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**The Usefulness of International Tourism
and Air Transport Statistics**

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ABSTRACT

The growth and development of international air transport and tourism positively influence each other. In recent times, driving forces in their performance included liberalization, privatization, introduction of state-of-the-art technology in equipment and management systems, and emergence of new business models such as those of low-cost carriers, among others. There have been discussions on the need for institutions to respond to these challenges with competition policies, investor-friendly policies, and more effective marketing efforts to make the Philippines a more competitive destination. However, for institutions to successfully cope or confront with these issues and make sound decisions for commercial and policy considerations, they require a solid and relevant statistical database. In the case of negotiations for international air transport services, the government needs data which can be used to determine a position that will maximize the gains for the tourism industry and the country as a whole.

This paper explores the data available on international air transport and tourism, identifies their strengths and limitations, and determines areas for improvements in the light of the commercial and public policy needs and of medium-term market developments. It also presents sample or case studies on how statistics are used and processed by various stakeholders using economic data.

I. Introduction

The Philippines relies on the efficiency of its air transport services in facilitating the mobility of tourists, traders, investors and the general public. Around 98 percent of tourist arrivals arrive by air with the majority still using the Ninoy Aquino International Airport (NAIA) as their main entry point.² It moves 70 percent of the total value of our exports and shapes the competitiveness of highly globalized industries like electronics. It is the critical highway that supports the development of airport cities where highly time sensitive and information sensitive industries such as electronics, advertising, audit, and legal services tend to cluster. Air transport liberalization is a major agenda (in the World Trade Organization, World Tourism Organization, APEC and ASEAN). In ASEAN, the High-Level Task Force is pushing for the acceleration of integration from 2020 to 2010 for sectors like air travel and tourism based on the ASEAN minus X formula. Visa rules are now being relaxed and tariffs and non-tariff barriers are being eliminated. These external developments are pushing countries to upgrade their statistical reporting, measurement, and dissemination and to use these data to seek greater economic opportunities for the country and not just one or two industry players.

Competition is driving airlines and tourism suppliers to work more closely in developing varieties of packages for tourism markets. E-commerce

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² Worldwide, more than fifty percent of tourists use air travel as their main mode of transportation.

transactions are likewise increasing and posing challenges in capturing the true performance of tourism-related industries such as airlines, hotels, and travel agencies. Good statistics are needed to build the nation's capital stock, which requires constant exchange of information, identification and assessment of alternatives based on discussions among research institutions and the industries. Safety and environmental issues cannot be ignored. The threats of terrorism have been forcing government agencies to monitor more information about passengers and demand support from tourism. Working towards sustainable development is a major agenda. National tourism organizations and air transport authorities are being encouraged to move beyond the collection of statistics for economic growth alone but to start monitoring the effects on culture and environment which can lead to the proper allocation and pricing of resources.³ Demand for air travel is derived from the demand for consumption of a final good or service like tourism. To serve its final users, the air transport sector should strive to develop comprehensive, accurate, relevant and timely information to enhance the capability of tourism suppliers to deliver good quality and timely services to its clients, foreign and domestic.

This paper therefore explores issues related to the needs for air transport and tourism statistics by various users such as government, industry, and research institutions. It examines the uses, strengths and weaknesses of available data and proposes for greater integration and coherence of air transport and tourism data in support of sustainable tourism development. Resting on the three pillars of economic, socio-cultural and environmental development, tourism activities involve trade-offs between today's and tomorrow's tourism.⁴ The lack of good, reliable and relevant statistics prevents stakeholders from making the right decision and from properly valuing their opportunity costs or trade-offs.

II. Needs, Uses And Gaps In Tourism And Air Transport Statistics

Tourism

Measuring Economic Impact

Tourism is a complex activity that encompasses various activities such as transport (air, land and sea), accommodation, food and beverage consumption, sightseeing, etc. It is not reflected as a separate item in the National Income Accounts (NIA). Hence, unlike manufacturing industries, one cannot directly measure its contributions to the Gross Domestic Product on quarterly or annual basis (the frequency of release of NIA). The retail trade sector, for instance, includes transactions other than tourism. The same is true in the case of the restaurant business. Methodologies such as the Input-Output (I-O) Framework have been used to measure the economic impact of tourism. However, there are issues in terms of delays in the production and release of the I-O table. While

³ The Environment and Natural Resources Accounting Project (ENRAP) attempts to incorporate the links between economic activities and the environment.

⁴ How much more of today's resources can we use in order to generate jobs, income and foreign exchange without depriving the future generation of their ability to enjoy the same or even better quality of life?

procedures such as the RAS adjustment method can be used to update transactions, they are costly in terms of time and resources and may usually be done by some institutions as part of projects; therefore the table is not made available to the general public. The Tourism Satellite Account (TSA) is recognized to be a better reflection of the economic significance of tourism. However, its relevance is also influenced by the availability of the I-O tables. Implementing the TSA is a big challenge in terms of time, resources and more importantly in replicating the system at the community level (e.g. regional, provincial and local communities).⁵ And in a country that is burdened with relatively huge fiscal deficit, constraints on budget allocation for statistical improvement are commonly encountered. Thus, external sources of funds such as our dialogue partners in ASEAN or in APEC (e.g. Japan, Australia, the United States among others) need to be tapped.

Identifying Market Opportunities

The most common and readily available tourism statistics are physical in nature, in the sense that they focus on flows or movements of people. The DOT regularly monitors these flows on a monthly basis thereby allowing one to identify market opportunities (in terms of increasing market shares or faster growth rates). However, delays in the release of the data have been encountered such as when the annual report for 2000 was completed only in January 2002. The private sector particularly the travel agents got concerned about opportunities missed during the crisis period in 2000 due to the series of kidnappings. Visitor flows are derived from the embarkation and disembarkation cards and are useful in measuring the competitiveness of Philippine tourism relative to our Asian competitors (shift share analysis allows one to identify markets where the country enjoys competitive advantage).

The Visitor Sample Survey (VSS) is a comprehensive source of information about travel behavior, particularly useful in examining spending patterns by tourists and to establish linkages of tourism with other sectors, impressions about the country and its destinations, frequently visited places, travel motivations, lead times in planning a trip, and sources of information among others. However, the VSS needs to be updated to reflect more relevant questions and choices and to simplify the questionnaire to increase survey responses. The application of economic tools and techniques in processing the raw data of the VSS provides interesting insights related to the effects of socio-economic variables on demand for travel to the Philippines and probabilities of repeat visits by target markets, among others. Currently, the raw data are not available for public consumption or for research purposes based on the contract between the DOT and another party. Replicating the VSS at the local community level requires partnership between the government, private sector and academic institutions. In February 2004 (considered a lean season), we attempted to conduct a VSS in Bohol⁶ and used economic tools to process and analyze the results. Among the socio-economic variables considered, only age, household

⁵ Local government units are still measuring the economic impact via the direct contributions made to their communities but linkages with other sectors are grossly underestimated.

⁶ Supported by Ms. Orancia Baylo, provincial tourism director, and Mr. Walter Sultan.

size, and income were found to be significant variables affecting travel demand to Bohol⁷ Those who belong to the 18 to 29 years old group (and which account for 31% of total respondents) have lesser probabilities of visiting Bohol more than those who are 40 years old and above. However, the study was limited because it covered only the lean season. The provincial tourism office has already initiated some surveys, which can be expanded based on the format of the VSS. Training can be conducted and linkages with local or regional academic institutions can be developed.

The absence of tourism as an item in the National Income Accounts prevents one from using just one index to measure price movements and seasonality factors. The narrower measure commonly used by the private sector (and in demand forecasting models by researchers) is the consumer price index of tourism-related activities such as retail trade, hotels and restaurants, and transport. But their price movements are not all tourism-related. There have been attempts to develop tourism price indices based on the expenditure data⁸. A tourist market basket will be used to prepare a tourism price index. On the demand side, the price index measure changes in prices over time of a given pattern of tourist expenditure i.e. inter-temporal (time) price indices or compare the price level of tourist expenditure in space i.e. inter-spatial (space) price indices, which could further be divided into inter-regional and inter-national price indices. On the supply-side, price indices on tourism from the supply side measure changes over time in the cost of tourist production and of gross fixed capital formation due to changes in the prices of relative goods and services and changes in the remuneration of production factors (Srivastava,2000). Others use the term Travel Price Index to measure inflation rate of the cost of purchasing travel-related goods and services (e.g. accommodation, transportation, food and beverage, recreation, retail, etc.) and based on the travel-related components of the CPI. To derive TPI, the prices of these components are weighted and aggregated by their proportions in the total tourism expenditures. Air travel price index is another option that applies specifically to air transport activities. The World Travel and Tourism Council uses a Tourism Price Competitiveness Index (TPCI) that shows tourism price index across countries and is computed using the Hotel Price Index and Purchasing Power Parity Index. In attempting to develop such kind of indices, it is important to determine the appropriate and reasonable frequency of data collection and dissemination – whether monthly or quarterly.

Socio-Cultural and Environmental Sustainability

While statistics on economic well-being are more prominent, there is scarcity of data reflecting the links between tourism as an economic activity and its costs on the environment and culture. The connection between these two aspects of sustainable development is illustrated in the table below. Sustainable tourism indicators aim at measuring the use of resources (environmental and socio-cultural) in a more sustainable way and at properly pricing or valuing

⁷ See Rodolfo and Mamaril (2004); “*Travel Behavior of Tourists to Bohol: Survey Evidence.*” UA&P.

⁸ The WTO recommends that the market basket will include package travel, holidays and tours, accommodation, transport, food and drinks, recreation and culture and shopping and others.

resources. But a relevant question is who has the main responsibility to monitor and collect data? Or who will shoulder the costs of harmonizing and disseminating the data? And how will the private sector contribute to the development of sustainable tourism indicators? Examples of these indicators are: renewable resources used in tourist accommodation as percentage of total fuel used, number of tourist businesses in an area that have renewable energy sources, amount of water recycled as percentage of total water that could be potentially recycled, water consumption per tourist (or bed or night), ratio of water consumption for domestic, tourist and agricultural use; square meter, existence of legislation or zoning regulations, extent of research concerning the areas' sustainable development of beach per tourist, number of employed females per 100 of employed males, and number of local meetings to discuss issues before policies are implemented. This is not a complete list of indicators but just an indication of the scope of activities that tourism encompasses. Some of these data are already being monitored or documented by various entities. An inventory of existing sustainable tourism indicators at the local and national level can be explored.

Links between tourism and the environment

Environmental Issues	Connection to Tourism	Connection to Major Environmental Problems
Energy production and consumption	Tourism will lead to increased use of various means of transport	Pollution
Water use for human activities	Increased consumption of resources during peak seasons	Resource Scarcity
Waste loading in water, air or land	Increase in the number of persons in tourism areas leads to an increase in the amount of waste	Pollution

International Air Transport

Measuring Economic Contributions

The gross value-added for air transport is used to measure the contributions of the industry to national output. A breakdown of domestic and international air transport is not reflected and the distinction between the two is considered "artificial" (Button, 1999)⁹.

In the balance of payments, services transactions cover only international travel and tourism as a whole. As a service export, tourism covers a number of related activities thus service receipts of airlines are not reflected as separate item. The VSS data only reveal the spending on local air transport.

Market and Product Planning and Development

⁹ Both domestic and international services often use the same equipment and route networks are interlinked. However, when institutional structures are considered, then domestic services are normally treated differently from international ones. Also, not all players in the domestic market participate in international services.

The Civil Aeronautics Board (CAB) collects data on passenger (and cargo) traffic by airline and by city pair, both domestic and international. The data cover both revenue and non-revenue traffic and published on a quarterly and annual basis. These physical data on traffic flows by airline enable us to examine market structure, competition, and market opportunities. Disparity exists between domestic and international air transport traffic data as evidenced by the lack of load factor figures in the submission of international airlines. In most cases, there are delays in the reporting of data. Load factors measure the ability of an airline to sell its seats. High load factors indicate traffic growth and therefore open up opportunities for airlines to increase capacity on a given route. But capacity is not monitored by the CAB in the same way as the passenger traffic data; The CAB relies on the submission of airlines and is often not equipped with the complete information to be used for negotiations (particularly in institutionalizing trigger mechanisms in the confidential memoranda of understanding of the air services agreements).

More than the passenger traffic data, airlines (as investors in market development) will benefit from information on origin (O) and destination (D) flows (and not just airport to airport flows). An O-D database can reflect the city of origin and final destination of a passenger, which can then allow airlines and even travel agencies to evaluate market trends, identify market or product niches, measure their own growth and plan new services. It is not enough for an airline to know that a passenger boarded at Narita Airport in Japan and is bound to Manila. It is more important to know from which prefecture the passenger originated. The same applies to data on overseas Filipinos in the United States. Marketing efforts and resources can be more effectively used with the availability of such information. The ED cards are a good source although they are not readily accessible to the public. The DOT processes only the flows and purpose of travel and travel arrangements among others but the ED cards can give information such as traffic carried by airline by type of passenger, by purpose, by immigration status, by travel arrangement and by city of origin and destination. The volume and type of passenger traffic per flight number can likewise be processed and therefore reflect good times for securing airport slots for new entrants or for existing ones who wish to explore other slots. The Immigration Bureau, on the other hand, encodes all those information but the data are not processed for use by various stakeholders (e.g. airlines, travel agencies, government, etc.). Both the DOT and Immigration Bureau have the database but it seems more appropriate if the DOT is the agency that disseminates the information to the users.

Policy Analysis

Reliable information is power especially during negotiations for air services, whether on bilateral or regional basis. There are three major areas where information is very critical for an economic regulator. These are on quantifying the net costs or benefits to society of regulatory reforms such as liberalization, increasing capacity under a trigger mechanism rule, and in fostering competition among players.

To measure the benefits and costs of policy reforms such as liberalization, economists seek to measure consumers' welfare and producers' welfare and estimate any deadweight loss to society. Such methodology has been employed in some studies in the airline industry, as in the case of the liberalization of the North German region (Gillen et al, 2001), Canada-Japan (Gillen et al, 1999), and Australia (APC, 1998). These types of studies have yet to be explored more in the Philippines. Data constraints and availability are major issues to be considered issue.

As member of the negotiating panel, the DOT represents the concerns of groups like travel agencies who seek for more capacity in tight markets due to the high utilization of entitlements by foreign and Philippine carriers. During the National Socio-Economic Summit of the Arroyo Administration in 2001, the trigger mechanism, an automatic increase in capacity after a certain load factor is reached, was adopted as a solution to capacity constraints in international routes. In relation to this, load factor data are critical in monitoring whether trigger mechanism should already be adopted. A few of our air service agreements already incorporate provisions on trigger mechanism (such as Brunei, Qatar). However, our negotiators encounter difficulty in getting the load factor data from the CAB due to the constraints mentioned earlier. For future negotiations, our panel can propose to institute trigger mechanism in more air services agreements but the mechanism for collecting data on capacity and load factors should be improved. Airlines should not encounter difficulty in submitting load factor data because they also submit the same information to international associations and organizations. Nevertheless, the CAB can explore alternatives by utilizing the data being collected by other agencies such as the airport authorities. The NAIA already collects data on passenger traffic and aircraft type per airline on a daily basis. From such database, load factors can be computed per flight of an airline. A present limitation, however, is that the passenger traffic cannot be broken down into revenue and non-revenue traffic. Nevertheless, the negotiator is equipped with an alternative source and can therefore countercheck the submission by airlines.

Even under a very competitive environment (as in the case of fully liberalized markets or open skies arrangements), regulators should be equipped with the relevant information to determine if airline practices are becoming anti-competitive. These practices include predatory pricing, mergers and acquisitions, alliances, and code shares. For a regulatory agency to make sound decision, it has to be equipped with the complete and correct information. Relying on information from only one player loses out the objectivity of assessment and can be prone to regulatory capture. Data should be collected and processed by government through its linkages with other agencies. Ultimately, the power of the CAB as an economic regulator should be duly recognized by the industry. Delays in the submission of data or failure to submit triggers the question: how can the CAB strengthen its power over the industry?

The O-D flows can also be used by economic regulators in evaluating competition, developing policies for the exchange of air services, for airport capacity planning and market research.

Infrastructure

Another source of air transport data is the Air Transportation Office (ATO). Passenger, aircraft and cargo movements per airport are collected. Such data are useful in assessing traffic growth relative to the aviation infrastructure - airport capacity in terms of slots, gates, waiting facilities, etc. In cases of airport congestion and where capacity cannot be expanded immediately due to financial constraints, space and environmental concerns, data on peak-hour and off-peak hour slots can be used to explore alternatives such as peak-load pricing. Trading of slots is also an option but proper valuation and ownership of slots are issues to be explored.

Costs and Productivity

Costs of airline services are relevant for policy makers, investors and airlines. Policy makers need cost data to assess legal matters related to industrial policy (such as establishing cases for predatory pricing) and efficiency of airline operations (in relation to safety). Investors would be interested to know the performance of an airline that is going public or seeking capital infusion. Direct operating costs can be expressed in terms of \$/hour, \$/mile, ¢/seat-mile, or for cargo aircraft, ¢/ton-mile. Costs in terms of \$/mile indicate the maximum loss to an operator with an empty airplane, while costs per unit productivity such as ¢/seat-mile, or ¢/ton-mile are indicative of the fare that must be charged with reasonable load factors. Costs data are also relevant for sensitivity analyses particularly in assessing the impact of trends such as rising fuel costs or fluctuations in exchange rates. Currently, the CAB collects submission of the industry for airfares and adjustments but the data are not compiled and processed to establish even an air travel price index for use by consumers and the CAB itself. Furthermore, the intense competition in the industry is driving airlines to differentiate their products by using punctuality as a key performance indicator. Punctuality can lead to cost savings by airlines as turnaround time can be greatly improved.¹⁰ Thus, data on on-time performance by airlines and reasons for delays should be documented, processed and made public for consumers and airport planners. After all, delays can be caused by constraints in airport facilities. In relation to this and the need to improve ability to deliver services, our airports need to constantly benchmark their own productivity and cost structure with other airports in the region.

III. Conclusion and Recommendations

This paper is an initial attempt to stimulate discussion on increasing transparency in air transport and tourism statistics, in developing a more strategic framework for data collection, processing, presentation and dissemination by government agencies. It advocates for increasing the accessibility of data particularly for air transport, for improving the relevance of the statistics by reviewing basic sources of information such as the E-D cards and VSS, for ensuring timely release of data, for better presentation of data to improve interpretability and lastly, for coherence of air transport and tourism data with

¹⁰ Evidence from European and US airlines points to a positive correlation between airline punctuality and operating margins (Booz-Allen Hamilton, 2001)

other statistical sources through the proper use of concepts, classifications and use of common methodology. It still does not cover a comprehensive list of the available information but advocates for a consideration of the issues raised. In particular, the following are recommended:

1. Harmonization of data gathered by government agencies. The air cargo traffic flows, for instance, monitored by the CAB can be harmonized in light of the data collected by the NSO – exports by air – so that users are properly guided on the use of those two sources of information.
2. Expansion of data collection by CAB to include capacity and load factors.
3. Strengthening the links between the CAB and NAIA in producing air transport statistics. While Terminal 2 is solely used by PAL. The NAIA can still maintain its own monitoring and data collection for use by the CAB and other users.
4. Explore options on how to process and disseminate the E-D card data from the Immigration Bureau. This should be accompanied by a review of the ED questionnaire to make it more relevant to the users.

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