CHAPTER 2

Chapter 2

HISTORICAL PERSPECTIVES OF CIVIL AVIATION IN INDIA

2.1 INTRODUCTION

To understand the present structure of the Indian Airlines, it would be useful to start with a brief history[1] of the development of the commercial air transport in India. This is because several events occurred in past with regards to the Indian commercial air transport have moulded the present shape of domestic airlines industry.

In the present chapter, therefore, the evolution of the Indian civil air transport is discussed. The entire historical discussion is divided into pre-nationalisation and post-nationalisation periods. The pre-nationalisation period has been further divided into three periods, viz. 1911-31, 1932-45 and 1946-52. Similarly, the post-nationalisation period has been divided into two periods - period prior to 1964-65, which is the beginning year of the present study and 1964-65 onwards. An overview of the performance of Indian Airlines after nationalisation is provided with the help of various physical and financial indicators.

2.2 PRE-NATIONALISATION PERIOD

2.2.1 Period – 1911 to 1931

The first commercial flight in India took place on 18th February 1911, when a Frenchman, Monseigneur Piguet flew the airmail from Allahabad to Naini, covering a distance of about ten kilometres, in about ten minutes. This event made India the first country in the world to start airmail services.[2] However, this service could not be continued due to the lack of interest on the part of the then British Government of India

Soon after the First World War, the British Government presented about a hundred war surplus airplanes to India. With some of these planes, the 'Royal Air Force' (RAF) started a regular airmail service between Karachi and Bombay (with a night stop at Rajkot) from 24th January 1920. However, in view of the financial losses it incurred, this service had to be suspended after six weeks of operation.

Then gradually, the government took up the development of air transport seriously. In December, 1920 the government of British India created a post of chief inspector of aircraft, which was later converted into the post of Director of Civil Aviation in January, 1927. The government appointed Lt. Col. F. C. Shelmerdine as the first director and he was succeeded by Captain Sir Frederic Tymms. Rules and regulations regarding registration of aircraft, licensing of personnel etc. were spelt out in 1920. In the year 1924, the government started construction of civil aerodromes at Calcutta, Allahabad and Bombay. In the year 1926, an 'Air Board'

was created with a view to formulate government policies with regards to civil aviation. The board made the following main recommendations, which were later accepted by the government:

i) All landing grounds and their necessary equipment should be property of the Government of India.

ii) The Government of India should be consulted at all stages for any contract regarding external air services touching India and to participate as a principal in any such contract.

iii) As far as internal air services were concerned, the government should accept the principle of subsidising these services in the formative years.

It was a sheer coincidence that schedule commercial air transport came to India in 1929-30, when the British, the Dutch, and the French had extended their air routes to and across the Indian subcontinent. Regular airmail services were started in March 1929, by the 'Imperial Airways' from England to Karachi, which motivated the government of India as well to start 'Indian State Air Service', as a link between Karachi and Calcutta. However, due to heavy losses, it had to be abandoned later in the year 1931. As an alternative to this, government made contractual arrangement with Imperial Airways to link Karachi with Delhi. However, since it did not employ Indian capital, personnel and technician, the people considered it as un-Indian, which led to its closure also. This responsibility was then given to the newly formed 'Delhi Flying Club', which too had to go out of business soon as a result of heavy financial losses.

Thus, it can be observed that in spite of India having inaugurated the first mail flight in the world, it could not make much headway during this period. This could be attributed mainly to the lack of interest and the slow work towards the development of domestic air transport on the part of the then government.

2.2.2 Period – 1932 to 1939

Looking at the potential for the development of domestic commercial air transport, Nevill Vintcent and J. R. D. Tata worked out a scheme for air services between Karachi and Bombay via Ahmedabad, way back in the year 1929. But the then government, due to guarantee of Rupees one lakh asked by these two entrepreneurs during the first year of operation, rejected the scheme. Then these two entrepreneurs offered the same scheme to the government again with the reduced amount of guarantee of Rupees fifty thousand for the first year and Rupees twenty five thousand for the second year of operation. But the government rejected this scheme also Finally, they went to the government with an offer to start an air service with no strings attached. This time government did not find any reason for rejecting the scheme, and with this Tata Sons Ltd. took off in the year 1932.[3]

The first airmail flight of Tata Sons Ltd., piloted by J. R. D. Tata himself, took off from Karachi for Bombay via, Ahmedabad on 13th October 1932. Thereafter, the flight took off for Madras via Bellary, piloted by N. Vintcent. In addition to the above route, in the year 1935, Tata Sons Ltd. started operating a weekly service

between Bombay and Trivandrum via Goa and Cannnanore. In the year 1936, its Karachi - Madras route was extended to Colombo.

In the year 1933, a Delhi based company, 'Indian National Airways' (INA), was floated by Goven Grant, with the dual purpose of operating the services of its own and participating along with the Government of India. This airline started weekly passenger, mail and freight services between Calcutta and Rangoon, and between Calcutta and Dacca, with the De Havilland dragon aircraft. In the year 1934, the Indian National Airways also started a service between Lahore and Karachi for carrying postal airmails. Later, it also started airmail service between Delhi and Lahore.

The above two airlines worked consistently and their source of motivation was the distribution of airmails across India, brought by Imperial Airways from the British Empire. With the increased frequency of Imperial Airways services, these two airlines took the opportunity to increase their own frequencies across the Indian states

During this period, some new airlines joined the scenario. But for one reason or the other, they had to leave. Their mention will, nevertheless, be helpful in understanding the correct scenario of domestic airlines at that time.

In July 1933, 'Indian Trans-Continental Airways Ltd.' (ITCA) in collaboration with Imperial Airways started operating between Karachi and Calcutta via Jodhpur, Delhi, Kanpur, and Allahabad. ITCA continued its operation till 1941, when the government of India requisitioned its airplanes for war activities. From 10 February 1934, 'Madras Air Taxi' service was introduced between Madras and Calcutta via Puri The 'Himalayan Transport Company' was created in April 1935 to provide air services to pilgrims between Haridwar and Badrinath. In 1937, another new airline 'Air Services of India' joined the scene It operated its passenger services between Bombay and Kathiawar, and between Bombay and Kolhapur in the southeast India. The fares charged by these Airlines were too low to cover even their operating expenses. This resulted into their voluntary liquidation.

It can be noticed, therefore, that only two airlines - Tata Sons Ltd. and the Indian National Airways - could survive. These airlines were mostly engaged in transporting airmails across the Indian states, brought by the Imperial Airways.

In 1938, these two domestic airlines got further boost with the introduction of the 'Empire All - Up Air Mail scheme'. Under this scheme, all letters posted in one part of the British Empire and destined for another were to be carried by the air. As per the contract these two airlines had to extend their predetermined routes and increase their frequencies. Consequently, the Tata Sons Ltd. extended its Karachi – Madras route to Colombo, with an increased frequency of five days in a week. The Indian National Airways too followed suit and increased its frequency between Karachi –

Lahore - Delhi. The 'Empire All-Up Airmail' scheme improved the regularity, load factor and the financial performance of these two airlines

Thus, J. R. D. Tata, Vintcent and Goven Grant ought to be given the credit for laying down the foundation of the schedule air transport in India, even in an unhealthy and a difficult atmosphere. Although the progress between the period 1932-39 was slow, it was steady, confident and sure.

2.2.3 Period – 1939 to 1945

The sudden outbreak of World War II in 1939 disrupted the functioning of the airlines. Several changes were introduced from time to time throughout the period of war. The War badly affected the functioning of the airlines.

The 'All Up Mail' scheme, which was the most important source of revenue for the domestic airlines, was abandoned .Air surcharges were increased in order to reduce the burden of the Imperial Airways and to divert the same for war needs. The Indian National Airways was made to reduce its Karachi - Lahore service to twice a week. The Tata Sons Ltd. services to Colombo were also reduced to four flights a week. As the war progressed, changes with regards to these services took place. Sometimes, some routes were cancelled; and at other times some new routes were created depending upon the needs of the war. As the war intensified further, all the internal services were suspended to divert the men, materials and aircraft for war needs. All the aircraft were used for defense purposes only. The two airlines - the

Tata Sons Ltd. and the Indian National Airways - along with the Royal Air Transport were given the responsibility to operate their services for the carriage of freight, mails, priority mails, important civilians and military personnel to various destinations in and outside India. With the further progress of the war, needs for air transport services went up even more and consequently, the government started leasing aircrafts to the Indian entrepreneurs under the lease-land agreement. These aircrafts played a great role in the war efforts. It, at the same time, provided an opportunity to the Indian entrepreneurs to get acquainted with the operation of the then modern aircraft – Dakota. After the end of the war these aircrafts were withdrawn, but it had left behind experienced staff and entrepreneurs to cash on the opportunity in post-war construction period.

2.2.4 Period – 1946 to 1952

In 1944, the government had appointed a 'Reconstruction Committee' for 'Post and Aviation' for fulfilling its war time promises. The committee was to assess the needs for internal and external services, operating fleet and subsidy to be provided.

The committee divided the air services needs at three levels: international, Indian trunk air transport services, and local services. As regards the international air transport services, the committee opined that the degree of initiative, which India should take, would depend upon the degree of cooperation at the world level. It emphasised, however, the need to connect the neighboring countries first. With regards to the trunk services the committee recommended the Government of India

to take initiative in their planning and organisation, as these services are vital for the social and industrial development of the country. As far as the local services were concerned, it felt that though these services were desirable but were not essential considering the load of responsibility, the government had immediately after the war Thus, it suggested these services to be taken care of by the private airlines only, subject to the government assistance in terms of grounding and navigational facilities.

With regards to the forms of business organisation, it recommended the following alternatives :

i) State Operation: By a department of government, subject to normal financial and other controls.

ii) Company Operation: By a single monopoly company, subject to the financial assistance from the government.

iii) Limited Number of Companies: Not more than four, if it was to be a subsidised operation.

iv) Freedom of Commercial Operation of Un-subsidised Services: This was the prevalent system, which in committee's view necessitates the establishment of Air Transport Licensing Board.

On the subject of public aid, it suggested a system based on the standard of efficiency of the operation. It was to be arrived at by fixing the cost of operation per ton-mile (in ascending scale of operation) and fixing the revenue per ton-mile target

(also in ascending scale of operation). Then it was to be the operators' responsibility to meet the predetermined cost and revenue conditions.

Yet another important suggestion it made was regarding the establishment of central licensing board, following the example of USA, UK and Australia, which would scrutinise the application for air operation keeping in mind some broad factors like:

i) The need for air transport in the applied area,

ii) Potential traffic,

iii) Capacity of applicant,

iv) His financial resources and organisation,

v) The existing ground organization or the scope of providing it,

vi) Technical resources with the applicant,

vii) The structure of fares and freight rates etc.

In October 1946, the Government of India, on the basis of the above recommendations, amended the Indian Aircraft Act, and created the 'Air Transport Licensing Board' with a view to regulate the schedule air services. Even before the establishment of Air Transport Licensing Board, two more companies; Air Services of India by Scindia Navigation Company and Deccan Airways Ltd. by Hyderabad state had entered the air industry. In the meanwhile, on 20 July 1946, the Tata Sons Ltd. became a Public Limited Company and converted itself into 'Air India'. Thus, by the end of July, 1946; the following four airlines were operating in India :

i) The Air India.

ii) The Indian National Airways.

iii) The Air Services of India.

iv) The Deccan Airways.

During the World War II, there was a heavy load on air traffic, which continued for some time even after the end of the war. This created an impression among the potential entrepreneurs that the domestic air transport industry has a good potential for return on capital. This coupled with the easy availability of surplus Dakota aircrafts at a reasonable price, led many entrepreneurs to jump into the fray. And with the setting up of the 'Air Transport Licensing Board', granting of licenses became liberal. Consequently, the Indian air transport industry by late 1940s witnessed a flood of airlines, which was more than the required.

The year 1947 saw as many as twenty-one companies registered. Some of the new companies that obtained licenses were Mistry Airways (later converted into Indian Overseas Airlines), Bharat Airways, Airways (India), Orient Airways, Ambica Airlines, Jupiter Airways and Dalmia Jain Airways. However, the unhealthy competition among too many air operators for a meagre traffic eventually led to a premature death of private air transport industry in India. The competition among operators led to rise in the wages of employees. The cost of fuel also went up and the political partition of India struck a major blow on the infant air industry of India. Consequently, almost all the air operators started facing financial losses, which resulted in the exit of some of the operators from the air industry. The Jupiter

Airways was the first to go out of business in October, 1948, followed by the Ambica Airlines and the Dalmia Jain Airways in 1949.

The government with a view a to provide stability announced an 'All-Up Mail' scheme on 1st April, 1949. Under this scheme, all mails that could be delivered more expeditiously were to be carried by airlines. This was done to boost up the revenue load factor of the airlines. In addition, from 1st March, 1949 the government also provided rebate on the import duty of petrol to give some relief to the operators. These measures, however, could not generate the desired effect, because at the time the government had also reduced the mail carriage rate. Adding fuel to the fire, fuel prices also increased.

In its consolidation efforts the government also introduced the 'Night Airmail' scheme, under which all the mails destined for four major cities, viz. Delhi, Calcutta, Bombay and Madras were to be supplemented by the flight in the night. Only Indian Overseas Airlines agreed to this scheme, without any guarantee of minimum payment or any higher rate of payment for the carriage of the postal than the already fixed. It is to be noted here that in the absence of appropriate technical facilities the night air services were confined to the carriage of mails only. Although there was a drastic increase in mail carriage by the Overseas Airlines, it still faced a financial crisis. Consequently, it had to terminate its Madras-Delhi service on 19th May 1949 and its Calcutta - Bombay service on 8th June 1949. Then the two other airlines – the Deccan and the Indian National Airways - agreed to implement the

Night Airmail scheme. However, with the onset of the monsoon, 'Night Airmail' scheme had to be abandoned completely.

The poor financial condition of airlines became a matter of serious concern for the new Indian government. In the year 1950, therefore, the government set up an 'Air Transport Inquiry Committee', under the chairmanship of Justice Rajadhaksha. The committee was to review the state of domestic air transport and accordingly it was to advice the government in re-organizing air transport system properly.

2.3 THE AIR TRANSPORT ENQUIRY COMMITTEE REPORT (1950)

2.3.1 Main Findings of the Report

The committee observed that there were nine schedule-operating companies, of which, six held the term licenses and rest provisional. While reviewing the financial performance of the operators, it discovered that except Airways (India), others had incurred losses in the latest financial year. Following were the main reasons the committee attributed to loss making:

i) Licensing to too many operators had lead to their losses. The routes, which were already covered by the four airlines namely, INA, AI, Deccan Airways, and the Air Services of India made it overcrowded, benefiting no one. The committee felt that if the purpose of liberal licensing was to do away the evils of monopoly, it could also have been done through the other means like control of fares, freight rates, frequencies etc.

ii) The Board unnecessarily took a long time in taking a decision of granting or not granting licenses. In the meantime the applicants had to bear unnecessary expenses on maintaining their organization and facilities, which ultimately affected their profitability.

iii) There was competition among the operators for limited number of technical personnel, resulting into a hike in their salaries.

iv) Increasing price of aviation fuel was also responsible for losses. In addition, State sales tax and other taxes added to their expenses.

v) To meet the increased competition, fares were reduced to an uneconomic level.

2.3.2 Main Recommendations of the Report

The committee suggested the following measures to overcome the problems:

i) There should be redistribution of existing routes among the experienced airlines, like Air India, Indian National Airways, Deccan Airways, Airways (India), Bharat Airways and it was felt that at least for few years, operations should be confined to five or six existing operators.

ii) As far as the determination of fare was concerned, it insisted on consideration of several factors like allowing for reasonable profit (at least 10 per cent return on investment), ability to pay of the users, the need for expansion of the air traffic, prevailing rates of air transport etc.

iii) To begin with, a grant of subsidy would be essential for a couple of years.

iv) To increase the air traffic, it suggested that the government officers (on official tour) should travel by air.

v) It also suggested that the ATLB should undertake the responsibility of assessing the needs of the air industry in future, reconstitution of the board and strengthening of its secretariat.

vi) While appreciating the performance of Air India International, it felt that the international services should be confined to AII only, in view of Bharat Airways making chronic losses on the routes to the East.

vii) On the subject of nationalisation of the industry, it first examined the pros and cons of doing it. It, however, felt that with the real efforts of the operators and the need based grant of public aid for five years, the industry would make it self reliant.

viii) If, however, the government decided to go for nationalisation, it should keep in mind the following factors:

a) "An outstanding man of business and administrative ability and drive preferably with sufficient experience of air transport should be appointed as chairman of the organisation, and

b) The corporation should have a complete autonomy and freedom from departmental control, except in regard to the main policies to be followed as laid down by the government".[4]

By the year 1952 only nine airlines had survived. While eight of these were domestic operators, only – Air India International operated services to foreign countries. However, they were all incurring heavy losses due to poor operating economy of the Dakota aircraft and the low fares. The situation of the airline

industry became grim and their survival needed heavy subsidies from the government

In March 1953, therefore, the Government of India passed the 'Air Corporation Act', which allowed the provision of two statutory corporations, Indian Airlines for domestic and Air India for international services. Eventually, in August 1953 all the nine airlines were nationalised. Eight of these operating domestic services were merged to form the 'Indian Airlines', while Air India International was converted into the 'Air India'.

2.4 POST-NATIONALISATION PERIOD

2.4.1 Period 1952-53 to 1963-64

After nationalisation, the first financial year of the Indian Airlines was from 1st August 1953 to 31st March 1954. It started with a fleet of ninety-nine aircrafts, of which seventy-four were Dakota, twelve Vikings, three Skymasters. During the first year, the Indian Airlines Corporation served thirty-six routes including services to some neighboring countries. The financial year ended with the loss of Rs. 7.95 million (including depreciation). This loss to a large extent was due to the fact that it had to spend a large amount on setting up of headquarters, discharging the liabilities of airlines before nationalisation, states taxes on petrol, heavy interest payment on bonds etc. The Indian Airlines as per the Act had to absorb all the employees numbering 7107 of the earlier air transport companies.

The first complete financial year started with the year 1954-55. Tables 2.1 to 2.3 depict some main physical and financial indicators of performance from the year 1954-55 to 1963-64. It can be observed from Table 2.1 that there was a continuous rise in available ton kilometre and revenue ton kilometre, with the exception of the year 1963-64. The available ton kilometre and revenue ton kilometre increased from 75.94 million and 52.96 million in the year 1954 55 to 135.17 million and 94.33 million in the year 1963-64, which is the 78 per cent increase in both the variables. The load factor, however, does not show much change. The number of employees with the Indian Airlines shows an increase of 16 per cent over the period of 1955-56 to 1963-64 The available ton kilometre per employee also shows a continuous

improvement with one exception, which increased from 9046.55 in the year 1955-56 to 12481.07 by the year 1963-64. The corporation also tried to increase utilisation of the aircrafts, which improved from 1378 hours per aircraft per annum in 1954-55 to 1763 hours per aircraft per annum by the year 1963-64.

As far as the financial performance is concerned, one can notice from Table 2.3 that the Indian Airlines started making operating profit only from the year 1959-60. Over the period of 1954-55 to 1963-64, the rate of increase in operating revenue has been greater than the same of operating expenses. In this period while operating revenue increased by 180 per cent, operating expenses increased by only 141 per cent.

It can be noted here that as data on different components of expenses were not available, financial figures relating to operating revenue and operating expenses are not converted here at constant prices. The use of same deflator for these two items would have given the same relative result.

Table 2.1 : Physical Indicators of Performance of Indian Airlines

Year	Available Ton Kilometer (Million)	Index	Revenue Ton Kilometer (Million)	Index	Overall Load Factor (%)	Index
1954-55	75.94	100.00	52.96	100.00	69.74	100.00
1955-56	84.35	111.07	59.52	112.39	70.56	101.29
1956-57	90.12	118.67	62.01	117.09	68.81	98.71
1957-58	93.19	122.72	65.40	123.49	70.18	100.72
1958-59	104.77	137.96	74.01	139.75	70.64	101.29
1959-60	110.98	146.14	78.49	148.21	70.72	101.43
1960-61	113.05	148.87	83.20	157.10	73.60	105.60
1961-62	120.79	159.06	87.42	165.07	72.37	103.87
1962-63	136.08	179.19	98.19	185.40	72.16	103.59
1963-64	135.17	178.00	94.33	178.12	69.79	100.14

Source Compiled from various Annual Reports of the Indian Airlines, New Delhi.

Table 2.2 : Physical Indicators of Performance of Indian Airlines

Year	No. of Employees	Index	ATK per Employee	Index	AUPAPA (Hours)	Index
1954-55	NA	-	NA	-	1378.00	100.00
1955-56	9324.00	100.00	9046.55	100.00	1405.00	101.96
1956-57	9254.00	99.25	9738.49	107.65	1442.00	104.64
1957-58	9448.00	101.33	9863.46	109.04	1335.00	96.88
1958-59	9463.00	101.49	11071.54	122.39	1526.00	110.74
1959-60	9553.00	102.46	11617.29	128.42	1605.00	116.47
1960-61	9561.00	102.54	11824.08	130.71	1729.00	125.47
1961-62	9832.00	105.45	12285.39	135.81	1717.00	124.60
1962-63	10314.00	110.62	13193.72	145.85	1991.00	144.48
1963-64	10830.00	116.15	12481.07	137.97	1783.00	129.39

Source. Compiled from various Annual Reports of the Indian Airlines, New Delhi.

Notes: a) ATK = Available Ton Kilometre, b) NA = Not Available, c) AUPAPA = Average Utilisation Per Aircraft Per Annum.

Table 2.3 : Financial Indicators of Performance of Indian Airlines

(Rs. in Million)

Year	Operating Revenues	Index	Operating Expenses	Index	Operating Profit / (Loss)	Index
1954-55	69.25	100.00	77.25	100.00	-8.00	100.00
1955-56	80.86	116.77	92.17	119.31	-11.31	141.27
1956-57	86.14	124.38	96.18	124.50	-10.04	125.47
1957-58	92.61	133.73	102.43	132.59	-9.82	122.71
1958-59	108.25	156.32	117.02	151.48	-8.77	109.52
1959-60	119.02	171.87	118.72	153.68	0.31	-3.81
1960-61	130.63	188.63	129.90	168.15	0.73	-9.15
1961-62	148.76	214.81	144.51	187.07	4.24	-53.00
1962-63	169.72	245.08	166.47	215.50	3.25	-40.59
1963-64	193.78	279.83	186.38	241.26	7.41	-92.54

Source Compiled from various Annual Reports of the Indian Airlines, New Delhi.

2.4.2 Period - 1964-65 onwards

I. Overall Scenario of Domestic Civil Aviation Industry

The domestic airlines industry before the beginning of 1991 consisted of only the Indian Airlines. The Indian Airlines has come a long way from the era of piston engine aircraft to state of the art fly by wire technology. The Indian airlines network has evolved to cover the entire country, bringing far-flung people and places together. It has also fulfilled the socio-economic objectives by providing air services to the Jammu, Kashmir, Northeast, Andaman and Nichobar Islands. During the late seventies and eighties, it substantially upgraded its passenger services with computerized reservations and check in facilities and global linkage of computer system [5] The Indian Airlines has been a profit-making organisation till the year 1988-89. It has been growing in terms of fleet size, network and passenger carriage. Moreover, it did not have to resort to the financial support from the government. However, from the year 1989-90 the Indian Airlines started getting into financial trouble for various reasons, which is discussed at the later part of this chapter.

In the year 1991 there came a major change in the domestic civil aviation policy when the 'Open Sky Policy' was introduced by the government with a view to fulfill multiple objectives of earning foreign exchange, stimulating healthy competition and providing consumers with range of choices. Under this policy, in year 1991, permits were issued to six air operators and no objection certificates to eighteen others to start the domestic air transport services. By March 1992, there were seven air taxi operators but only East-West and Continental Airways had the capacity

above nineteen seats. The entry of air taxi operators in the industry kept increasing and it went up to twelve by April 1993. After the repeal of the Air Corporation Act 1953 on March 1, 1994, it became obligatory on the part of the air taxi operators with three and more aircraft to be designated as scheduled operators / airlines. In 1995, there existed only six such scheduled operators in the market.[6] Though the open sky policy generated large scale entry of operators in the domestic airlines industry, these airlines lacked professional background and financial resources to sustain aviation related ventures. This resulted into instability in the domestic aviation industry due to some airlines going out from time to time. The private airlines also suffered as a result of restrictive practices of the government that regulated these airlines. For example, the 'Route Categorisation Scheme' requires private airlines to deploy their 10 per cent of trunk route capacity on uneconomical routes. This in turn calls for maintaining different types of aircrafts in terms of size and range with different set of crews, maintenance and the like. To small airlines this condition makes a difference between their survival and exit. Further, the frequent policy changes and non-transparent implementation created an uncertain environment for incumbent operators and potential entrants.[7]

Having presented a broad picture of domestic civil aviation in India, an attempt is now made to provide a detail analysis of the performance of the Indian Airlines over the study period. In this endeavour, an overview of the performance of the Indian Airlines is discussed below.

II. Trends in Performance of Indian Airlines during 1964-65 to 1993-94

The following indicators have been chosen to describe the performance of the Indian airlines:

i) Trends in Output

The trends in output in terms of available ton kilometre and revenue ton kilometre are considered here. The Table 2.4 shows the trend in available and revenue ton kilometre between 1964-65 and 1993-94. It can be noticed that these two measures of output have moved in the same direction, which is also evident from the value of the coefficient of correlation between these two variables, which is 0.995.

These variables have grown consistently up to the year 1987-88, with the exception of 1970-71 and 1973-74. While the available ton kilometre increased from 156.97 million in 1964-65 to 1052 million by the year 1993-94 showing an increase of about 570 per cent, during the same period revenue ton kilometre increased from 109.36 million to 692.54 million registering an increase of about 533 per cent. A record 1153 million available ton kilometre was produced in the year 1987-88, which was about 635 per cent of the base year (1964-65) output. However, the highest of revenue ton kilometre was realised a year later in the year 1988-89, when the revenue ton kilometre was 841.33 million, which was about 669 per cent of the base year output. A decline in the Indian Airlines available and revenue ton kilometre is noticeable in the year 1990-91. This is mainly due to the grounding of the entire fleet of aircraft A-320 as a result of an accident involving aircraft A-320

near Bangalore in 1990. When the fleet of aircraft A-320 was brought back into operation from the year 1991-92, output of previous levels could not be attained, as by then many private airlines had started entering the market as a result of the open sky policy adopted by the government. Consequently, the share of the Indian Airlines started declining in the market and it came down to 63.7 per cent in the year 1994-95, as was informed by the government to the parliament in May 1995.[8] Since then the share of the Indian Airlines has remained more or less at the same level.

The revenue ton kilometre, in addition to the available ton kilometre, is also influenced by the load factor (actual utilisation of the capacity output). The Table 2.4 also depicts the trend in the load factor over the study period. It can be observed that the Indian Airlines has not been able to bring about a significant change in the load factor. For most of the years, with few exceptions. the load factor has hovered around 69 per cent.

Table 2.4 : Available ton kilometre and Revenue ton kilometre of Indian Airlines

(Million)

Year	ATK	% change over 1964-65	index	RTK	% Change over 1964-65	index	Load Factor
1964-65	156.97		100.00	109.36		100.00	69.67
1965-66	155.08	-1.20	98.80	108.16	-1.10	98.90	69.74
1966-67	165.12	5.19	105.19	119.01	8.83	108.83	72.08
1967-68	205.85	31.14	131.14	135.55	23.95	123.95	65.85
1968-69	208.25	32.67	132.67	153.37	40.24	140.24	73.64
1969-70	223.48	42.37	142.37	172.06	57.33	157.33	76.99
1970-71	208.15	32.61	132.61	161.46	47.64	147.64	77.57
1971-72	261.55	66.62	166.62	178.77	63.47	163.47	68.35
1972-73	328.45	109.25	209 25	214.18	95.85	195.85	65.21
1973-74	270.73	72.47	172.47	184.54	68.74	168.74	68.16
1974-75	310.82	98.01	198.01	212.90	94.68	194.68	68.50
1975-76	352.77	124.74	224.74	248.86	127.56	227.56	70.54
1976-77	393.70	150.81	250.81	277.52	153.77	253.77	70.49
1977-78	480.93	206.39	306.39	324.96	197.15	297.15	67.57
1978-79	558.82	256.00	356.00	390.96	257.50	357.50	69.96
1979-80	586.02	273.33	373.33	398.56	264.45	364.45	68.01
1980-81	663.90	322.95	422.95	420.23	284.26	384.26	63.30
1981-82	749.11	377.23	477.23	479.75	338.69	438.69	64.04
1982-83	842.30	436.60	536.60	528.94	383.67	483.67	62.80
1983-84	876.09	458.13	558.13	594.95	444.03	544.03	67.91
1984-85	959.62	511.34	611.34	663.66	5C6.85	606.85	69.16
1985-86	1037.81	561.15	661.15	720.01	558.38	658.38	69.38
1986-87	1123.18	615.53	715.53	776.09	609.66	709.66	69.10
1987-88	1152.92	634.48	734.48	840.24	668.32	768.32	72.88
1988-89	1101.16	601.51	701.51	841.33	669.32	769.32	76.40
1989-90	1133.64	622.20	722.20	825.82	655.14	755.14	72.85
1990-91	926.69	490.36	590.36	699.21	539.36	639.36	75.45
1991-92	1089.77	594.26	694.26	761.08	595.94	695.94	69.84
1992-93	966.79	515.91	615.91	685.37	526.71	626.71	70.89
1993-94	1052.29	570.37	670.37	692.54	533.27	633.27	65.81

Source Compiled from various Annual Reports of the Indian Airlines, New Delhi.

Notes a) ATK = Available Ton Kilometre, b) RTK = Revenue Ton Kilometre.

ii) Trends in Revenue

The total revenue is comprised of operating and non-operating revenues. Operating revenues are the revenues earned from the main activity of the business. Non-operating revenue, on the other hand, is realized from the sources other than the main activity and such as the income arising due to interest, assets sold / scrapped etc.

Here, it is to be noted that the trends in various financial variables are examined at both current prices and constant prices.

a) At Current Prices

As the total revenue is made up of operating and non-operating revenue, trends in all these variables are shown in Table 2.5. The operating revenue, which forms the major portion of the total revenue, was Rs 228.10 million in the year 1964-65, which gradually increased to Rs. 17525.74 million by the year 1993-94, showing an increase of 7583 per cent. During this period the non-operating revenue increased from Rs. 5.09 million to Rs. 356.31 million, which is an increase of 6900 per cent.

The total revenue during the study period increased from Rs. 233.18 million to Rs. 17882.05 million, exhibiting an increase of about 7569 per cent. There has been a slow but steady growth in total revenue up to the year 1979-80, with some negligible fluctuations. Thereafter, the growth in total revenue has become more pronounced and consistent. This is evident from the fact that while during 1964-65

to 1979-80 total revenue increased only by about 791 per cent, the same during 1964-65 to 1993-94 registered a whopping increase of about 7569 per cent.

The Table 2.5 also reveals the fact that the share of operating revenue in the total revenues has hovered around 98 percent for most of the years and further it has been experiencing erratic and frequent fluctuations, though within a small range. This is mainly due to frequent changes in non-operating revenue caused by interest income, assets sold / scrapped and adjustment relating to the previous year and the net of others.

b) At Constant Prices

All the revenues have been deflated with the wholesale price index with a view to arrive at the approximation of trends of revenues at constant price. The year 1980-81 is taken as the base year for the purpose. Trends in revenue at constant prices are depicted in Table 2.6.

Total operating revenue increased from Rs. 869.60 million in 1964-65 to Rs. 6469.21 million in the year 1993-94, which is an increase of 644 per cent. During this period the non-operating revenue increased from Rs. 19.39 million to Rs. 131.52 million, an increase of 578 per cent. Thus operating revenue and non-operating revenue have increased more or less proportionately. Over the study period, thus, the total revenue, which is the sum of these two, has exhibited a

similar increase of about 642 per cent. It was Rs. 888.99 million in 1964-65, which increased to Rs. 6600.74 million in 1993-94.

Table 2.5 : Trends in Revenue of Indian Airlines at Current Prices

(Rs. in million)

Year	Operating Revenue	Non Operating Revenue	Total Revenue	% Change in TR over 1964-65	index	% share of Operating Revenue
1964-65	228.10	5.09	233.18		100.00	97.82
1965-66	233.27	8.46	241.73	3.67	103.67	96.50
1966-67	270.05	10.90	280.95	20.49	120.49	96.12
1967-68	347.36	4.11	351.47	50.73	150.73	98.83
1968-69	401.24	2.78	404.02	73.27	173.27	99.31
1969-70	459.39	11.85	471.24	102.09	202.09	97.48
1970-71	444.94	3.99	448.93	92.53	192.53	99.11
1971-72	559.15	9.35	568.50	143.80	243.80	98.36
1972-73	707.93	12.61	720.54	209.01	309.01	98.25
1973-74	682.50	23.67	706.16	202.84	302.84	96.65
1974-75	960.02	20.51	980.53	320.50	420.50	97.91
1975-76	1091.16	20.64	1111.80	376.80	476.80	98.14
1976-77	1275.21	53.29	1328.50	469.73	569.73	95.99
1977-78	1506.77	16.86	1523.63	553.41	653.41	98.89
1978-79	1826.92	14.97	1841.89	689.90	789.90	99.19
1979-80	2050.49	26.34	2076.83	790.66	890.66	98.73
1980-81	2861.46	89.68	2951.14	1165.60	1265.60	96.96
1981-82	3845.13	20.22	3865.35	1557.67	1657.67	99.48
1982-83	4562.36	12.05	4574.41	1861.75	1961.75	99.74
1983-84	5367.74	41.56	5409.30	2219.80	2319.80	99.23
1984-85	6035.78	179.87	6215.65	2565.60	2665.60	97.11
1985-86	7113.00	125.13	7238.13	3004.10	3104.10	98.27
1986-87	8209.10	77.94	8287.04	3453.92	3553.92	99.06
1987-88	9176.78	78.18	9254.95	3869.02	3969.02	99.16
1988-89	9587.42	79.94	9667.36	4045.88	4145.88	99.17
1989-90	10690.67	560.88	11251.55	4725.26	4825.26	95.02
1990-91	11237.36	448.94	11686.29	4911.70	5011.70	96.16
1991-92	14362.53	510.72	14873.25	6278.44	6378.44	96.57
1992-93	15131.19	657.09	15788.28	6670.85	6770.85	95.84
1993-94	17525.74	356.31	17882.05	7568.78	7668.78	98.01

Source Compiled from various Annual Reports of the Indian Airlines, New Delhi.

Table 2.6 : Trends in Revenue of Indian Airlines at 1980-81 Prices

(Rs. in million)

Year	Operating Revenue	Non Operating Revenue	Total Revenue (TR)	% Change in TR over 1964-65	index
1964-65	869.60	19.39	888.99		100.00
1965-66	825.73	29.95	855.69	-3.75	96.25
1966-67	839.20	33.87	873.07	-1.79	98.21
1967-68	967.32	11.44	978.76	10.10	110.10
1968-69	1130.89	7.85	1138.73	28.09	128.09
1969-70	1246.98	32.18	1279.15	43.89	143.89
1970-71	1144.70	10.26	1154.96	29.92	129.92
1971-72	1362.46	22.77	1385.23	55.82	155.82
1972-73	1566.22	27.89	1594.11	79.32	179.32
1973-74	1257.13	43.59	1300.72	46.31	146.31
1974-75	1412.20	30.17	1442.38	62.25	162.25
1975-76	1622.78	30.69	1653.48	86.00	186.00
1976-77	1857.82	77.63	1935.46	117.71	217.71
1977-78	2086.65	23.35	2110.00	137.35	237.35
1978-79	2528.61	20.72	2549.33	186.77	286.77
1979-80	2424.61	31.15	2455.76	176.24	276.24
1980-81	2861.46	89.68	2951.14	231.97	331.97
1981-82	3516.99	18.49	3535.48	297.70	397.70
1982-83	4066.27	10.74	4077.01	358.61	458.61
1983-84	4370.77	33.84	4404.61	395.46	495.46
1984-85	4589.25	136.76	4726.01	431.62	531.62
1985-86	5115.06	89.98	5205.04	485.50	585.50
1986-87	5605.77	53.23	5659.00	536.57	636.57
1987-88	5824.31	49.62	5873.92	560.74	660.74
1988-89	5680.09	47.36	5727.45	544.26	644.26
1989-90	5901.23	309.61	6210.84	598.64	698.64
1990-91	5625.99	224.76	5850.75	558.13	658.13
1991-92	6322.09	224.81	6546.90	636.44	736.44
1992-93	6051.75	262.80	6314.55	610.31	710.31
1993-94	6469.21	131.52	6600.74	642.50	742.50

Source: Derived from various Annual Reports of the Indian Airlines, New Delhi.

iii) Trends in Expenses

The total expenses of the airlines comprises of the operating and non-operating expenses. Operating expenses are those, which are the direct result of the operation. Thus, it includes the expenses on account of the items like wages, fuel, depreciation etc Non-operating expenses on the other hand are not directly related to the operation of the business. It includes the items like interest payment, foreign exchange loss and the provision for taxation.

a) At Current Prices

Table 2.7 shows the trends in operating, non-operating and the total expenses over the study period. The operating expense, comprising the major portion of total expenses, has increased from Rs. 211.71 million in 1964-65 to Rs. 18233.02 million in the year 1993-94. During the same period the other component of total expenses, i e., non-operating expense registered an increase from Rs. 8.17 million to Rs. 2213.31 million. There is thus a disproportional increase in operating expenses and non-operating expenses, which is also evident from the fact that during study period while operating expense grew by only 8500 per cent, non-operating expense increased by 26991 per cent.

The total expense during the study period increased from Rs. 219.88 million to Rs. 20446.33 million, showing a whopping increase of about 9199 per cent. It can be observed, however, that most of this came after 1978-79, as there was only about 686 per cent increase in total expenses up to the year 1978-79.

The proportion of operating expense in total expenses shows a declining trend with frequent fluctuations. The minimum of operating expense in the total expenses was realised during the year 1991-92, when it was only about 84 per cent. This declining proportion of operating expense in the total expenses can mainly be attributed to the increase of non-operating expenses in form of heavy interest payment on loan capital for the purchase of the aircraft etc.

b) At Constant Prices

As the total expenses are made of variety of items, all the items are classified under four broad categories, viz. expenses on account of wages, fuel, depreciation and others, which includes non-operating expenses also. For the purpose of arriving at the approximation of total expenses at constant prices, these items are deflated with different deflators. Wage expense is deflated with the index of industrial workers, fuel expenses with index of air turbine fuel, depreciation by the index of machinery and equipment; and others with the wholesale price index of all commodities. Trends in expenses at constant prices are depicted in Table 2.8.

Total operating expense increased from Rs. 1035.55 million in 1964-65 to 6476.67 in the year 1993-94, showing an increase of about 525 per cent. During this period the non-operating expense increased from Rs. 31.16 million to Rs. 816.99 million, registering a whopping increase of 2522 per cent. Thus, at constant price also the disproportional increase in operating and non-operating expenses can be noticed. Total expenses over the period 1964-65 to 1993-94 increased from Rs. 1066.70 to

7293.66, showing an increase of about 584 per cent. There has been a gradual increase in all these variables, however, with some fluctuations.

Table 2.7 : Trends in Expenses of Indian Airlines at Current Prices

(Rs. in million)

Year	Operating Expenses	Non Operating Expenses	Total Expenses	% Change in TE over 1964-65	Index	% share of Operating Expenses
1964-65	211.71	8.17	219.88		100.00	96.28
1965-66	233.10	5.40	238.50	8.47	108.47	97.74
1966-67	297.88	25.42	323.30	47.03	147.04	92.14
1967-68	334.11	19.98	354.09	61.04	161.04	94.36
1968-69	365.53	21.92	387.45	76.21	176.21	94.34
1969-70	425.61	22.78	448.40	103.93	203.93	94.92
1970-71	464.93	30.76	495.69	125.44	225.44	93.79
1971-72	571.10	42.89	613.99	179.24	279.24	93.01
1972-73	671.91	48.56	720.46	227.66	327.66	93.26
1973-74	660.12	59.53	719.65	227.29	327.29	91.73
1974-75	930.68	39.69	970.37	341.31	441.32	95.91
1975-76	979.44	54.42	1033.85	370.18	470.19	94.74
1976-77	1073.47	47.64	1121.11	409.87	509.87	95.75
1977-78	1279.56	100.80	1380.35	527.77	627.78	92.70
1978-79	1559.17	168.54	1727.71	685.75	785.75	90.24
1979-80	1914.01	186.22	2100.24	855.17	955.17	91.13
1980-81	2655.52	270.83	2926.35	1230.87	1330.88	90.75
1981-82	3279.87	472.12	3751.99	1606.36	1706.38	87.42
1982-83	3893.52	501.72	4395.24	1898.91	1998.93	88.58
1983-84	4460.60	490.19	4950.79	2151.57	2251.59	90.10
1984-85	5038.06	649.18	5687.24	2486.50	2586.52	88.59
1985-86	6133.86	469.09	6602.95	2902.95	3002.98	92.90
1986-87	7197.52	452.14	7649.66	3378.99	3479.02	94.09
1987-88	8109.78	389.13	8498.91	3765.21	3865.25	95.42
1988-89	8651.42	655.17	9306.59	4132.54	4232.58	92.96
1989-90	9949.59	1452.36	11401.96	5085.49	5185.54	87.26
1990-91	10729.63	1600.61	12330.24	5507.66	5607.71	87.02
1991-92	14179.25	2680.50	16859.75	7567.64	7667.71	84.10
1992-93	15920.07	1819.28	17739.34	7967.67	8067.74	89.74
1993-94	18233.02	2213.31	20446.33	9198.77	9298.86	89.18

Source. Compiled from various Annual Reports of the Indian Airlines, New Delhi.

Table 2.8 : Trends in Expenses of Indian Airlines at 1980-81 Prices

(Rs. in million)

Year	Operating Expenses	Non Operating Expenses	Total Expenses (TE)	% Change in TE over 1964-65	Index	% share of Operating Expense
1964-65	1035.55	31.16	1066.70		100.00	97.08
1965-66	1065.69	19.10	1084.79	1.70	101.70	98.24
1966-67	1227.30	78.99	1306.29	22.46	122.46	93.95
1967-68	1255.15	55.65	1310.80	22.88	122.88	95.75
1968-69	1369.70	61.78	1431.47	34.20	134.20	95.68
1969-70	1520.40	61.84	1582.25	48.33	148.33	96.09
1970-71	1495.25	79.14	1574.39	47.59	147.59	94.97
1971-72	1643.68	104.52	1748.20	63.89	163.89	94.02
1972-73	1816.66	107.42	1924.09	80.38	180.38	94.42
1973-74	1446.39	109.65	1556.04	45.87	145.87	92.95
1974-75	1547.74	58.38	1606.13	50.57	150.57	96.37
1975-76	1584.27	80.93	1665.20	56.11	156.11	95.14
1976-77	1716.31	69.41	1785.72	67.41	167.41	96.11
1977-78	1969.76	139.59	2109.35	97.75	197.75	93.38
1978-79	2318.71	233.28	2551.99	139.24	239.24	90.86
1979-80	2329.94	220.20	2550.14	139.07	239.07	91.37
1980-81	2655.52	270.83	2926.35	174.34	274.34	90.75
1981-82	3106.58	431.83	3538.40	231.71	331.71	87.80
1982-83	3606.61	447.17	4053.78	280.03	380.03	88.97
1983-84	3912.19	399.14	4311.33	304.17	404.17	90.74
1984-85	4246.77	493.60	4740.37	344.40	444.40	89.59
1985-86	4695.46	336.49	5031.95	371.73	471.73	93.31
1986-87	5361.15	229.48	5590.63	424.11	524.11	95.90
1987-88	5809.89	80.75	5890.64	452.23	552.23	98.63
1988-89	5883.17	284.64	6167.81	478.21	578.21	95.39
1989-90	5922.92	800.81	6723.73	530.33	630.33	88.09
1990-91	5283.40	800.35	6083.75	470.33	570.33	86.84
1991-92	5885.79	1178.78	7064.57	562.28	662.28	83.31
1992-93	5987.96	727.32	6715.29	529.54	629.54	89.17
1993-94	6476.67	816.99	7293.66	583.76	683.76	88.80

Source Derived from various Annual Reports of the Indian Airlines, New Delhi.

iv) Trends in Operating Ratio

It is defined as the ratio of operating expense to the operating revenue. Operating ratio thus measures the managerial efficiency of the business. Lower the operating ratio, the more efficient the firm is and vice-versa.

a) At Current Prices

Table 2 9 presents the operating ratio of the Indian Airlines over study period. This ratio has been fluctuating more widely before 1983-84. The minimum of all time was recorded in 1983-84, when it was 83.10 per cent. Since then there has been a consistent increase in this ratio except for the year 1993-94. Thus, there is a great need to reduce this ratio for better efficiency.

b) At Constant Prices

Operating ratio at constant prices in Table 2.10 shows a significant difference from the same at current prices. At constant prices operating ratio is relatively larger, again justifying a need to reduce it. During 1964-65 to 1974-75 this ratio has been consistently above 100 per cent. After this period, the operating ratio has been below 100 with just a few exceptions.

v) Trends in Net Profit after Tax

a) At Current Prices

Table 2.9 also depicts the trend in net profit after tax between 1964-65 and 1993-94. It can be observed that there have been frequent fluctuations in the net profit, which

finally attained a sharp declining trend after the year 1985-86. The net profit has become consistently negative from the year 1989-90 onwards.

There are very few years of up- trends in the net profit. Of these the two main can be noticed during 1973-74 to 1976-77 and 1979-80 to 1985-86. During 1973-74 to 1976-77, the net profit increased from Rs. (-13.48) million to Rs. 207.39 million. Similarly, during 1979-80 to 1985-86 the net profit increased from Rs. (-23.4) million to Rs. 632.18 million.

b) At Constant Prices

As at constant prices the net profit after tax is negative in the year 1964-65, for the sake of convenience in understanding, the year 1980-81 is selected as the base for index in Table 2.10, when the profit is positive. When the profitability of the Indian Airlines is viewed at constant prices, the performance looks even worse. There are very few years when the Airlines enjoyed profit after tax at constant prices. In this respect it performed somewhat better only during 1975-76 to 1985-86 when either profit was earned or losses suffered were relatively small. But for rest of the years of the study period the Indian Airlines suffered relatively big losses.

Table 2.9 : Trends in Operating Ratio and Net Profit / loss after Tax of Indian Airlines at Current Prices

(Rs. in million)

Year	Operating Ratio (%)	% Change in Operating Ratio over 1964-65	index	Net profit / loss Rs in million.	% Change in Net Profit over 1964-65	index
1964-65	92.82		100.00	13.30		100.00
1965-66	99.93	7.66	107.66	3.23	-75.69	24.31
1966-67	110.31	18.84	118.84	-28.35	-313.14	-213.14
1967-68	96.18	3.62	103.62	-2.62	-119.70	-19.70
1968-69	91.10	-1.85	98.15	16.57	24.61	124.61
1969-70	92.65	-0.19	99.81	22.84	71.74	171.74
1970-71	104.49	12.58	112.58	-46.76	-451.55	-351.55
1971-72	102.14	10.04	110.04	-45.49	-442.03	-342.03
1972-73	94.91	2.25	102.25	0.08	-99.44	0.56
1973-74	96.72	4.20	104.20	-13.48	-201.38	-101.38
1974-75	96.94	4.44	104.44	10.16	-23.62	76.38
1975-76	89.76	-3.30	96.70	77.95	486.02	586.02
1976-77	84.18	-9.31	90.69	207.39	1459.21	1559.21
1977-78	84.92	-8.51	91.49	143.28	977.19	1077.19
1978-79	85.34	-8.05	91.95	114.18	758.39	858.39
1979-80	93.34	0.56	100.56	-23.40	-275.95	-175.95
1980-81	92.80	-0.02	99.98	24.79	86.35	186.35
1981-82	85.30	-8.10	91.90	113.36	752.24	852.24
1982-83	85.34	-8.06	91.94	179.17	1247.04	1347.04
1983-84	83.10	-10.47	89.53	458.51	3347.18	3447.18
1984-85	83.47	-10.07	89.93	528.41	3872.70	3972.70
1985-86	86.23	-7.10	92.90	632.18	4652.88	4752.88
1986-87	87.68	-5.54	94.46	387.38	2812.39	2912.39
1987-88	88.37	-4.79	95.21	301.04	2163.32	2263.32
1988-89	90.24	-2.78	97.22	106.77	702.75	802.75
1989-90	93.07	0.27	100.27	-152.40	-1245.81	-1145.81
1990-91	95.48	2.87	102.87	-645.95	-4956.38	-4856.38
1991-92	98.72	6.36	106.36	-1988.50	-15050.03	-14950.03
1992-93	105.21	13.35	113.35	-1951.57	-14772.33	-14672.33
1993-94	104.04	12.08	112.08	-2350.58	-17772.21	-17672.21

Source. Compiled from various Annual Reports of the Indian Airlines, New Delhi.

Table 2.10 : Trends in Operating Ratio and Net Profit / Loss after Tax of Indian Airlines at 1980-81 Prices

(Rs. in million)

Year	Operating Ratio	% Change in OR over 1964-65	Index	Net Profit	% Change in Net Profit over 1964-65	index
1964-65	119.08		100.00	-177.71		-716.96
1965-66	129.06	8.38	108.38	-229.10	28.92	-924.29
1966-67	146.25	22.81	122.81	-433.22	143.78	-1747.79
1967-68	129.76	8.96	108.96	-332.04	86.84	-1339.58
1968-69	121.12	1.71	101.71	-292.74	64.73	-1181.02
1969-70	121.93	2.39	102.39	-303.09	70.56	-1222.80
1970-71	130.62	9.69	109.69	-419.43	136.02	-1692.16
1971-72	120.64	1.31	101.31	-362.97	104.25	-1464.36
1972-73	115.99	-2.59	97.41	-329.98	85.68	-1331.25
1973-74	115.05	-3.38	96.62	-255.32	43.67	-1030.05
1974-75	109.60	-7.96	92.04	-163.75	-7.86	-660.62
1975-76	97.63	-18.02	81.98	-11.72	-93.40	-47.28
1976-77	92.38	-22.42	77.58	149.74	-184.26	604.11
1977-78	94.40	-20.73	79.27	0.65	-100.36	2.62
1978-79	91.70	-22.99	77.01	-2.67	-98.50	-10.76
1979-80	96.10	-19.30	80.70	-94.38	-46.89	-380.78
1980-81	92.80	-22.07	77.93	24.79	-113.95	100.00
1981-82	88.33	-25.82	74.18	-2.92	-98.36	-11.77
1982-83	88.70	-25.52	74.48	23.23	-113.07	93.72
1983-84	89.51	-24.83	75.17	93.27	-152.49	376.31
1984-85	92.54	-22.29	77.71	-14.36	-91.92	-57.93
1985-86	91.80	-22.91	77.09	170.09	-195.71	686.22
1986-87	95.64	-19.69	80.31	-181.63	2.20	-732.76
1987-88	99.75	-16.23	83.77	-471.71	165.44	-1903.08
1988-89	103.58	-13.02	86.98	-694.36	290.72	-2801.30
1989-90	100.37	-15.71	84.29	-514.89	189.74	-2077.28
1990-91	93.91	-21.14	78.86	-235.00	32.24	-948.07
1991-92	93.10	-21.82	78.18	-519.67	192.42	-2096.54
1992-93	98.95	-16.91	83.09	-401.23	125.78	-1618.73
1993-94	100.12	-15.93	84.07	-692.93	289.92	-2795.55

Source Derived from various Annual Reports of the Indian Airlines, New Delhi.

vi) Trends in Average Operating Revenue, Average Operating Expense and Yield

Average operating revenue can be defined as the operating revenue earned per unit of output produced. Thus, it can be arrived at by dividing the operating revenue of a year by the output produced in that year. Similarly, the average operating expense refers to the operating expense, which is incurred due to one unit of output produced. This is arrived at by dividing the total operating expense during a year by the total output produced in the same year. Output produced here refers to the available ton kilometre during a year. Yield refers to the earning from a unit of output actually sold. This has been calculated by dividing the operating revenue by the revenue ton kilometre of output, and is expressed in rupees.

a) At Current Prices

The difference between average operating revenue and average operating expense reveals the average profitability. The coefficient of correlation between the average operating revenue and average expense is 0.99, which reveals a high positive correlation between these two variables. A close look at these two variables in Table 2.11 shows that although these variables have moved closely with each other; for most of the years average operating revenue has been greater than average operating expense, they have witnessed erratic fluctuations over the years. However, the increase in yield has been somewhat gradual and one directional except for the year 1975-76.

Over the study period average operating revenue, average operating expense and yield increased by 1046 per cent, 1184 per cent and 1113 per cent respectively. Much of these increases came from the year 1990-91 onwards. In this year as compared to the previous year there is an increase in average operating revenue from Rs 9.43 to Rs. 12.13 (28.63 per cent), average operating expense from Rs. 8.78 to Rs. 11.58 (31.89 per cent) and in yield from Rs. 12.95 to Rs. 16.07 (24.09 per cent). Such increases went on taking place in subsequent years also and by the year 1993-94 average operating revenue, average operating expense and yield increased to Rs. 16.65, Rs. 17.33 and Rs. 25.31 respectively. The main factors, which are responsible for such fast increases, are the fall in output produced, increase of operating expenses and fare.

b) At Constant Prices

Trends in average operating revenue, average operating expense and yield at constant prices are shown in Table 2.12. Average operating revenue at 1980-81 prices, deflated with the help of wholesale price index, shows stability over the years. Its relatively faster increase during 1990-91 to 1993-94 can be mainly attributed to increase in fares, which could not be taken into account fully by the wholesale price index deflator.

Average operating expense, with a few exceptions, has improved from its base year (1964-65) value of Rs. 6.60. However this improvement assumed a negative trend

from the year 1980-81, which can be attributed to better performance of the Indian Airlines.

The yield at 1980-81 prices does not show any improvement as compared to its 1964-65 value of Rs. 7.95, until the year 1989-90. However, due to sustained sharp increases in fares the yield has started increasing beyond its 1964-65 value from the year 1990-91 and in the year 1993-94 it reached to Rs. 9.34.

Table 2.11 : Average Operating Revenue, Average Operating Expense and Yield of Indian Airlines at current prices

(in Rs.)

Year	Average Operating Revenue	Index	Average Operating Expense	Index	Yield	Index
1964-65	1.45	100.00	1.35	100.00	2.09	100.00
1965-66	1.50	103.52	1.50	111.45	2.16	103.40
1966-67	1.64	112.55	1.80	133.76	2.27	108.79
1967-68	1.69	116.13	1.62	120.34	2.56	122.86
1968-69	1.93	132.59	1.76	130.14	2.62	125.43
1969-70	2.06	141.46	1.90	141.21	2.67	128.01
1970-71	2.14	147.11	2.23	165.61	2.76	132.12
1971-72	2.14	147.12	2.18	161.90	3.13	149.95
1972-73	2.16	148.33	2.05	151.68	3.31	158.46
1973-74	2.52	173.49	2.44	180.79	3.70	177.31
1974-75	3.09	212.56	2.99	222.01	4.51	216.19
1975-76	3.09	212.86	2.78	205.86	4.38	210.21
1976-77	3.24	222.91	2.73	202.17	4.59	220.30
1977-78	3.13	215.61	2.66	197.27	4.64	222.30
1978-79	3.27	224.98	2.79	206.87	4.67	224.03
1979-80	3.50	240.79	3.27	242.17	5.14	246.66
1980-81	4.31	296.61	4.00	296.57	6.81	326.46
1981-82	5.13	353.24	4.38	324.63	8.01	384.26
1982-83	5.42	372.76	4.62	342.74	8.63	413.53
1983-84	6.13	421.65	5.09	377.51	9.02	432.55
1984-85	6.29	432.85	5.25	389.27	9.09	436.03
1985-86	6.85	471.67	5.91	438.23	9.88	473.63
1986-87	7.31	502.98	6.41	475.14	10.58	507.12
1987-88	7.96	547.77	7.03	521.55	10.92	523.62
1988-89	8.71	599.18	7.86	582.54	11.40	546.34
1989-90	9.43	648.98	8.78	650.75	12.95	620.65
1990-91	12.13	834.51	11.58	858.49	16.07	770.52
1991-92	13.18	906.98	13.01	964.72	18.87	904.75
1992-93	15.65	1077.07	16.47	1220.95	22.08	1058.45
1993-94	16.65	1146.16	17.33	1284.72	25.31	1213.27

Source. Derived from various Annual Reports of the Indian Airlines, New Delhi.

Table 2.12 : Average Operating Revenue, Average Operating Expense and Yield of Indian Airlines at 1980-81 prices

(in Rs.)

Year	Average Operating Revenue	Index	Average operating Expense	Index	Yield	Index
1964-65	5.54	100.00	6.60	100.00	7.95	100.00
1965-66	5.32	96.11	6.87	104.17	7.63	96.01
1966-67	5.08	91.74	7.43	112.67	7.05	88.67
1967-68	4.70	84.82	6.10	92.43	7.14	89.74
1968-69	5.43	98.02	6.58	99.70	7.37	92.73
1969-70	5.58	100.72	6.80	103.13	7.25	91.14
1970-71	5.50	99.27	7.18	108.89	7.09	89.15
1971-72	5.21	94.03	6.28	95.26	7.62	95.84
1972-73	4.77	86.07	5.53	83.84	7.31	91.96
1973-74	4.64	83.82	5.34	80.98	6.81	85.67
1974-75	4.54	82.01	4.98	75.48	6.63	83.42
1975-76	4.60	83.03	4.49	68.07	6.52	82.00
1976-77	4.72	85.18	4.36	66.08	6.69	84.18
1977-78	4.34	78.32	4.10	62.08	6.42	80.75
1978-79	4.52	81.68	4.15	62.90	6.47	81.33
1979-80	4.14	74.68	3.98	60.27	6.08	76.50
1980-81	4.31	77.80	4.00	60.63	6.81	85.63
1981-82	4.69	84.74	4.15	62.86	7.33	92.19
1982-83	4.83	87.14	4.28	64.91	7.69	96.67
1983-84	4.99	90.05	4.47	67.69	7.35	92.39
1984-85	4.78	86.32	4.43	67.08	6.92	86.96
1985-86	4.93	88.97	4.52	68.58	7.10	89.34
1986-87	4.99	90.09	4.77	72.35	7.22	90.83
1987-88	5.05	91.19	5.04	76.39	6.93	87.17
1988-89	5.16	93.11	5.34	80.99	6.75	84.90
1989-90	5.21	93.96	5.22	79.20	7.15	89.86
1990-91	6.07	109.59	5.70	86.42	8.05	101.19
1991-92	5.80	104.72	5.40	81.87	8.31	104.46
1992-93	6.26	112.99	6.19	93.89	8.83	111.04
1993-94	6.15	110.97	6.15	93.30	9.34	117.47

Source Derived from various Annual Reports of the Indian Airlines, New Delhi.

III. Relative Growth and Dispersion of Selected Indicators of Indian Airlines

To analyse the performance of the Indian Airlines further, it would be useful to see the growths and dispersions in the related series together. Thus, an attempt is made here to discuss the performance of the Indian Airlines in view of the relative growth and dispersion. This has been done with period-wise analysis.

The average annual continuous growth rate as an indicator of performance is estimated from the trend coefficient by fitting the following linear regression model:

$$\text{Log } y = \alpha + \beta T + e$$

Where, y = dependent variable, α = intercept, β = trend coefficient, T = time and e = error term.

For measuring dispersion in a series, coefficient of variation has been estimated, applying the following formula:[9]

$$\text{Coefficient of Variation or CV} = (\sigma \ / \ \bar{X}) \times 100$$

Where, σ = standard deviation, and $\bar{X}$ = arithmetic mean.

For the purpose of inter comparisons of growth rates and dispersions in different periods, the average annual continuous growth rates and coefficient of variation have been estimated for three periods, viz. **a)** for the study period as a whole (1964-65 to 1993-94), **b)** for the first half of the study period (1964-65 to 1978-79); and

c) for the second half of the study period (1979-80 to 1993-94). These have been estimated for both current prices and constant prices.

Table 2.13 to Table 2.18 depict the result of regression estimates with their corresponding statistics of t-values, R^2 and Dw. Results of the statistics of coefficient of variation is shown in Table 2.19 and Table 2.20.

i) Available Ton Kilometre and Revenue Ton Kilometre

The average annual continuous growths of available ton kilometre and revenue ton kilometre over the study period are 7.0 per cent and 6.7 per cent respectively. Comparing the growth rates in the same during first half and second half of the study period, it can be noticed that during second half available ton kilometre and revenue ton kilometre grew at a much slower rate than in the first half. In first half available ton kilometre and revenue ton kilometre increased at the rate of 8.6 and 4.0 respectively, whereas in the second half they grew by only 4.0 per cent. Slower growth rates during the second half reduced the dispersion in the series of available ton kilometre and revenue ton kilometre for this period. The values of coefficient of variation of available ton kilometre and revenue ton kilometre for the first half of the period were 42.15 per cent and 40.94 per cent respectively, which for the second half reduced to 18.61 per cent and 22.23 per cent. For all the three periods, it can be noticed that there has not been much difference between the growth rates of available ton kilometre and revenue ton kilometre. This is because the load factor has remained relatively stable over the period with however, erratic fluctuations

within a small limit, which is evident from the relatively small value of coefficient of variation, viz. 5.49 over the study period. For first and second half separately, the values of coefficient of variation have remained stable at 5.07 per cent and 5.96 per cent respectively. So far as the trend of load factor is concerned, it is difficult to interpret anything from the regression result in view of its poor values of R^2 and t-statistics.

ii) Total Revenue and Total Expenses

a) At Current Prices

Total revenue and total expense for the study period as a whole have increased at a rate of 15 57 per cent and 16.0 per cent per annum respectively. Thus, the total expense has increased at a slightly faster rate than the total revenue. Division of the present study period in two equal parts reveals that it was during second half when growth in total revenue fell short of the growth in total expense, which ultimately got reflected through the declining trend of net profit of the Indian Airlines after the year 1985-86. While in the first half, total revenue and total expense increased at the rates of 14.94 and 14.12 respectively, in the second half the same increased by 15.06 per cent and 15.38 per cent per annum. Faster growth rate in total expense during the second half has contributed to a higher value of coefficient of variation of total expense than the same of total revenue for this period. For the second sub-period coefficient of variation for total revenue was 55.24, whereas the same for total expense was 63.48 per cent.

b) At Constant Prices

At constant prices the total revenue and total expenses over the study period registered an annual average continuous growth of 7.6 and 6.9 per cent respectively. Unlike at current prices, here the growth of total revenue has been faster than the growth of expenses over the period At constant price also, it was only during second half of the study period when growth of total revenue fell short of the growth of total expenses. During first half of the study period growth rates of total revenue and total expenses were 7.1 per cent and 5.2 per cent per annum respectively which got changed to 7.0 per cent and 7.3 per cent respectively for the second period. The faster growth of total expenses in comparison to total revenue during second half is also reflected from the higher value of its coefficient of variation than the same of total revenue in this period. Values of coefficient of variation of total revenue and total expenses for the first half were 34.86 per cent and 23.77 per cent respectively, which changed to 26.14 per cent, and 28.86 per cent for the second period.

iii) Operating Ratio and Net Profit

a) At Current Prices

Nothing concrete can be said about the trends of operating ratio and net profit, in view of their poor R^2 and t- statistics. But yet it may be useful to observe the trend of growth of these variables in three periods.

The trend of operating ratio for the period as a whole does not reveal much as in view of its low growth of 0.06 per cent. During second period, however, this trend

became more pronounced indicating negative growth of 1.1 per cent in this variable with relatively better R^2 and t- statistics. This implies that the Indian Airlines had a better performance during first half of the study period. However, this trend could not be maintained for the second sub-period when it got changed into a growth of 0.83 per cent per annum, indicating deterioration in the performance. Further, as there is very slow growth rate in this variable, values of coefficient of variation have remained stable for all the three periods.

The net profit after tax for the period as a whole shows a negative trend. This is due to the pronounced negative trend of the same for the second half; as for the first half this trend was positive. Further, there is a remarkable difference in the values of coefficient of variation in net profit, over the three periods. For the first half it was 231.1 per cent, which got reduced to –337.93 for the second half due to poor financial performance in this period.

b) At Constant Prices

At constant prices also, R^2 and t- statistics of the trend coefficients of operating ratio and net profit after tax have remained poor. However, there is an improvement in R^2 and t- statistics of the operating ratio. Trends obtained here are almost similar to those obtained at current prices.

Operating ratio here for the period as a whole bears a negative trend with a low growth of 0.86 per cent per annum. Like at current prices, here also one finds a

negative trend coefficient for the first half and a positive trend coefficient for the second half. The growth in operating ratio for the first half was –2.5 per cent and the same for the second half was 0.51 per cent. This again implies that the Indian Airlines had a better performance in the first half but it deteriorated in the second half of the study period. Faster growth rate of operating ratio in the first sub-period has made coefficient of variation in this period larger (13.81) than the same for second sub-period (4.94 per cent).

The trend coefficient of net profit after tax for the first half is positive and for the second half it is negative, which is in accordance with the results obtained at current price. Relatively poor performance in the second half has resulted into a larger value of coefficient of variation in this period as compared to the same in the first period.

iv) Average operating Revenue, Average Operating Expense and Yield

a) At Current Prices

Average operating revenue and average operating expense during the second half increased at a much faster rate than during the first half. From first half to second half the growth rate of average operating revenue increased from 6.34 per cent to 10.62 per cent per annum whereas the same of average operating expense during this period increased from 5.26 per cent to 11.72 per cent per annum. This has resulted into a much higher coefficient of variation in the series of average operating revenue and average operating expense for the second half as compared to the first

half. The values of coefficient of variation of average operating revenue and average operating expense for the first were 28.57 and 47.45 respectively, which increased to 47 45 per cent ad 55 84 per cent for the second half.

A useful comparison can also be made between the growth rates of average operating expense and the yield. Looking at the growth rate of yield, on finds that the yield has been growing at a rate of 8.5 per cent per annum. This is however, slightly lower than the growth rate of average operating expense, which is 8.5 per cent. Thus, the yield has been increased just to compensate for the increase of operating expenses, however, in the end there is still some difference. It can further be noted that the coefficient of variation in the second half for the yield has increased from 29.65 per cent to 46.96 per cent, which is because of frequent and relatively higher increases of fares during this period. Yield increased at a rate of 6.56 per cent in the first half, whereas the same during the second half increased at the rate of 9.5 per cent per annum.

b) At Constant Prices

At constant prices the trend of average operating expense speaks of the technical efficiency / inefficiency of the business.

Taking into consideration the poor R^2 and t- statistics of average operating expense for the period as a whole, one cannot be conclusive of the results. However, for the first half and the second half of the study period, R^2 and t-statistics of this variable

are statistically significant. For the first half of the study period growth rate of average operating expense has been negative. In this period it declined by a rate of 3 9 per cent per annum. Thus the Indian Airlines performed better in the first half of the study period. For the second half, however, the trend of average operating expense became positive and it increased at a rate of 3.3 per cent per annum. This suggests that the efficiency of the Indian Airlines deteriorated in the second half of the study period.

The change in trend of average operating revenue at 1980-81 prices has been partly governed by the change in utilisation rate and partly by the change in yield at the corresponding price. Since utilisation rate has remained relatively stable over the period, it is the change in yield, which has contributed significantly in changing the average operating revenue. Therefore, growth rates of average operating revenue and the yield are almost same. In the first half while yield declined by 1.3 per cent, the average operating revenue declined by 1.5 per cent. In the second half yield increased by 2.7 per cent and average operating revenue increased by 2.6 per cent.

Table 2.13 : Results of Regression on Time 1964-65 to 1993-94 (Current Prices)

Sr No	Dependent Variables (log)	α	βT	R^2	$Dw_@$
1.	Available ton kilometre	5.06	0.070424	93.38	2.21
		(26.555)	(7.219)		
2	Revenue Ton Kilometer	4.7161	0.066883	94.16	1.82
		(21.619)	(6.415)		
3	Load Factor	4 2494	-0.000524	0.08	1.91
		(122.567)	(-0.273)*		
4	Total Revenue	5.2379	0.15571	99.18	2.20
		(45 069)	(25.215)		
5	Total Expenses	5.1696	0.15996	99.44	2 17
		(62.441)	(35.627)		
6	Net Profit	-207.48	-10.378	1.91	2.02
		(-0 808)*	(-0.724)*		
7	Average Operating Revenue	0.17424	0.08345	97.91	1.63
		(1.699)*	(15.576)		
8	Average Operating Expense	0.096002	0.085588	95.13	1.73
		(0 561)*	(9.878)		
9	Yield	0.52366	0.084535	97.88	1.22
		(4 995)	(15.361)		
10	Operating Ratio	4.5313	0.0005962	3.74	1.55
		(70.995)	(0.174)*		

Notes a) t - values in parenthesis, b) * indicates not significant at 5% level of significance, c) $Dw_@$ indicates the Durbin-Watson statistics of transformed residuals : The problem of autocorrelation here, and in subsequent analyses also, is solved with the help of 'Prais-Winsten' method of correcting autocorrelation

Table 2.14 : Results of Regression on Time 1964-65 to 1978-79 (Current Prices)

Sr. No.	Dependent Variables (log)	α	βT	R^2	D_W
1.	Available ton kilometre	4.8856	0.086499	94.50	1.63
		(92.872)	(14.95)		
2	Revenue Ton Kilometer	4.5499	-0.084247	95.24	1.25
		(95.785)	(16.125)		
3.	Load Factor	4.2694	-0.0022519	4.08	1.44
		(155.0540	(0.744)*		
4.	Total Revenue	5.2134	0.14939	98.86	1.89
		(128.712)	(33.535)		
5.	Total Expenses	5.2629	0.14122	99.20	2.41
		(164.461)	(40.124)		
6.	Net Profit	-561.47	28.798	6.94	1.93
		(-2.111)	(0.985)*		
7	Average Operating Revenue	0.30245	0.0633396	95.88	1.18
		(9.132)	(17.404)		
8	Average Operating Expense	0.33265	0.052627	88.73	1.46
		(7.032)	(10.115)		
9.	Yield	0.63817	0.065648	96.29	1.05
		(19.642)	(18.371)		
10.	Operating Ratio.	4.6354	-0.010769	38.39	1.30
		(134.746)	(-2.846)		

Notes a) t - values in parenthesis, b) * indicates not significant at 5% level of significance.

Table 2.15 : Results of Regression on Time 1979-80 to 1993-94 (Current Prices)

Sr. No	Dependent Variables (log)	α	βT	R^2	$D_{W@}$
1	Available ton kilometre	6 4677	0.039511	57.56	2.27
		(42.226)	(2.610)		
2	Revenue Ton Kilometer	6.0337	0.039742	59.58	1.46
		(28.177)	(2.229)		
3	Load Factor	4.2012	0.0036289	30.93	2.07
		(155.054)	(-0.744)*		
4.	Total Revenue	7.6218	0.15064	96.74	1.27
		(46.853)	(9.909)		
5	Total Expenses	7.6603	0.15375	98.73	1.87
		(114.564)	(21.457)		
6.	Net Profit	-255.44	-33.003	32.10	1.38
		(-0.568)*	(-0.708)*		
7	Average Operating Revenue	1.1958	0.10623	97.79	1.78
		(18.505)	(15.657)		
8	Average Operating Expense	1.0365	0.11724	96.66	1.91
		(10.481)	(11.833)		
9	Yield	1.6578	0.095063	93.99	0.511**
		(27.35)	(14.258)		
10	Operating Ratio.	4.4852	0.008308	46.90	1.41
		(60.334)	(1.257)*		

Notes a) t - values in parenthesis, b) * indicates not significant at 5% level of significance, c) $Dw_@$ indicates the Durbin-Watson statistics of transformed residuals, d) ** indicates uncorrected value of Dw, as correction did not improve it.

Table 2.16 : Results of Regression on Time 1964-65 to 1993-94 (Constant Prices)

Sr. No.	Dependent Variables (log)	α	βT	R^2	$D_{W@}$
1.	Total Revenue	6.6574	0.076062	96.87	2.01
		(58.092)	(12.421)		
2	Total Expenses	6.8650	0.069387	95.92	2.04
		(60.298)	(11.503)		
3.	Net Profit	-881.59	5.3596	1.34	1.69
		(-5.710)	(0.616)*		
4	Average Operating Revenue	1.6034	0.0033923	66.32	2.06
		(15.729)	(0.646)*		
5.	Average Operating Expense	1.8068	-0.0033511	16.48	1:97
		(8.503)	(-0.352)*		
6	Yield	1.9587	0.0047738	94.72	1.44
		(19.292)	(0.931)*		
7.	Operating Ratio.	4.7920	-0.0085985	56.34	1.54
		(53.650)	(-1.854)		

Notes a) t - values in parenthesis, b) * indicates not significant at 5% level of significance, c) $Dw_@$ indicates the Durbin-Watson statistics of transformed residuals.

Table 2.17 : Results of Regression on Time 1964-65 to 1978-79 (Constant Prices)

Sr. No.	Dependent Variables (log)	α	βT	R^2	D_W
1.	Total Revenue	6.6287	0.071187	92.19	1.45
		(126.861)	(12.387)		
2	Total Expenses	6.9517	0.052408	81.30	1.77@
		(76.204)	(5.421)		
3.	Net Profit	-1180.1	39.327	24.92	1.55
		(-6.856)	(2.077)		
4	Average Operating Revenue	1.7181	-0.014727	59.08	1.72@
		(39.994)	(-3.183)		
5	Average Operating Expense	2.0333	-0.038720	82.09	1.93@
		(24.949)	(-4.501)		
6.	Yield	2.0535	-0 012557	72.33	1.33
		(104.878)	(-5.831)		
7.	Operating Ratio.	4.9260	-0.024511	75.47	1.59@
		(77.416)	(-3.621)		

Notes a) t - values in parenthesis, b) @ indicates Durbin-Watson statistics of transformed residuals.

Table 2.18 : Results of Regression on Time 1979-80 to 1993-94 (Constant Prices)

Sr. No.	Dependent Variables (log)	α	βT	R^2	D_W
1	Total Revenue	7.8275	0.069770	85.02	1.42@
		(43.7280	(4.623)		
2.	Total Expenses	7.8840	0.073270	90.73	2.13@
		(66.325)	(6.269)		
3	Net Profit	-330.49	-50.131	23.84	2.70
		(-1.463)*	(-2.018)		
4.	Average Operating Revenue	1.4250	0.02634	89.32	1.55
		(62.781)	(10.429)		
5.	Average Operating Expense	1.3208	0.032515	96.24	2.61
		(81.521)	(18.247)		
6.	Yield	1.7952	3.194	55.95	0.89@
		(21.230)	(3.194)		
7.	Operating Ratio.	4.5177	0.0050505	34.64	1.19@
		(122.225)	(1.298)*		

Notes a) t - values in parenthesis, b) * indicates not significant at 5% level of significance, c) @ indicates Durbin-Watson statistics of transformed residuals.

Table 2.19 : Coefficient of Variation of some selected indicators (Current Prices)

Sr. No.	Variables	1964-65 to 1993-94	1964-65 to 1978-79	1979-80 to 1993-94
1.	Available ton kilometre	59.80	42.15	18.61
2.	Revenue ton kilometre	60.98	40.94	22.23
3.	Load Factor	5.49	5.07	5.96
4.	Total Revenue	111.33	67.24	55.24
5	Total Expense	119.26	62.29	63.48
6	Average Operating Revenue	78.37	28.57	47.45
7.	Average Operating Expense	84.74	24.04	55.84
8.	Yield	78.22	29.65	46.96
9.	Net Profit after tax	-530.01	241.13	-332.93
10.	Operating Ratio	7.83	7.83	7.65

Table 2.20 : Coefficient of Variation of some selected indicators (Constant Prices)

Sr. No.	Variables	1964-65 to 1993-94	1964-65 to 1978-79	1979-80 to 1993-94
1.	Total Revenue	65.01	34.86	26.14
2	Total Expense	62.32	23.77	28.86
3	Average Operating Revenue	10.78	8.65	12.47
4	Average Operating Expense	19.66	19.96	15.05
5.	Yield	9.73	6.63	11.47
6.	Net Profit after tax	-106.31	-82.48	-124.79
7.	Operating Ratio	14.84	13.81	4.94

IV. Reasons for Poor Financial Performance from the year 1989-90 onwards

From the foregoing discussion it is clear that the financial performance of the Indian Airlines deteriorated from the year 1989-90. The main reasons for poor financial performance of the Indian Airlines from this year are discussed below.

i) Grounding of A-320 Aircrafts

Following the Bangalore air crash involving an airbus A-320 on 14 February 1990, the government grounded the entire fleet of A-320 aircraft from 19 February 1990 for forty weeks. It is estimated that the Indian Airlines suffered a loss of about Rs. 197 crores on account of this apart from other intangible damaging effects. Although the government owned the responsibility for this loss, it did not compensate the Indiana Airlines for the same.

ii) Unrealistic Price of Aviation Turbine Fuel

In India the price of air turbine fuel is higher than the same in international market. Adding fuel to the fire the government withdrew the 5 per cent discount it offered to the Indian airlines on bulk purchase. As a result the Indian Airlines has to bear a very high burden on fuel account. The extent of difference due to this can be gauged from the fact that during 1990-91, the percentage expenditure on fuel to operating cost for the Indian Airlines was 36.3 per cent as against 22.4 per cent of the Air India, which purchased most of its fuel requirements abroad.[10]

iii) Serving Uneconomic Routes

The Indian Airlines has to serve a number of uneconomic routes, as such routes are considered vital by the government due to their location and social significance. These routes include Northeast, Jammu, Kashmir, Andaman and Nicobar Islands. Indian Airlines has been cross subsidising these routes from the surpluses on its profitable routes. With the opening of the sky and resulting fall in its profit earnings from such surplus routes has, however, affected its cross subsidization capacity. While Indian Airlines has been incurring overall losses since 1989-90, the losses suffered by it on account of these routes alone amount to about Rs. 325 crores for the period 1989-90 to 1994-95.[11]

iv) Vayudoot Merger

The merger of Vayudoot with the Indian Airlines is also responsible for poor performance of the Indian Airlines. Vayudoot with an accumulated loss of Rs. 207 crores and an annual loss of Rs. 15 crores was merged with the Indian Airlines in May 1993. Further, of the 1300 Vayudoot employees, the Indian Airlines had to absorb around 1000 employees. [12]

v) Industrial Unrest

The Indian Airlines has been frequently disrupted due to industrial unrest, which assumed the bad shape particularly from the year 1989. Major disruptions took place in 1989, 1991, 1992, 1993 and 1994. Competition in domestic air transport

industry has further raised the bargaining power of the unions / association for higher wages.

vi) Under Utilisation of Aircrafts

As a result of the open sky policy of the government, as many as 161 pilots and 93 engineers were lured away by the private airlines between 1992 and 1994.[13] This resulted in a shortage of commanders, gross under utilisation of aircraft and hence inefficient operations.

vii) Induction of A-320 Aircrafts

For the purchase of A 320 aircraft at a cost of Rs. 3,500 crores, the Indian Airlines entered into financing arrangements with the syndicates of foreign banks duly supported by export credit agencies and counter-guaranteed by the government of India, partially on the principal amount and fully on the interest.[14] The resulting interest and depreciation on account of this have also been one of the main reasons of the net losses.

In view of the consistent financial losses of the India airlines, the Ministry of Civil Aviation and Tourism, government of India, in 1995 constituted a committee of experts under the chairmanship of Dr. Vijay Kelkar to find reasons for losses and develop strategies for turning around Indian Airlines in the context of a competitive market environment. The committee submitted its report in November 1996. The main suggestions of the committee are discussed below.

V. Suggestions of the Kelkar Committee (1996)

The committee provided suggestions for the Indian on the following matters:

i) Financial Strategy

A two-phased financial strategy was suggested for a period of 1996-97 to 1998-99 and 1999- 00 to 2002-03.

Phase I was meant for covering the accumulated losses, restructuring the balance sheet, and placing the airline in a position where it could tap the debt as well as equity sources for its medium and long term needs. This was to be done with the fresh injection of aggregate Rs. 920 crores, which was to come from all shareholders, viz. the government, the airline itself and its employees.

During phase II, the committee stated that the Indian Airlines should be in a position to make a public offering of its shares at a premium of Rs. 30 per share in the latter of the 1999-00, thereby raising about Rs. 760 crores from the market. This, the committee argued, would enable the Indian Airlines to induct new aircraft in its fleet and also contribute to the government of India whose existing and future asset value in the airline would go up with the premium issue.

The committee proposed the following pattern of shareholding of the Indian Airlines after the public offering:

Table 2.21 : Pattern of Shareholdings

Shareholders	Share (%)
Government of India	49.0
Indian Airlines Employees	10.6
Public	40.4
Total	100.0

Source: Kelkar Committee Report, 1996, p.18.

ii) Route and Network Rationalisation

On the subject of uneconomic routes served by the Indian Airlines the committee opined that in excess of the government of India's mandatory requirements to serve such routes, policy should be made uniformly applicable to all the domestic airlines so far as serving of such routes is concerned. Further, it is of the view that if the Indian Airlines is asked by the government to operate on uneconomic routes in pursuit of public purpose, it should be fully compensated for the loss incurred / profit foregone on this account.

iii) Organisational Restructuring

The committee emphasized on having a structure of board managed company, where board is of manageable size and is effective. It further stated that in the light of experience gained so far, it would be desirable to revert to the system of having only a single post of CMD at the top.

As far as the merger of the Indian Airlines with Air India was concerned, the committee was of against such a move. It states that in the present situation the problems and complications resulting from merger would far outweigh the likely benefits.

iv) Industrial Relations

The committee was of the view that to improve the industrial relations, the management of the Indian Airlines should have fairplay, transparency, objectivity and discipline and at the same time the organisation should not be allowed to be held to ransom by any section of the employees.

v) Role of the Government

According to the committee, government should assist the Indian Airlines, with the necessary finance and support, in solving its difficulties but at the same time it should keep away from its operation, day-to-day issues and relating assistance with conditionalities.

In the matter of shareholding the committee stated that before the end of this decade, the Indian Airlines should be allowed to bring down the state's equity to 49 per cent.

From the foregoing discussion it becomes clear that the progress of domestic civil aviation has not been smooth and consistent in both pre-nationalisation and post-

nationalisation periods. In the post-nationalisation period for the initial few years, there was an improvement in the performance of the Indian Airlines. However, this improvement could not be sustained over the years. During the study period of the present work (1964-65 to 1993-94) it was seen that the average continuous growth in total revenue was slower than the same of total expense. Also the average operating revenue grew at a slower rate than the average operating expense. Furthermore, the average operating expense grew at a faster rate than the yield. Operating Ratio has also not shown a marked improvement over the study period. In fact in the last few years of the study period, it has deteriorated. Net profit has also not followed a systematic trend It shows a negative trend for the second half of the present study period. In general it was observed that the performance of the Indian Airlines deteriorated in the second half. The Kelkar committee offered some suggestions to the Indian airlines in view of its financial and other problems. Suggestions of the Kelkar committee to solve the financial problems of the Indian Airlines are useful, however, they are not complete. Some more useful suggestions will emerge if detailed economic analysis of revenue, cost and profitability of the Indian airlines are undertaken. Such analysis will help in identifying the problems on the one hand and providing solutions to the same on the other hand, in light of various quantitative reasoning. The present work with this intent, attempts to analyse in detail the trends and structures of revenue, cost and profitability of the Indian Airlines in separate chapters. The following chapter deals with the revenue aspects of the Indian Airlines.

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