



A32-WP/53

EC/6

2/7/98

INTERNATIONAL CIVIL AVIATION ORGANIZATION

ASSEMBLY — 32ND SESSION

ECONOMIC COMMISSION

Agenda Item 31: Regulation of international air transport services

REPORT BY THE COUNCIL ON IMPACT OF CIVIL AVIATION ON STATES' ECONOMIES

SUMMARY

This paper reports on the Council's work since the 31st Session related to evaluating the net national benefits of international air transport, one of the issues which the World-wide Air Transport Conference (Montreal, 1994) recommended ICAO proceed to study. The Assembly is invited to take the action indicated in paragraph 5.

REFERENCES

A32-WP/9, Report by the Council on Follow-up Work Requested by the
World-wide Air Transport Conference
Doc 9644, AT Conf/4

1. INTRODUCTION

1.1 The World-wide Air Transport Conference (Montreal, 1994) recommended, *inter alia*, that ICAO develop "an analytical model for evaluating net national benefits of international air transport and, to the extent possible, of associated regulatory approaches" (Doc 9644, AT Conf/4). As reported to the 31st Session of the Assembly, this Conference request is closely associated with an earlier proposal in the Air Transport Committee for a study on the economic impact of civil aviation. Prior to the 31st Session, efforts had primarily been devoted to gathering existing material. This paper reports on the Council's work since the 31st Session and presents the preliminary results of an evaluation of the global economic impact of civil aviation undertaken by the Secretariat.

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2. WORK IN PROGRESS

2.1 Early in 1996, the Air Transport Committee examined the parameters of the work to be carried out in the light of the budgetary resources available. The Committee decided that the primary aim should be to provide tools at the national and global levels to raise the economic profile of, and encourage investment in, civil aviation in general and technical co-operation and CNS/ATM in particular. The Committee agreed to the following step-by-step approach (recognizing that each of the steps would be dependent on the resources available at the time):

- a) development of a bibliography on the subject, for distribution to Contracting States;
- b) development of some guidance material for States on methodology for carrying out studies on evaluating net national benefits of civil aviation;
- c) collection of the necessary economic, demographic and related data, and evaluation, in very general terms, of the economic impact of civil aviation at the world-wide level, for publication as an ICAO circular and distribution to Contracting States and other interested parties; and
- d) in the light of experience gained with b) and c) above and developments in the work on economic regulation carried out by the Air Transport Regulation Panel, a feasibility study on the development of an analytical model (or, more likely, a range of analytical models according to the circumstances in States) for evaluating the net national benefits of different regulatory approaches.

2.2 The bibliography (step a) was completed and distributed to States in September 1996 (State letter EC 2/76-96/83 dated 20 September 1996). States were requested to identify additional research material. Some references were forthcoming, and an updated bibliography will be issued at an appropriate time.

2.3 The development of guidance material on economic evaluation at the national level (step b) and the evaluation of the impact of civil aviation at the world-wide level (step c) are being carried out in tandem and are reported in more detail below. A preliminary assessment of the global economic impact of civil aviation was presented to the World-wide CNS/ATM Systems Implementation Conference in Rio de Janeiro, 11 - 15 May 1998.

2.4 The feasibility study on evaluation of different regulatory approaches (step d) has not commenced. The work of the Air Transport Regulation Panel is reported in A32-WP/9.

3. PRELIMINARY RESULTS

3.1 Assessing civil aviation's economic impact, in terms of output and employment, requires the evaluation of a complex network of commercial activities that can be attributed to the following sectorial components:

- a) air carriers and general aviation activities;
- b) aerospace and other manufacturing industries;

- c) airports and air navigation services;
- d) affiliated commercial products and services (aviation and non-aviation commodities); and
- e) other governmental services.

3.2 Commercial air carriers depend on a wide range of inputs for the provision of air travel and cargo services. These inputs are supplied by, *inter alia*, aviation-specific manufacturing, service and non-aviation industries as well as governmental agencies. The major inputs include:

- a) airframes and engines, avionics, communication equipment and other aviation technology produced by manufacturing industries which have their major business in aviation, and their numerous suppliers of aviation and non-aviation commodities;
- b) aircraft repair and maintenance functions;
- c) airports and air navigation service providers;
- d) mineral resources such as aviation fuel, oil, de/anti-icing fluid;
- e) construction materials and products along with civil/aerodrome engineering services;
- f) ground-handling services by non-airline operators;
- g) product distribution through travel agents, computer reservation systems, the internet, etc;
- h) in-flight catering and entertainment;
- i) business and operational support functions in financing, insurance, telecommunications, advertising, marketing and many other non-aviation products and services;
- j) training equipment, facilities and services; and
- k) passenger and cargo facilitation through customs, immigration and aviation security.

The international trade position of a national civil aviation sector, that is establishing the extent to which a country depends on importing aforementioned inputs and/or produces and exports the same, can be part of an economic impact assessment (as outlined in paragraphs 3.1 and 3.2 above and further described in paragraphs 3.4 to 3.8 below).

3.3 In addition to their core operations, airlines and airports offer more and more non-aviation services, catering to the comfort, convenience, leisure interests and business needs of travellers, airport visitors and the general public. Airport-based retailing, business centres and duty-free merchandise enlarge the spectrum of economic activities of air transport services and generate a growing proportion of incremental revenues for airlines and non-aeronautical revenues for airports.

3.4 Gross domestic product (GDP) is the broadest measure of economic activity throughout an economy. Correspondingly, an economic impact assessment quantifies the monetary demand for products and services that is generated directly by a given sector, in this case civil aviation. Based on industry and national accounting data as well as employment surveys, flows of funds and job effects are being assessed that are directly attributed to the economic activities of the civil aviation sector, plus its multiplier effects (indirect and induced).

3.5 The evaluation undertaken by ICAO so far concentrates on the direct economic contribution of the components of the civil aviation sector, in terms of production and employment. The sectorial production is estimated to have generated a total operational revenue in the order of U.S.\$550 billion world-wide in 1996. This total sectorial output accounts for the value of all intermediate inputs, plus that of the value added portion. However, the output concept entails an element of double-counting of funds (i.e. an output of one industry is an intermediate input of another industry, consequently increasing the latter's output value).

3.6 The sector's direct economic contribution is solely constituted by the value added portion which is arrived at by deducting the intermediate inputs from the total output. Input/Output matrices of a respective System of National Accounts can be used, *inter alia*, to identify and filter out the intermediate inputs, thus, eliminating an overrating of production value. The term "net national benefit" points to this distinction between output and value added (GDP) concepts.

3.7 The direct economic contribution of civil aviation is estimated at about U.S.\$338 billion world-wide and providing at least 4.1 million jobs in 1996. More than 1.8 million jobs were with the world's airlines, about 1.2 million jobs with the aerospace manufacturing industries and at least 1.1 million jobs were estimated as direct employment with airports, air navigation service providers and other related jobs.

3.8 Beyond the direct production and employment of the civil aviation sector, air transport services have a broader impact on the economy as a whole. Civil aviation acts as a catalyst for travel markets as well as for trading of goods and has an indirect contribution to overall economic growth deriving from its end users. Expenditures of airline passengers and of freight forwarding business are examples of demand that is indirectly generated by the customers of air transport services. Airline passengers undertake pre-travel and post-travel purchases of goods and services (other than the cost of air travel itself), such as local transport (e.g. road transport, air-rail links), hotels, off-airport restaurants and retail. Air freight forwarding businesses run trucking operations and need, for instance, packing, storage, logistics and insurance. These indirect economic activities themselves generate employment. Finally, the income generated by employment and business activities, both directly in the civil aviation sector and indirectly in other sectors of the economy, induces another round of spending in private consumption and investment throughout the economy. Again, there are people employed for these induced economic activities. The direct, indirect and induced economic impact in the aggregate form the total economic impact. Research in this field indicates that the total contribution of civil aviation to the global economy increases over the direct economic contribution in the order of three times in terms of value and six times in terms of employment.

3.9 Civil aviation's economic contribution varies substantially between countries and between regions. It is highly dependent on the state of air transport development (aerospace manufacturers, air carriers, airports and air navigation service providers, and their affiliated industries as applicable). Despite an impressive expansion of air traffic over the last 50 years at an average annual growth rate of 11 per cent in terms of tonne-kilometres performed (i.e. about three times the growth path of aggregate economic activities measured as GDP), the average operating profit margins of air carriers worldwide are

comparatively low. However, the economic impact of civil aviation is not reflected in the rates of return of its central component, the air carrier industry. It demonstrates that civil aviation has an indispensable catalytic role in the economic development of nations, regions and the world.

4. FUTURE WORK

4.1 During the forthcoming triennium, it is planned to issue an ICAO circular with two major components.

4.2 First, the circular would present a global estimate of the economic contribution of civil aviation supplemented with case studies, including:

- a) growth trends of overall economic performance and air traffic;
- b) inter-sectoral linkages of commercial air transport services versus trade and tourism;
- c) a global estimate of the annual gross output, direct economic contribution and employment of the civil aviation sector;
- d) some selected national case studies assessing the economic impact of civil aviation; and
- e) some selected airport case studies analysing the economic importance of airports to their adjacent business communities and regions which they are serving.

4.3 Second, the circular would contain guidelines on a methodology for an economic impact assessment at the national level designed to assist civil aviation authorities, in co-operation with statistical and other governmental offices, to conduct a national evaluation of the economic activities and corresponding employment of the civil aviation sector. The text would cover:

- a) definition of direct, indirect and induced impact to form in the aggregate the total impact;
- b) structure of the civil aviation sector and direct interactions with other industries;
- c) components of the demand for air transport services and the supply of inputs;
- d) the concept of value added;
- e) analysis of employment effects; and
- f) lessons for the civil aviation sector from the satellite account system already developed for travel and tourism through the aegis of the World Tourism Organization.

4.4 As regards evaluation of the economic impact of different regulatory approaches (step d) in paragraph 2.1 above), the Council has noted that the conclusions drawn by the Air Transport Regulation Panel are very broad in nature, and that increasing liberalization of air transport continues in many States with an increasingly wide variety of regulatory approaches. In these circumstances, the Council feels that

such an evaluation or evaluations would require considerable resources to be of practical value to individual States and, given the increasingly severe budgetary constraints of the Organization and other priorities in the air transport field, has decided not to include the task concerned in the draft Programme Budget for 1999, 2000 and 2001.

5. ACTION BY THE ASSEMBLY

5.1 The Assembly is invited to note:

- a) this report on the follow-up work requested by the World-wide Air Transport Conference (Montreal, 1994); and
- b) the Council's intentions with respect to future work of the Organization in the field of economic impact of civil aviation.

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