factor [factor e)]

12. A large part of the total costs of operating a flight on a scheduled air service is independent of, or only moderately affected by, the number of passengers actually carried on the flight. Since, as shown in Table III.1, the passenger load factors achieved in 1985 varied significantly among route groups, from a low of 53 per cent on routes in local South America to a high of 70 per cent on routes in local Asia/Pacific, they had a significant influence on differences in total operating costs per passenger-kilometre. Estimated effects of differences in load factor on operating costs for each route group are presented in paragraphs 20 and 21.

Other Causes of Regional Differences in Costs

13. Among the factors that led to regional differences in the total cost of passenger operations in 1985, the varying aircraft operating costs, including the effect of varying prices of fuel, have been discussed above. The effect of varying stage lengths and load factors has been assessed for both aircraft operating costs and other cost items but, with the exception of variations in airport charges, other effects of differences in non-aircraft cost items have not been analysed. The remaining cost items include "station expenses", "passenger services", "commission", "ticketing, sales and promotion" and "general, administrative and miscellaneous" and together accounted for some 47 per cent of the total costs for international passenger operations in 1985. Some of these cost items for passenger operations show significant differences among route groups even after extraction of any stage length and load factor effects. A general commentary concerning these items and their variation is given below.

14. Station expenses (column 5 in Table III.2) relate mainly to the servicing of aircraft and passengers at airports. While they vary greatly among route groups, from 0.4 to 1.6 cents per passenger-kilometre, some of the variation is due to the effects of differences in stage length. If this effect is extracted from station expenses, routes between and within Central America and the Caribbean show the lowest costs per passenger while routes across the South Pacific show the highest costs.

15. Passenger service costs (column 6 in Table III.2) relate primarily to cabin services provided in flight. The differences in their level, from 0.7 to 1.3 cents per passenger-kilometre, primarily reflect differences in salary and service levels and utilization of cabin crew.

16. Commission (column 7 in Table III.2) is paid by each airline to travel agents and other airlines for the sale of passenger tickets. Commission is dependent on the extent to which airlines' sales are handled by agents in different parts of the world. However, because the commission is usually a certain percentage of the price of the ticket the variation in this cost item, from 0.4 to 1.2 cents per passenger-kilometre, is also related to the variation in average revenue per passenger-kilometre.

TABLE IV.5

CONTRIBUTIONS TO DIFFERENCES IN COSTS AMONG ROUTE GROUPS, 1985

Route Groups (short title)	1	2	3	4	5	6	7	8	9
	World Average Total Passenger Operating Costs	Effect of Aircraft Mix on Direct Operating Costs	Effect of Stage Length and Average Block Speed	Effect of Aircraft Fuel and Oil Prices	Effect of Landing and Associated Airport Charges	Effect of Load Factor	Sum of Effects in Columns 2-6	Effect of Other Factors	Actual Total Passenger Operating Costs Columns 1+7+8
US cents per passenger-kilometre									
<u>I. All World International Routes</u>	6.9	-	-	-	-	-	-	-	6.9
<u>II. International Route Groups:</u>									
1. North-Central America	6.9	0.5	0.5	0.0	-0.1	0.2	1.1	0.3	8.3
2. Central America	6.9	0.8	1.8	0.4	-0.1	0.1	3.0	0.9	10.8
3. North America	6.9	0.6	0.8	-0.2	-0.2	0.8	1.8	-0.8	7.9
4. North-South America	6.9	0.0	-0.3	0.1	-0.1	0.5	0.2	0.6	7.7
5. South America	6.9	0.4	1.1	0.4	0.0	1.6	3.5	0.0	10.4
6. Europe	6.9	0.9	1.7	0.0	0.2	0.3	3.1	1.8	11.8
7. Middle East	6.9	0.5	1.6	0.1	0.0	0.9	3.1	2.5	12.5
8. Africa	6.9	0.7	1.2	0.8	0.0	1.0	3.7	0.0	10.6
9. Europe-Middle East	6.9	0.4	-0.1	0.1	0.0	1.1	1.5	1.1	9.5
10. Europe-Africa	6.9	-0.1	-0.5	0.3	0.0	0.3	0.0	0.4	7.3
11. North Atlantic	6.9	-0.2	-0.8	-0.1	0.0	-0.1	-1.2	0.1	5.8
12. Mid Atlantic	6.9	-0.2	-0.8	0.1	0.0	0.0	-0.9	-0.1	5.9
13. South Atlantic	6.9	-0.3	-0.8	0.1	0.0	0.2	-0.8	1.0	7.1
14. Asia/Pacific	6.9	0.0	0.1	0.2	0.0	-0.4	-0.1	-0.2	6.6
15. Europe-Asia/Pacific	6.9	-0.2	-0.7	0.1	0.0	-0.3	-1.1	0.0	5.8
16. North/Mid Pacific	6.9	-0.3	-1.0	-0.1	0.0	-0.2	-1.6	0.1	5.4
17. South Pacific	6.9	-0.3	-1.0	0.0	-0.1	0.0	-1.4	0.1	5.6

17. Ticketing, sales and promotion (column 8 in Table III.2) is an item for which the level is largely determined by decision-making within individual airlines. The variation, from 0.4 to 1.4 cents per passenger-kilometre, reflects differing competitive situations and the extent to which airlines handle their own sales in the various route groups.

18. Commission, ticketing, sales and promotion, together reflect the over-all cost of selling passenger tickets. Depending on the route group, between 13 and 24 per cent of total passenger revenues are used to defray this cost.

19. General, administrative and miscellaneous expenses (column 9 in Table III.2) vary from 0.2 to 1.3 cents per passenger-kilometre. This partly reflects variations in the organizational structure and the accounting practices of airlines in different parts of the world, but also variations in salary levels and staff productivity among regions. Additionally, economies of scale may be an important factor affecting variations in this cost item as large airlines, which tend to have lower administrative overheads per passenger-kilometre performed than smaller airlines, play a greater role on some route groups than on others. In recent years, administrative costs have been heavily influenced by fluctuations in exchange rates.

Summary of Causes of Regional Differences in Costs

20. The effects of the factors described in paragraphs 3 to 19 on the cost levels for route groups are shown in Table IV.5. Column 1 of that table shows against each route group the world average cost per passenger-kilometre in 1985, which was 6.9 cents. Columns 2 through 6 show the deviations from this world average that may be attributed to each of the individually assessed factors described in paragraphs 3 to 12, and column 8 shows the aggregate effect of the "other factors" (some other factors were described in summary form in paragraphs 13 to 19). Column 9 shows the resulting actual total costs per passenger-kilometre for each route group.

21. Comparing the various factors identified in columns 2 to 6 of Table IV.5 it will be noted that each of them contributed significantly to differences from the world average cost per passenger-kilometre. On some two-thirds of the route groups "stage length and average block speed" was the most important single factor and on most of the rest "load factor" was the most important single factor, but neither of them was the consistently dominant cause. Also, as may be seen by comparing column 7 (the sum of the effects in columns 2 to 6) with column 8, an important proportion of the differences in route group costs from the world average was due to the "other factors" which do not lend themselves to precise analysis.

V. POSSIBLE MEANS OF REDUCING REGIONAL DIFFERENCES IN FARES AND COSTS

1. Average unit costs as well as average revenues per passenger-kilometre have been shown in this study to vary significantly from route group to route group. The variations in cost and revenue levels have also been shown to be conjunctional to a large extent. The analysis in Chapter IV, although not fully explaining the regional differences in costs, provides a useful indication of some areas where efforts might be made to reduce costs. This chapter deals first with such possible avenues for reducing unit costs and then, very briefly, with the scope for adjustments to the fare levels over and above those that may be made possible by reduced operating costs.

Reduction of Cost Differences

2. Low aircraft productivity due to relatively short stage lengths and the use of relatively small aircraft is a common feature of the route groups where cost levels are high. In the past the general trend for route groups as a whole has been for both aircraft size and stage length to increase. During the period 1980 to 1985 (Table V.1) the estimated average number of seats per aircraft on all international scheduled services showed an average annual increase of 2 per cent, the average stage length 1-2/3 per cent and the aircraft productivity in terms of seat-kilometres per block hour just over 2 per cent. However, Table V.1 also shows that the achieved improvement in aircraft productivity varied widely from route group to route group. As traffic demand grows, continued development towards increased aircraft productivity, through an appropriately harmonized development towards larger aircraft and longer average stage length could permit substantial savings in unit costs. On some route groups, however, the strong demand for frequency of services reduces the ability of airlines to achieve higher aircraft productivity through an increase in aircraft size alone. In 1985, continuing the trend of previous years, there was a further reduction in the share of the world's international capacity offered (in terms of seat-kilometres) by narrow-body aircraft and an increase in share by wide-body aircraft (see Table IV.1).

3. In addition to increasing productivity in terms of seat-kilometres per block hour through increased aircraft size and stage length, there also appears to be potential, particularly within Europe and within the Middle East, for reduced flying distances between cities through more direct routings and for reduced ground manoeuvring time.

4. Increased aircraft utilization in terms of flying hours per year and hence reduction in standing charges per hour may be achievable in some instances through more efficient airline scheduling, through the use of promotional fares to create demand during slack periods, and through improved

TABLE V.1
ASPECTS OF AIRCRAFT PRODUCTIVITY

Route Groups (short title)	1985			Average Annual Percentage Change Between 1980 and 1985		
	Average number of seats per aircraft ¹	Average length of flight stages	Average aircraft product- ivity ²	In average number of seats per aircraft	In average length of flight stages	In average aircraft product- ivity
<u>I. All World International Routes</u>	244	1 690	162	2.1	1.7	2.2
<u>II. International Route Groups:</u>						
1. North-Central America	188	1 178	119	0.0	-2.9	-0.8
2. Central America	134	678	77	1.7	-1.5	0.5
3. North America	163	1 042	99	1.5	0.7	1.5
4. North-South America	226	1 990	162	1.8	-0.9	1.8
5. South America	154	873	93	0.7	-1.5	0.2
6. Europe	133	810	70	1.2	0.8	1.2
7. Middle East	181	861	95	2.8	0.5	2.5
8. Africa	131	841	79	1.6	-0.4	1.3
9. Europe-Middle East	211	2 042	138	2.1	0.2	1.8
10. Europe-Africa	237	2 675	169	2.1	1.7	2.1
11. North Atlantic	315	3 850	237	0.4	-1.8	0.1
12. Mid Atlantic	256	3 705	195	-0.5	0.2	-0.5
13. South Atlantic	256	3 369	195	0.3	0.8	0.4
14. Asia/Pacific	272	1 547	180	4.6	1.4	4.3
15. Europe-Asia/Pacific	304	3 335	221	1.5	1.2	1.4
16. North/Mid Pacific	337	4 935	266	-0.4	0.1	-0.5
17. South Pacific	316	4 423	250	0.1	0.2	0.2

Notes:

1. As defined by available seat-kilometres divided by aircraft-kilometres flown.
2. In thousands of available seat-kilometres per block-hour.

airport handling and hence quicker turn-around time. Environmental constraints, such as those imposed at noise sensitive airports, may however impose limits to the improvement in aircraft daily utilization which airlines operating at those airports might be able to achieve.

5. Fuel costs accounted on average for about 22 per cent of the total costs for international passenger operations in 1985, and as this is such a major cost item adjustments of the regional differences in fuel prices shown in Tables IV.3 and IV.4 would significantly affect the differences in total costs. The wide variation in fuel prices per litre from region to region may generally reflect true differences in distribution costs and not therefore be susceptible to adjustment by fuel suppliers, but in some cases, notably concerning African airlines in the African region, there are indications that the fuel may be overpriced. Another main cause of regional variations in fuel costs is the different rates of consumption in litres per seat-kilometre flown. For 1985 the average rate of consumption for all route groups was about 50 litres per thousand available seat-kilometres, but on individual route groups the estimated rate of consumption varied from about 47 litres on routes between North America and Central America/Caribbean and in local Asia/Pacific to 59 litres in local Middle East. While relatively high fuel consumption rates, and hence fuel costs, are inherent in shorter-haul operations, reductions in fuel consumption are being achieved in association with the introduction of new and larger aircraft, retrofitting of some other aircraft with new engines, and changes in maintenance and operational procedures.

6. Low load factors on some route groups contribute to costs per passenger-kilometre being higher than the world average, for example on routes in local South America and between Europe and the Middle East. Improved utilization of capacity, and thereby reduced costs per passenger-kilometre might be pursued on such route groups by rationalization of services and provision of greater incentives for off-peak travel. Even though the route groups concerned tend to show a high proportion of business travellers, a latent price-conscious market may exist and some experimentation with additional promotional fare types might be justified. A generalized relationship between load factor and total costs, derived from data obtained for this study and from certain airline estimates, is that a variation by 5 percentage points in load factor tends to result in a corresponding variation in total costs per aircraft-kilometre of approximately 2 per cent. This could mean, for instance, that if the load factor on routes in local South America in 1985 had been at the world average level of 65 per cent rather than the actual 53 per cent, the total costs for that route group might have been some 5 per cent higher but the unit cost per passenger-kilometre could have been about 15 per cent lower. It needs to be borne in mind, however, that an increased load factor is not necessarily beneficial if achieved by reduced fares which result in such a low average yield as to result in an adverse effect on the revenue/cost ratio.

7. Revenues from the carriage of freight and mail are important elements in the economics of operating a route, the development of freight and mail traffic alongside passenger traffic reducing the allocated unit costs for all three categories. Amongst the 17 route groups analysed in this study the contribution of freight and mail revenues to total operating revenues of passenger services varies from 5 to 15 per cent, reflecting to a large extent the

capacity available for the carriage of freight and mail on the aircraft operating the routes. Nevertheless, emphasis on increased utilization of freight and mail capacity, and on the over-all weight load factor as well as the passenger load factor, may produce net benefits from increased revenues with relatively small additional aircraft operating costs.

8. Rationalization of networks may in some instances permit individual airlines to lower the cost level for their operations on a route group. Differences amongst airlines with respect to their traffic patterns and market structures inherently lead to some differences in the unit costs for their operations within a particular route group. However, the wide variation in revenue/cost ratios for operations of individual airlines within most route groups, indicated in Table III.3, suggests that some airlines may operate some segments of their networks at a heavy financial loss. These airlines may therefore derive benefit from consolidation of their networks so as to avoid excessive duplication of their services with those provided by other airlines. Such consolidation could be achieved through joint services where for example only one airline operates a route while sharing the costs and revenues with another airline. On the other hand such arrangements may eliminate direct competition and could therefore reduce incentives to improve efficiency, suggesting also that air transport regulatory authorities should closely monitor the effectiveness of these arrangements.

9. Fleet rationalization and technical co-operation may in many instances achieve economies in maintenance of aircraft, in the servicing of aircraft at airports, and in the training and utilization of flight crews and technical personnel. In some regions the potential for fleet rationalization appears to exist both within individual airlines which are operating several different aircraft types and through co-operation amongst airlines. The prospects in the latter regard are heavily influenced by the size and composition of aircraft fleets of the airlines seeking co-operation, the potential savings being greatest where a number of individual airlines each operate the same equipment in small numbers.

10. Commercial co-operation between airlines may achieve reduced costs and improved marketing. Notable examples of commercial co-operation include the sharing of a computerized reservation system, the co-ordination of time-tables, and the purchase of passenger or cargo space on services of other airlines.

Reduction of Differences in Fare Levels

11. Desirable adjustments in fare levels and structures may be accomplished by airlines and governments, but the scope for reducing the average level of fares on a route group in this way is seriously constrained in circumstances where revenue/cost ratios are not presently adequate. Nevertheless, even in these circumstances the introduction of reduced fares may lead to improved operating results, for example where such fares generate new traffic which improves load factors on existing services.

12. Where revenue/cost ratios are presently more than adequate, it needs to be borne in mind that the same airlines may be operating unprofitably on other routes. In such circumstances it could be alleged that cross-subsidization is taking place between route groups. The degree of such cross-subsidization within individual airline networks would, however, be difficult to determine accurately because of the contribution which traffic flows between route groups make to the results achieved on each and to the over-all results.

APPENDIX 1

DATA SOURCES AND COVERAGE

Sources of the Data

1. Primary sources of information for this study were two questionnaires which were dispatched (under cover of State Letter EC 2/20.3.2-86/56 of 27 May 1986) to all Contracting States to be filled out with respect to their international carriers. One questionnaire sought information on scheduled and non-scheduled passenger, freight, mail and incidental revenues for each route group, together with corresponding volumes of traffic and capacity. Replies to this questionnaire were received with respect to 83 States. The second questionnaire sought information on costs for international scheduled passenger airlines, and replies were received with respect to 80 States. Facsimiles of the two questionnaires and a list of States for which replies were received are given in Appendix 3.

2. Another important source of information as far as scheduled operations were concerned was a computer analysis of timetable material prepared by publishers of the Official Airline Guide. The basic data provided by this source were, for each and every airline and aircraft type operating in each of the route groups, information on the planned number of seats (combination aircraft), number of departures, aircraft block hours and distance flown (these data are Copyright © 1986 by Official Airline Guides, Inc., Oak Brook, Illinois). The ICAO Secretariat carried out research into the operating characteristics of aircraft types and sub-types, and provided Official Airline Guides with resulting data on fuel consumption per block hour (as a function of stage length), maximum take-off weight, payload and volumetric capacity. This information was related to the basic data to provide a bank of operating statistics for each route group and for each geographical area of operation within each route group, as well as aggregate statistics for each area and for the world as a whole.

3. A wide range of supplementary information sources was used, in particular data on airline Traffic, Traffic by Flight Stage, On-Flight Origin and Destination Traffic, Fleet and Personnel, and airline Financial Data regularly filed by Contracting States on Air Transport Reporting Forms and published in the ICAO Digests of Statistics.

Coverage of the Data

4. For scheduled services, traffic, capacity and other operational data were derived both from the questionnaires and from the timetable material, supplemented by material from the regular statistical reports to ICAO, and may be considered as fully comprehensive of all international operations. Revenue and cost data originate essentially from the questionnaires, supplemented by

national publications or other suitable sources of financial data where available; in the case of passenger traffic available revenue and cost data were adapted according to operational data to render them representative of all international operations (see Appendix 2). In the case of non-scheduled traffic, the sole source of both operational and financial data was the responses to the questionnaires, and the results shown in this study represent only these responses.

5. The study was based on revenue data obtained for 91 scheduled airlines (including 6 all-cargo airlines) and 14 other carriers (including 1 all-cargo carrier), and on cost data for 81 scheduled passenger airlines.

6. The number of airlines and the coverage of international scheduled passenger traffic represented by revenue and cost data are shown in Table Al.1 by region of airline registration. The over-all representation in terms of available seat-kilometres is 83 per cent for revenue data and 82 per cent for cost data. Representation of the Africa and Middle East regions though substantially better than in previous years, still remains significantly lower than for the other regions.

7. For each route group the number of airlines and the percentage of traffic represented by these airlines are shown in Table Al.2. In terms of available seat-kilometres representation of revenue and cost data is at or above 70 per cent for 13 of the 17 route groups. For all route groups the revenue and cost data are considered sufficiently representative to justify presentation of results, although in the case of routes "between and within Central America and the Caribbean" and in "local Africa" the results need to be interpreted with some caution (see Appendix 2 concerning margins of uncertainty).

8. The coverage of revenue data for non-scheduled passenger operations is shown in Table Al.3 and the coverage of revenue data for scheduled freight and mail services is shown in Table Al.4.

REPRESENTATIVE NATURE OF REVENUE AND COST DATA FOR
SCHEDULED PASSENGER OPERATIONS, 1985

TABLE A1.1

REPRESENTATION BY ICAO REGION OF AIRLINE REGISTRATION

Region	Revenue Data Represent				Cost Data Represent		
	International Scheduled Available Seat-Kilometres (millions)	Number of airlines	Available seat-kilometres		Number of airlines	Available seat-kilometres	
			No. (millions)	% of total		No. (millions)	% of total
ALL	905 476	85	749 314	83	81	740 799	82
Africa	49 248	14	25 134	51	12	21 234	43
Asia/Pacific	218 255	16	182 227	83	16	182 227	83
Europe	324 989	21	277 873	86	20	273 347	84
Middle East	58 662	4	29 647	51	4	29 647	51
North America	193 171	14	188 275	97	13	188 187	97
Central America/ Caribbean	27 563	8	20 153	73	8	20 153	73
South America	33 588	8	26 005	77	8	26 005	77

Source: ICAO, Form A-1.

TABLE A1.2
 REPRESENTATION BY INTERNATIONAL ROUTE GROUP

Route Groups (short title)	Revenue Data Represent		Cost Data Represent	
	Number of airlines	% of total scheduled seat-kilometres	Number of airlines	% of total scheduled seat-kilometres
I. <u>All World International Routes</u>	85	83	81	82
II. <u>International Route Groups:</u>				
1. North-Central America	10	75	9	75
2. Central America	6	66	6	66
3. North America	12	85	12	85
4. North-South America	17	90	17	90
5. South America	8	65	8	65
6. Europe	19	76	18	74
7. Middle East	6	64	6	64
8. Africa	12	66	10	55
9. Europe-Middle East	22	71	21	70
10. Europe-Africa	31	67	28	62
11. North Atlantic	36	92	33	92
12. Mid Atlantic	12	73	12	73
13. South Atlantic	13	92	13	92
14. Asia/Pacific	18	71	18	71
15. Europe-Asia/Pacific	32	81	31	80
16. North/Mid Pacific	11	92	11	92
17. South Pacific	8	97	8	97

Source: Timetable Analysis.

TABLE A1.3

REPRESENTATIVE NATURE OF REVENUE DATA FOR NON-SCHEDULED PASSENGER OPERATIONS,
1985, BY ICAO REGION OF CARRIER REGISTRATION

Region	International Non-Scheduled Passenger-Kilometres Performed (millions)			Revenue Data Represent								
				All Carriers			International Scheduled Airlines			Other Carriers		
	By all carriers	By inter- national scheduled airlines	By other carriers	Number of carriers	Passenger-kilometres passenger		Number of carriers	Passenger-kilometre performed		Number of carriers	Passenger-kilometre performed	
					No. (millions)	% of total		No. (millions)	% of total		No. (millions)	% of total
ALL	112 813	45 093	67 720	64	34 647	31	50	11 467	25	14	23 180	34
Africa	2 684	2 683	1	10	1 188	44	10	1 188	44	-	-	-
Asia/Pacific	2 063	1 834	229	11	1 168	57	11	1 168	64	-	-	-
Europe	91 059	29 074	61 985	25	27 863	31	14	5 994	21	11	21 869	35
Middle East	1 590	1 590	<u>1</u>	1	3	<u>1</u>	1	3	<u>1</u>	-	-	-
North America	13 934	8 639	5 295	8	3 436	25	7	2 231	26	1	1 205	23
Central America/ Caribbean	960	960	<u>1</u>	3	217	23	3	217	23	-	-	-
South America	523	314	209	6	272	52	4	166	53	2	106	51

Source: ICAO, Forms A-1 and A-2.

Note: 1. Less than 0.5 million.

TABLE A1.4

REPRESENTATIVE NATURE OF REVENUE DATA FOR SCHEDULED FREIGHT AND MAIL SERVICES,
1985, BY ICAO REGION OF AIRLINE REGISTRATION

Region	International Scheduled Freight Tonne-Kilometres Performed (millions)	Freight Revenue Data Represent			International Scheduled Mail Tonne-Kilometres Performed (millions)	Mail Revenue Data Represent		
		Number of airlines	Tonne-kilometres performed			Number of airlines	Tonne-kilometres performed	
			No. (millions)	% of total			No. (millions)	% of total
ALL	29 412	86	25 076	85	1 858	79	1 681	90
Africa	1 092	14	541	50	45	14	23	51
Asia/Pacific	8 589	16	7 154	83	299	15	263	88
Europe	11 589	21	10 868	94	743	19	652	88
Middle East	1 808	4	627	35	54	4	39	72
North America	4 841	13	4 754	98	665	13	663	100
Central America/ Caribbean	198	7	159	80	10	6	6	60
South America	1 295	11	973	75	42	8	35	83

Source: ICAO, Form A-1.

APPENDIX 2

METHOD OF ANALYSIS AND MARGINS OF UNCERTAINTY

Method of Analysis

1. General. Data sources in general are discussed in Appendix 1. All airline financial data were initially adjusted where necessary to represent the calendar year 1985, and converted where necessary from local currency to United States dollars. For currency conversions, use was made of the exchange rates provided by States in their reply to the questionnaires. In those cases where an exchange rate was not supplied the average monthly exchange rates for 1985 published in the United Nations Monthly Bulletin of Statistics were used.

2. Prior to detailed analysis all financial and operational data were verified (a) as to mutual consistency and as to consistency with data for previous years, (b) with information provided on statistical reporting forms regularly submitted to ICAO, and (c) with data obtained from a computer analysis of published timetable material (see Appendix 1).

3. Analysis of available revenue data. Scheduled and/or non-scheduled passenger, freight and mail revenues for each international route group, together with corresponding volumes of traffic and capacity, as well as incidental revenues attributable directly to international scheduled services were obtained for individual carriers directly from the revenue questionnaires designed for this purpose (facsimiles of the revenue and the cost questionnaires are included in Appendix 3). This information for individual carriers was aggregated for each route group to obtain weighted average revenues per passenger-kilometre and per seat-kilometre (for passenger traffic) or per tonne-kilometre performed (for freight and mail traffic). In the case of scheduled operations the data for individual airlines, and hence the average unit revenues, include allowance for discounts, pro-rates, etc., but generally exclude deductions for commission payments.

4. Analysis of available cost data. Cost data are obtained and analysed only for international scheduled passenger airlines. While most scheduled (and non-scheduled) carriers maintain revenue and traffic data on a route by route and/or route group basis, far fewer maintain cost data in a correspondingly disaggregated form. Hence, in order to present data which are generally representative of scheduled passenger airline operations in each region of the world, and at the same time minimize the reporting burden on States and their airlines, a questionnaire was designed in which the requirement for disaggregation of system-wide operating costs was both sparing and in line with practices followed by a majority of airlines. The cost data obtained for individual airlines through this questionnaire were subsequently allocated by the Secretariat among route groups (as necessary, that is where an airline operated on more than one route group) using the analysis of published timetable material.

TABLE A2.1

PROCEDURES USED TO ALLOCATE INDIVIDUAL AIRLINE COSTS
AMONG ROUTE GROUPS

<u>Category of Costs</u>	<u>Cost Item¹</u>	<u>Airline Data Input to the Study</u>	<u>Cost Allocation Criteria</u>
A. Costs Related Primarily to Aircraft Type	I.1 Flight operation expenses, excluding fuel and oil costs	System-wide costs and system-wide block hours flown for each aircraft type operated	I.1 - I.4 Number of block hours flown by each aircraft type on each route group
	I.2 Aircraft maintenance and overhaul expenses		
	I.3 Aircraft depreciation and amortization costs		
	I.4 Interest charges on aircraft		
B. Costs Related Significantly both to Aircraft Type and Geographical Area of Operation	II.1 Aircraft fuel and oil costs	Either: a) Costs by geographical area of operation, or b) Costs by route group (no allocation to route group necessary), or c) Costs by aircraft type	II.1 Fuel consumption by each aircraft type in each area of operation
	II.2 Landing and associated airport charges		II.2 Maximum take-off weight times number of departures for each aircraft type in each area of operation
	II.3 En-route facility charges		II.3 Maximum take-off weight times number of block hours flown for each aircraft type in each area of operation
	II.4 Other station expenses		II.4 Maximum payload times number of departures for each aircraft type in each area of operation
C. Costs Related Significantly to Volume of Traffic or Volume of Capacity	III.1 Passenger service costs	System-wide costs	III.1 Number of seat-hours on each route group
	III.2 Commission payments		III.2 Total revenue earned from each route group
	III.3 Other ticketing, sales and promotion costs		III.3 Total revenue earned from each route group
	III.4 General and administrative expenses		III.4 - IV.1 Number of tonne-kilometres performed in each route group
	III.5 Miscellaneous operating expenses		
	IV.1 Balance of miscellaneous non-operating items (excluding payments from public funds & balance of income from affiliated companies)		

Note:

1. Cost item references (I.1, I.2, etc.) are those used in the cost questionnaire (see Appendix 3). The items themselves are described in the Reporting Guidelines on the verso of the cost questionnaire.

5. The cost data obtained for an individual airline, and the procedures used for allocating these costs among the route groups on which the airline operated, may be divided into three broad categories, as shown in Table A2.1. Firstly (A) operating costs which for a given airline and a given aircraft type may, for this purpose, be considered as independent of where the aircraft is flying. Secondly (B) operating costs which are significantly related both to aircraft type and to geographical area of operation. And thirdly (C) operating costs and pertinent non-operating items which may be related only in part to aircraft type or to the region in which they are incurred, but which are related significantly to the volume of traffic or the volume of capacity in each route group.

6. Costs in the first category (A) were obtained from the data for each airline as an average system-wide cost per aircraft block hour for each aircraft type used in international scheduled service. The costs for each route group were calculated according to the number of block hours flown by each aircraft type on that route group.

7. Costs in the second category (B) were recorded for each airline by route group or by geographical area (or in a few instances by aircraft type). Where recorded by area or by aircraft type, data were adapted to obtain corresponding data by route group using appropriate operational criteria (such as consumption in the case of "aircraft fuel and oil"). The relationships between route groups, geographical areas and aircraft types in terms of operational data were available from the computer analysis of timetable material.

8. Costs in the third category (C) were recorded as system-wide totals for the operations of each airline. These costs were disaggregated into route group costs using a suitable allocation parameter for each cost item. The allocation parameter devised for each item bears a direct or indirect relationship with the volume of traffic or capacity in each route group. In the case of "Commission payments" and "Other ticketing, sales and promotion costs", the allocation parameter used is the total revenue earned from each route group, thereby including effects both from traffic and from regional differences in revenue yields (and hence regional differences in ticketing, sales and promotion costs).

9. For some airlines, cost data within the three categories were reported relating to domestic operations and/or international non-scheduled operations as well as to international scheduled operations. Such costs associated with domestic and non-scheduled operations were subtracted using the same allocation procedures as were used to distribute costs among route groups.

10. As far as data for individual airlines were concerned, total costs for the scheduled international passenger flights in each route group were estimated by summing the itemized costs allocated to the route group. Finally, costs allocable to the carriage of freight and mail on passenger flights were deducted from these total costs to arrive at passenger costs. For this purpose it was assumed that the cost of carriage of freight and mail on passenger and combination aircraft on a route group was equal to the freight and mail revenue from operations of these aircraft.

11. Estimates of revenues and costs for airlines for which financial data were not available. The procedures described above lead to the production of total revenues and (for international scheduled passenger traffic) total costs on each route group by airline region of registration for all those carriers for which the basic financial data were available. In most cases, this financial data base did not include all carriers operating. However, for scheduled passenger traffic, estimated revenues and costs presented in this study are formulated to cover all airlines operating on each route group.

12. In the case of revenues the reported average revenue yield per passenger-kilometre for airlines registered in the same region within each route group has been applied to the total revenue passenger-kilometres for all airlines registered in that region operating on the route group.

13. In the case of costs the estimates for non-reported airlines have been based on cost data for reported airlines from the same region of registration for the route group, but also take into account differences in the operating characteristics of the two groups of airlines concerned (including differences in load factors). With respect to the costs in category A (see Table A2.1), the average costs per block hour for the aircraft of airlines for which cost data were available were applied to the hours flown by the same aircraft types by non-reported airlines from the same region of registration, thus taking into account differences in aircraft fleet, in block speed and in seating configuration. Costs in the categories B and C were similarly estimated on the basis of criteria parallel to those used in allocating costs of individual airlines among route groups.

14. For some route groups where airlines of a particular region have a very low representation (such as Africa), estimates were included of the revenues and costs of major non-reported airlines on the basis of data provided for previous studies as well as data regularly collected for ICAO Digests of Statistics.

Margins of Uncertainty

15. General. It is important to recognize that the revenue and cost data presented in this Circular are not perfectly defined quantities, but involve margins of uncertainty. Such margins of uncertainty are inherent in any presentation of airline financial data which covers a multiplicity of currencies, which involves disaggregation of system-wide revenues and costs, or which has an incomplete data base. Hence an important feature of the method used in this series of studies has been to identify and evaluate the various sources of uncertainty for the purpose of establishing the degree of precision in the published data and hence the constraints on drawing conclusions from these data. The evaluations concerned were carried out by means of statistical analysis of detailed airline data and by means of tests as to the sensitivity of the published data to the procedures used in the study. The resulting assessments of margins of uncertainty in average unit revenues, average unit costs and average revenue/cost ratios published in this study for scheduled passenger traffic in 1985 are presented below.

16. Estimates of unit revenues. The margin of uncertainty on the estimated unit revenues for a route group arises from limitations on the quality of reported data, from exchange rate fluctuations and, for scheduled passenger traffic, from the assumption that the average yield for non-reported airlines is the same as that for reported airlines on the same route group. An analysis was carried out to evaluate each of these sources of uncertainty and their cumulative effect, thus producing composite margins of uncertainty for the various route groups. The conclusion was that the estimated scheduled passenger revenue per passenger-kilometre for almost all the route groups presented can be relied upon to + 6 per cent, except for routes "between and within Central America and the Caribbean" and in "local Africa" which fall just outside this range. A significantly narrower margin of uncertainty applies for those route groups where the representation was relatively high. On a global basis, taking into account all route groups as a whole, the margin of uncertainty is reduced by compensatory effects and by scale, and is estimated at + 3 per cent.

17. Estimates of unit costs. The estimates of unit passenger costs for a route group contain similar elements of uncertainty as those for passenger revenues, plus further elements which arise from the need to allocate costs among route groups according to standardized procedures. These additional sources of uncertainty arise because:

- a) the generic nature of some cost items (for example general administrative costs) makes their allocation among route groups a matter of convention; and
- b) even for those cost items which are region or route-specific, the standardized allocation procedures do not take into account the detailed conditions under which individual airlines operate.

18. As for the revenue data, a composite margin of uncertainty was developed in respect of the average unit costs for each route group and for all route groups together. The margin of uncertainty on the estimated scheduled passenger costs per passenger-kilometre for each route group presented is considered to be within + 10 per cent. Costs for routes "between and within Central America and the Caribbean" fall just outside this range, while those for route groups with high representation show a somewhat narrower margin of uncertainty. On a global basis, taking into account all route groups as a whole, the margin of uncertainty in the average costs per passenger-kilometre is estimated at + 5 per cent.

19. On route groups where the margin of uncertainty approaches + 10 per cent the contribution of different sources of uncertainty is approximately as follows:

<u>Source of uncertainty</u>	<u>Relative contribution to margin of uncertainty</u>
Incomplete cost data base	3
Generic nature of certain costs and use of standardized allocation procedures	3
Fluctuations in currency exchange rates	2
Other (primarily imperfections in reported data)	2
	10
All	10

20. Much of the uncertainty arising from the generic nature of certain costs is inherent and cannot be influenced (see paragraph 17), and little can be done to reduce the uncertainty arising from fluctuations in currency exchange rates. A major factor in these studies is therefore getting as much coverage of financial data as possible, while at the same time making efforts to improve the quality of reported data.

21. All the above estimates of uncertainty apply only to over-all average cost data (as presented in Table III.1 of Chapter III). Estimates of individual elements making up the over-all cost are in a number of cases subject to wider margins of uncertainty.

22. Estimates of revenue/cost ratios. The estimated ratios of revenues to costs have margins of uncertainty which vary from route group to route group depending on the margins of uncertainty in the estimated revenue and cost data. It should be noted, however, that the uncertainties in the revenue and cost figures for a route group are to some extent inter-dependent; in other words, if the revenue on a route group is over-estimated, the cost figure is also probably over-estimated. This circumstance reduces the margin of uncertainty in the revenue/cost ratios compared with those for either the revenue data alone or the cost data alone. The composite margin of uncertainty for the revenue/cost ratio for individual route groups in this study is estimated at + 5 per cent, and for all the route groups together it is estimated at $+ 2 \frac{1}{2}$ per cent.

APPENDIX 3

QUESTIONNAIRES RELATING TO REVENUES AND COSTS

I. Facsimiles of Questionnaires and Attachments

QUESTIONNAIRE ON REVENUES OF INTERNATIONAL SCHEDULED AND NON-SCHEDULED AIR CARRIERS

(Reporting Guidelines and Route Group Descriptions Overleaf)

CARRIER NAME: _____ CALENDAR PERIOD: _____ 12 MONTHS FROM _____ TO _____ REPORTING CURRENCY (US\$ OR NATIONAL): _____ EXCHANGE RATE BETWEEN NATIONAL CURRENCY AND THE US DOLLAR _____ DURING PERIOD: 1 US\$ = _____	TOTAL ALL SERVICES (DOMESTIC PLUS INTERNATIONAL)	TOTAL DOMESTIC SERVICES	TOTAL INTERNATIONAL SERVICES (TOTAL FOR ROUTE GROUPS 1 TO 17)	INTERNATIONAL SERVICES BY ROUTE GROUP																
				1 Between North America and Central America/Caribbean	2 Between and within Central America and the Caribbean	3 Between Canada, Mexico and the United States	4 Between North America/Central America/Caribbean and South America	5 Local South America	6 Local Europe	7 Local Middle East	8 Local Africa	9 Between Europe and Middle East	10 Between Europe/Middle East and Africa	11 North Atlantic	12 Mid Atlantic	13 South Atlantic	14 Local Asia/Pacific	15 Between Europe/Middle East/Africa and Asia/Pacific	16 North and Mid Pacific	17 South Pacific
SECTION I - SCHEDULED SERVICES																				
I.1 Revenue																				
a) passenger traffic (including excess baggage)																				
b) freight traffic																				
c) mail traffic																				
d) other																				
I.2 Corresponding Volume of Traffic and Capacity																				
a) passenger-kilometres (millions)																				
b) seat-kilometres (millions)																				
c) freight tonne-kilometres performed (millions)																				
d) mail tonne-kilometres performed (thousands)																				
e) available tonne-kilometres (millions)																				
I.3 All-Cargo Services Only (Included in I.1 and I.2 above)																				
a) revenue (total)																				
b) tonne-kilometres performed (millions)																				
SECTION II - NON-SCHEDULED OPERATIONS																				
II.1 Revenue																				
a) passenger traffic																				
b) freight traffic																				
II.2 Corresponding Volume of Traffic and Capacity																				
a) passenger-kilometres (millions)																				
b) seat-kilometres (millions)																				
c) freight tonne-kilometres performed (millions)																				
d) available tonne-kilometres (millions)																				
Remarks (Include description of any deviations from Reporting Guidelines and Route Group Descriptions overleaf.)																				

REPORTING GUIDELINES

GENERAL

- a) This questionnaire is to be returned completed by ICAO Contracting States for each of their major international scheduled and non-scheduled air carriers (including any all-cargo carriers). The material provided will not be made public in such a way as to permit identification of individual operators. Information provided should be the total amount for a 12-month period as close as possible to the calendar year specified in the covering State Letter, with the period being identified in the space provided. It is recognized that, in order for your reply to reach ICAO by the date indicated in the State Letter, final audited financial data may not be available, but preliminary data are acceptable.
- b) Data for all-cargo aircraft operations should be included in the relevant sections of the questionnaire. Data for scheduled services with such aircraft should be included in Items I.1 and I.2, and specified under I.3 if possible.
- c) Financial data may be provided either in terms of national currency or in terms of U.S. dollars. In either case the weighted average annual exchange rate used or to be applied to convert national currency into U.S. dollars should be specified in the space provided.
- d) A brief description of each financial data item is given below; for more detailed definitions see the Instructions for completion of ICAO Air Transport Reporting Form EF-1, for airline Financial Data. For definitions of traffic and capacity data items see ICAO Air Transport Reporting Form A-1 for airline Traffic data.
- e) Descriptions of the route groups, which are based on those used by IATA's Cost Committee, are also given below, followed by guidelines on allocating data amongst them.

SECTION I - SCHEDULED SERVICES

For Items I.1 a) to I.1 c) and I.3 a) report gross revenues related to scheduled flights before capacity equalization payments arising from pooled services and from the sale of own capacity to other carriers.

For Item I.1 d) Other revenue is intended to include on a net basis capacity equalization payments arising from pooled services and from the sale of own capacity to other carriers; and on a gross basis (with related expenses reported under the relevant expense item, indicate where different) incidental revenues accruing from air transportation services such as revenues from passengers paying less than 25 per cent of the normal applicable fare; commissions received on sales of transportation on other carriers; "no-show" and cancellation fees. Exclude revenue accruing from the provision of services other than for air transportation, such as for surface transportation; food services; service and maintenance sales; handling services for third parties; and property.

SECTION II - NON-SCHEDULED OPERATIONS

Include revenue derived from all non-scheduled flights performed for remuneration, including empty flights related thereto, when the responsibility for the performance of transportation is that of the carrier reported.

DESCRIPTIONS OF ROUTE GROUPS

1. Between North America and Central America/Caribbean

Includes routes between on the one hand Canada and/or the United States (including Alaska and Hawaii) and on the other hand Central America and the Caribbean. Routes between the United States and Puerto Rico/Virgin Islands are considered domestic and are excluded. Central America/Caribbean is defined as the geographical area covered by route group 2 below but excluding Mexico.

2. Between and within Central America and the Caribbean

Includes routes between or among the Bahamas, Belize, Bermuda, Costa Rica, El Salvador, Guatemala, Honduras, the islands of the Caribbean Sea (including Puerto Rico and the Virgin Islands), Mexico, Nicaragua and Panama.

3. Between Canada, Mexico and United States

Includes routes between or among the above States. The United States includes Alaska and Hawaii but excludes Puerto Rico and the Virgin Islands.

4. Between North America/Central America/Caribbean and South America

Includes routes between the geographical areas defined on the one hand by route group 1 and/or Mexico and on the other hand by route group 5 ("Local South America").

5. Local South America

Includes routes between or among the following States: Argentina, Bolivia, Brazil, Chile, Colombia (including San Andres Islands), Ecuador, Falkland Islands (Malvinas), French Guiana, Guyana, Paraguay, Peru, Suriname, Uruguay and Venezuela.

6. Local Europe

Includes routes between or among the States of geographical Europe, Algeria, Azores, Canary Islands, Greenland, Iceland, Madeira, Malta, Morocco, Tunisia and Turkey.

7. Local Middle East

Includes routes between or among the following States: Bahrain, Cyprus, Democratic Yemen, Egypt, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Sudan, Syrian Arab Republic, United Arab Emirates and Yemen.

8. Local Africa

Includes routes between or among the States of continental Africa and offshore islands, but excluding Algeria, Azores, Canary Islands, Egypt, Madeira, Malta, Morocco, Sudan and Tunisia.

9. Between Europe and Middle East

Includes routes between the two geographical areas defined by route group 6 ("Local Europe") and route group 7 ("Local Middle East") respectively.

10. Between Europe/Middle East and Africa

Includes routes between on the one hand the geographical areas defined by route group 6 ("Local Europe") and/or route group 7 ("Local Middle East") and on the other hand the geographical area defined by route group 8 ("Local Africa").

11. North Atlantic

Includes routes between on the one hand Canada and/or the United States (including Alaska and Hawaii) and on the other hand the geographical areas defined by IATA Tariff Conference 2 ("Local Europe" and/or "Local Middle East" and/or "Local Africa").

12. Mid Atlantic

Includes routes between on the one hand gateway points in the geographical areas defined by route group 2 and/or route group 5 ("Local South America") but north of Rio de Janeiro and on the other hand the geographical areas defined by IATA Tariff Conference 2 ("Local Europe" and/or "Local Middle East" and/or "Local Africa").

13. South Atlantic

Includes routes between on the one hand Rio de Janeiro or any other gateway south thereof in route group 5 ("Local South America") and on the other hand the geographical areas defined by IATA Tariff Conference 2 ("Local Europe" and/or "Local Middle East" and/or "Local Africa").

14. Local Asia/Pacific

Includes IATA Tariff Conference 3, that is international routes within Asia to the east of the Islamic Republic of Iran and of the Ural Mountains, Australia, New Zealand, Papua New Guinea, the islands of the Pacific Ocean excluding the Hawaiian Islands, Midway and Palmyra.

15. Between Europe/Middle East/Africa and Asia/Pacific

Includes routes between the geographical areas defined by IATA Tariff Conference 2 on the one hand and that defined by IATA Tariff Conference 3 on the other hand.

16. North and Mid Pacific

Includes routes via the North and Central Pacific Ocean between on the one hand points in the Americas (that is IATA Tariff Conference 1) and on the other hand Asia and/or the islands adjacent thereto (that is IATA Tariff Conference 3 ~~except~~ Australia, New Zealand, Papua New Guinea and the islands of the South Pacific).

17. South Pacific

Includes routes via the South Pacific Ocean between on the one hand points in the Americas (that is IATA Tariff Conference 1) and on the other hand Australia, New Zealand, Papua New Guinea and the islands of the South Pacific.

ALLOCATION TO ROUTE GROUPS

All data referring to domestic legs of international operations should be included as international in data for the route group concerned. Any service with a single flight number should be allocated to the route group which covers travel from the point of origin to the point of destination. For example, a flight Zurich-Geneva-Abidjan-Dakar should be reported as a Europe/Middle East-Africa flight (in route group 10) and not split between domestic, Europe-Africa and Local Africa. Specify all reporting differences.

Also specify any services which fall into more than one route group, including the criterion used for allocating data amongst the route groups concerned.

QUESTIONNAIRE ON COSTS INCURRED BY INTERNATIONAL SCHEDULED AIR PASSENGER CARRIERS

(Reporting Guidelines and Geographical Descriptions Overleaf)

CARRIER NAME: _____		CALENDAR PERIOD: 12 MONTHS FROM _____ TO _____						
REPORTING CURRENCY (US\$ OR NATIONAL): _____		TOTAL AMOUNTS FOR CALENDAR PERIOD						
EXCHANGE RATE BETWEEN NATIONAL CURRENCY AND THE US DOLLAR DURING PERIOD: 1 US\$ = _____								
SECTION I - EXPENSES AND OPERATING DATA BY AIRCRAFT TYPE AIRCRAFT TYPE)..... See General Note b) above and check box(es) if cost data in this Section include: Domestic <input type="checkbox"/> Non-Scheduled <input type="checkbox"/> 1.1 Flight operations expenses, <u>excluding fuel and oil costs</u> 1.2 Maintenance and overhaul expenses..... 1.3 Depreciation and amortisation costs..... 1.4 Interest charges..... 1.5 Revenue block hours: a) operated on international scheduled services..... b) operated on international non-scheduled services..... c) operated on domestic services..... d) total all services.....								
SECTION II - OPERATING EXPENSES BY GEOGRAPHICAL AREA AREA (OR ROUTE) GROUP)..... See General Note b) above and check box(es) if data in this Section include: Domestic <input type="checkbox"/> Non-Scheduled <input type="checkbox"/> II.1 Aircraft fuel and oil..... II.2 Landing and associated airport charges..... II.3 Route facility charges II.4 Station expenses		NORTH AMERICA	CENTRAL AMERICA/ CARIBBEAN	SOUTH AMERICA	EUROPE	MIDDLE EAST	AFRICA	ASIA/ PACIFIC
SECTION III - OTHER OPERATING EXPENSES See General Note b) above and check box(es) if data in this Section include: Domestic <input type="checkbox"/> Non-Scheduled <input type="checkbox"/> III.1 Passenger services (including cabin attendants)..... III.2 Commission payments III.3 Other ticketing, sales and promotion III.4 General and administrative III.5 Miscellaneous operating expenses		Remarks (Include description of any deviations from Reporting Guidelines and Geographical Descriptions overleaf.)						
SECTION IV - BALANCE OF MISCELLANEOUS NON-OPERATING ITEMS (Note: + = revenue, - = expense)								
TOTAL - SECTIONS I TO IV								

GENERAL

- a) This questionnaire is to be returned completed by ICAO Contracting States for each of their airlines that provide international scheduled air passenger services. The material provided will not be made public in such a way as to permit identification of individual operators. Information provided should be the total amount for a 12-month period as close as possible to the calendar year specified in the covering State Letter, with the period being identified in the space provided. It is recognized that, in order for your reply to reach ICAO by the date indicated in the State Letter, final audited financial data may not be available, but preliminary data are acceptable. Similarly, if full information is not available for any Section of the questionnaire, partial and/or aggregated data would be appreciated.
- b) All data provided should preferably refer only to international scheduled services. Should carriers not be able to break out such information separately, the domestic and/or non-scheduled data should be included; the appropriate box(es) at the beginning of each Section should then be checked. Data referring to domestic legs of international services should be included as international. Indicate any exceptions.
- c) Financial data may be provided either in terms of national currency or in terms of U.S. dollars. In either case the weighted average annual exchange rate used or to be applied to convert national currency into U.S. dollars should be specified in the space provided.
- d) All expense, revenue and operating data relating to freight and mail, including those for all-cargo aircraft operations, should be included where relevant in the questionnaire. Expenses incurred for the provision of services to other airlines such as maintenance, handling and catering should be excluded.
- e) A brief description of each data item is given below. More detailed definitions of financial data items are given in the Instructions for completion of ICAO Air Transport Reporting Form EP-1, for airline Financial Data.

SECTION I - EXPENSES AND OPERATING DATA BY AIRCRAFT TYPE

Report for all aircraft types used, whether combination of all-cargo, using model designation (e.g. A300-B4, DC10-30CF, Boeing 747-200P).

- I.1 Flight operation expenses, excluding fuel and oil costs. This item comprises flight crew salaries and expenses, flight equipment insurance, rental of flight equipment (excluding any payments made under aircraft capital or finance lease arrangements), flight crew training, and other flight expenses excluding those covered by Items I.2, I.3, I.4 and II.1.
- I.2 Maintenance and overhaul expenses. Include here all expenses incurred for the repair, overhaul and maintenance of flight equipment, including payments to outside contractors and manufacturers. Exclude expenses incurred for the provision of maintenance and overhaul services to other airlines.
- I.3 Depreciation and amortization costs. Incorporate all such costs relating to flight equipment, including depreciation charges for aircraft acquired through capital or finance lease arrangements. Depreciation of ground property and equipment should be included if possible under the appropriate headings or in Item III.5.
- I.4 Interest charges. Include here gross interest charges on loans for the purchase of flight equipment, including the interest element of aircraft financing leases. Interest charges on other loans or overdrafts should be reported net under Item III.5.
- I.5 Revenue block hours. Provide data by aircraft type wherever possible, even where disaggregated cost data for this Section are not available.

SECTION II - OPERATING EXPENSES BY GEOGRAPHICAL AREA

Geographical Areas are described below. Data for this Section may alternatively be reported by route group in accordance with the descriptions appearing in the associated questionnaire on revenues (in which case please specify each route group).

- II.1 Aircraft fuel and oil. Include through-put charges, non-refundable duties and taxes.
- II.2 Landing and associated airport charges. Include all charges and fees related to air traffic operations which are levied against the airline for services provided at the airport for landing charges, passenger and cargo fees, security, parking and hangar charges.

II.3 Route facility charges. Include all fees levied against the airline for the provision of route facilities and services. Where a single charge is levied for both airport and route facilities, the amount should be reported under Item II.2.

II.4 Station expenses. Include all expenses incurred (passenger and/or cargo) for traffic handling and aircraft loading and servicing, including payments to outside contractors. Exclude expenses incurred for sales staff at airports (to be included under Item III.3) and for the handling and servicing of traffic and aircraft of other airlines.

SECTION III - OTHER OPERATING EXPENSES

III.1 Passenger services. Include all expenses incurred for the provision of passenger services (including pay, allowances and expenses of cabin attendants and other passenger service personnel); premiums for passenger liability and accident insurance paid by the airline; expenses of handling passengers incurred because of cancelled and delayed flights. Exclude expenses incurred for the provision of passenger services to other airlines.

III.2 Commission payments. Include commissions payable to third parties for the sale of transportation on the airline's services, preferably on a gross basis (specify where different).

III.3 Other ticketing, sales and promotion. Include all expenses related to these three functions, including staff, accommodation, reservations, and advertising/publicity.

III.4 General and administrative. Include all expenses incurred in performing the general and administrative functions of the airline. Overhead costs directly related to specific functions should preferably be allocated elsewhere under the appropriate heading.

III.5 Miscellaneous operating expenses. Include all operating expenses which could not be assigned elsewhere in Sections I to III. Include here net interest charges on loans and overdrafts not related to the purchase of flight equipment (see Item I.4).

SECTION IV - BALANCE OF MISCELLANEOUS NON-OPERATING ITEMS

Include profits and losses from retirement of property and equipment, foreign exchange transactions, and miscellaneous non-operating items. Exclude payments from public funds and balance of income from affiliated companies.

DESCRIPTIONS OF GEOGRAPHICAL AREAS**North America**

Canada and United States, including Hawaii and Alaska but excluding Puerto Rico and the Virgin Islands.

Central America/Caribbean

Bahamas, Belize, Bermuda, Costa Rica, El Salvador, Guatemala, Honduras, the islands of the Caribbean Sea (including Puerto Rico and the Virgin Islands), Mexico, Nicaragua and Panama.

South America

Argentina, Bolivia, Brazil, Chile, Colombia (including San Andres Islands), Ecuador, Falkland Islands (Malvinas), French Guiana, Guyana, Paraguay, Peru, Suriname, Uruguay and Venezuela.

Europe

Geographical Europe and Algeria, Azores, Canary Islands, Greenland, Iceland, Madeira, Malta, Morocco, Tunisia and Turkey.

Middle East

Bahrain, Cyprus, Democratic Yemen, Egypt, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Sudan, Syrian Arab Republic, United Arab Emirates and Yemen.

Africa

The continent of Africa and offshore islands, but excluding Algeria, Azores, Canary Islands, Egypt, Madeira, Malta, Morocco, Sudan and Tunisia.

Asia/Pacific

IATA Tariff Conference 3 (includes Asia to the east of the Islamic Republic of Iran and of the Ural Mountains, Australia, New Zealand, Papua New Guinea and the islands of the Pacific Ocean excluding the Hawaiian Islands, Midway and Palmyra).

II. Respondents to Questionnaires

(Contracting States that provided replies to the air carrier revenue and cost questionnaires issued under cover of State Letter EC 2/20.3.2-86/56 dated 27 May 1986).

Algeria, Antigua and Barbuda, Argentina, Australia, Austria, Bangladesh, Barbados, Belgium, Bolivia, Brazil, Cameroon¹, Canada, Chile, Colombia, Costa Rica, Cyprus, Czechoslovakia, Denmark¹, Ecuador, Egypt, Ethiopia, Fiji, Finland, France, Federal Republic of Germany, Ghana, Greece, Gulf States, India, Indonesia, Islamic Republic of Iran, Ireland, Italy, Japan, Kenya, Kuwait, Lebanon, Lesotho, Madagascar, Malawi, Malta, Mauritius, Mexico, Morocco, Mozambique, Nepal, Kingdom of the Netherlands, New Zealand, Nigeria¹, Pakistan, Panama, Peru, Philippines, Portugal, Republic of Korea, Rwanda, Saudi Arabia, Singapore, Spain, Sri Lanka, Sweden, Switzerland, Thailand, Trinidad and Tobago, United Kingdom, United Republic of Tanzania, United States, Vanuatu², Yaoundé Treaty States, Yemen, Yugoslavia¹, Zimbabwe.

Notes:

1. Only revenue data, no cost data provided for the scheduled passenger airline concerned.
2. Only cost data, no revenue data provided for the scheduled passenger airline concerned.

- END -

ICAO PUBLICATIONS IN THE AIR TRANSPORT FIELD

The following summary gives the status and also describes in general terms the contents of the various series of publications in the air transport field issued by the International Civil Aviation Organization:

International Standards and Recommended Practices on Facilitation (*designated as Annex 9 to the Convention*) which are adopted by the Council in accordance with Articles 37, 54 and 90 of the Convention on International Civil Aviation. The uniform observance of the specifications contained in the International Standards on Facilitation is recognized as practicable and as necessary to facilitate and improve some aspect of international air navigation, while the observance of any specification contained in the Recommended Practices is recognized as generally practicable and as highly desirable to facilitate and improve some aspect of international air navigation. Any differences between the national regulations and practices of a State and those established by an International Standard must be notified to the Council in accordance with Article 38 of the Convention. The Council has also invited Contracting States to notify differences from the provisions of the Recommended Practices;

Council Statements on policy relating to air transport questions, such as the economics of airports and en-route air navigation facilities, taxation and aims in the field of facilitation;

Digests of Statistics which are issued on a regular basis, presenting the statistical information received from Contracting States on their civil aviation activities;

Circulars providing specialized information of interest to Contracting States. They include regional studies on the development of international air passenger, freight and mail traffic and specialized studies of a world-wide nature;

Manuals providing information or guidance to Contracting States on such questions as airport and air navigation facility tariffs, air traffic forecasting techniques and air transport statistics.

Also of interest to Contracting States are reports of meetings in the air transport field, such as sessions of the Facilitation Division and the Statistics Division and conferences on the economics of airports and air navigation facilities. Supplements to these reports are issued, indicating the action taken by the Council on the meeting recommendations, many of which are addressed to Contracting States.

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