Transport Policy 43 (2015) 42–54

Contents lists available at ScienceDirect

Transport Policy

journal homepage: www.elsevier.com/locate/tranpol

Towards realizing best-in-class civil aviation strategy scenarios

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ARTICLE INFO

Available online 29 May 2015

Keywords:
Civil aviation strategy
Scenario analysis
Performance benchmarking

ABSTRACT

Developed and less developed countries follow different approaches during the formulation of aviation strategic plans. Additionally, there exists no pre-defined framework to guide developing countries in formulating civil aviation strategies matching their macro-environment and competitiveness levels while addressing their future vision for growth or sustainability. Instead, civil aviation planning over-look these priorities and is often dictated by local political pressures, and mostly influenced by uncoordinated foreign aid assistance. Hence, developing countries use dissimilar and un-structured approaches to reach what is known as "civil aviation master plan" or "draft civil aviation policy". Recognizing that a problem exists in the mechanism for civil aviation planning in this part of the world, research is encouraged to highlight this substantial topic. This paper uses a scenario-based approach to study the roles played by the macro-environment and industry-level performance in realizing best-fit national civil aviation strategies. The goals are achieved through utilizing a two-stage performance benchmarking technique named Data Envelopment Analysis (DEA) on country level data on a sample of 52 countries in different stages of development, followed by truncated regression. Results of the best performing countries—in terms of output efficiency, indicate that the country's macro-environment and air transport sector's performance serve as guidelines to identify aviation policy elements that are considered to impact efficiency. The regression results indicate that a more liberal air services approach is said to be of positive influence on efficiency levels. Further, we show that private airports are more efficient, while public airports are even less efficient than those with mixed ownership/management model. Hence, policy makers are encouraged to adopt an efficient peer analysis approach based on influential policy elements to bridge performance gaps, achieve better operating capacity, direct and prioritize investments in the civil aviation sector.

1. Introduction

The growth of the aviation industry and the increase in international competitiveness require proper policy orientation to ensure systematic, sustainable and orderly development of the national civil aviation sector. Hence, it is imperative that a clearly defined, long term civil aviation policy is formulated. What's more important for the aviation policy is to be based on national priorities. In the developed world, aviation strategic planning is a state-level activity used to provide guidelines for all aviation stakeholders and direct collective efforts towards common national goals. However, in the less developed world the opposite is generally the case. Practice shows that an organized and properly justified approach to development and management of the civil aviation system is normally lacking.

In most developing nations the civil aviation infrastructure and operation is completely under the control of government, whose financial resources are often insufficient to maintain, upgrade or develop the air transport infrastructure and related systems. Consequently, reliance is placed on outside funding, with the result that much of the investment that occurs comes by way of international technical assistance programs, development bank loans, and increasingly from private sector sources. That would seem to govern decisions as to where aviation system investments are made, and for what purpose. These decisions may not necessarily reflect the priorities and needs of the national government regarding civil aviation upgrading (LEAPP, 2001). To be effective as a guide to civil aviation investment, and to reflect national interests and priorities, aviation strategic planning must be part of a national policy planning process for transportation, along with policy directed towards development of other transport sectors such as railway, road transport, marine and ports. Transport Policy, along with other national policies directed towards social development, education, industry, defence, foreign affairs, trade, natural resource management and agriculture make up

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http://dx.doi.org/10.1016/j.tranpol.2015.05.013
0967-070X/

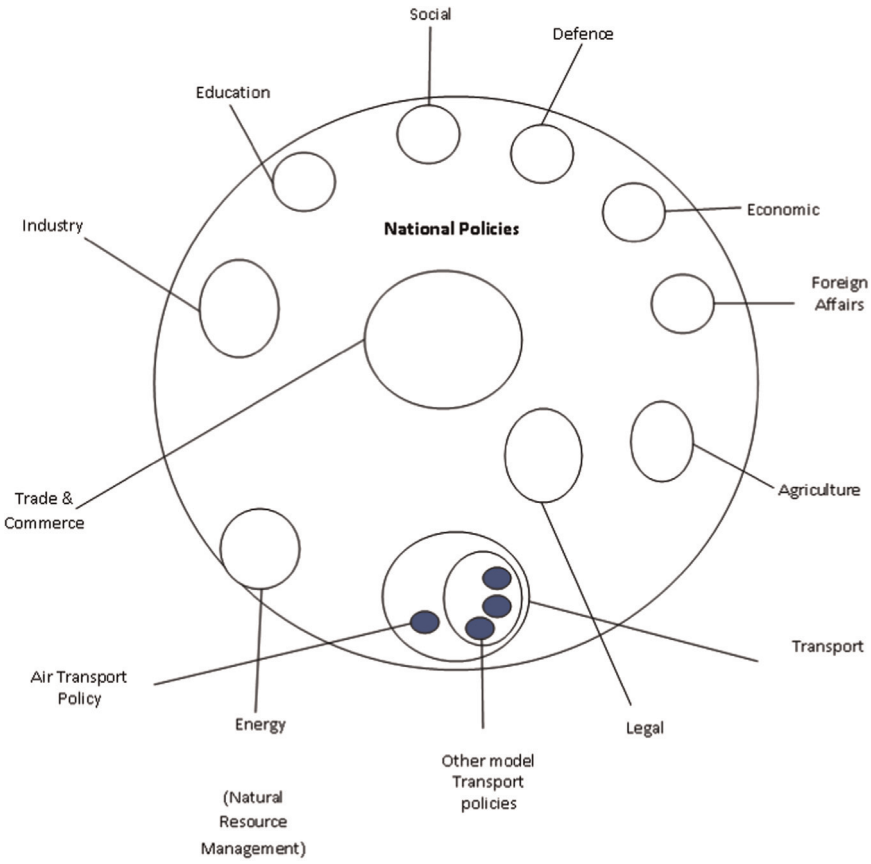

Fig. 1. Air transport policy integration with other national policies.
Source: LEAPP (2001).

broader national policy. This is the only way to ensure that the civil aviation strategic plan can stand as a tool to implement national policy in the civil aviation sector, and be coordinated with the priorities of government towards other social or industrial sectors that may need to be supported by civil aviation, such as tourism and trade, for example (Fig. 1).

This paper aims to identify best-in-class aviation policy scenarios. It uses Data Envelopment Analysis (DEA)—a performance benchmarking tool on a sample of 52 countries and determines the ones that are best using their operating environment to produce an efficient aviation output. It answers the following question: What are the best-in-class aviation strategy scenarios that most-fit a specific national macro-environment context? In Section 2, the paper examines the components of the civil aviation strategic plan. Section 3 continues with establishing a hypothesis for identifying best-in-class strategies. Section 4 provides a benchmarking framework through a DEA model which is employed to recognize the countries with the higher levels of efficiency. Then we apply a truncated regression on the countries which fall below the efficiency frontier. We include exogenous variables that are considered to influence the performance of air transport sector but are neither inputs nor outputs. The objective of this analysis is to identify the policy elements that are found to impact the efficiency of national air transport sector. Results of the best performing countries—in terms of output efficiency, indicate that the country's macro-environment and air transport sector's performance serve as guidelines to identify aviation policy elements that are considered to impact efficiency. The regression results indicate a direct positive correlation between the included policy elements and efficiency. The conclusion given in Section 5 presents the study's contributions and calls upon aviation policy makers to adopt an efficient peer analysis approach to select the best-fit aviation strategy based on influential policy elements to bridge performance gaps, achieve better operating capacity.

2. Components of civil aviation strategic plan

There is no standardized approach to civil aviation planning on national level. However there are some common defined objectives and principle inputs which guide air transport policy. These constitute of a clear set of government agreed objectives for developing the national air transport sector.

Basic approaches to aviation systems planning have emerged from the major agencies funding civil aviation in the developing world. These are the approaches taken by International and Regional Development Banks, National Development Aid Agencies (Bilateral Aid), and the International Civil Aviation Organization (ICAO). These approaches differ significantly in some cases in purpose, scope and effectiveness. What is worth mentioning is that ICAO was the only agency that managed to develop the concept of the National Civil Aviation Development Plan (NCADP), which formalized the process of aviation systems planning at the national level (Craig, 1989). This came about as a result of a growing need to ensure that ICAO's own technical assistance program to civil aviation in the developing countries was managed and implemented so that investment was properly directed. The ICAO approach to creating the NCADP involves developing interlinked national plans for the primary elements of civil aviation—Air Transport, Airspace, Airports and Administration. The process commences at the point of creating or confirming a national air transport policy of the country to which the planning process is