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CASE STUDY ON THE ECONOMIC CONTRIBUTION OF AIR TRANSPORT IN DOMINICAN REPUBLIC

(Presented by Dominican Republic)

EXECUTIVE SUMMARY

This paper intends to present the case study on Dominican Republic developed jointly by experts from the State, ICAO Secretariat and the Inter-American Development Bank to highlight the importance of policy initiatives in civil air transport to boost traffic and bring benefits to the national economy.

Strategic Objectives:	This working paper relates to Strategic Objective – *Economic Development of Air Transport*
Financial implications:	Not applicable.
References:	Resolution A39-23, *No Country Left Behind* (NCLB) Initiative Resolution 39-25, Aviation's contribution towards the United Nations 2030 Agenda for Sustainable Development Air Transport Case Study, *The Impact of Aviation Reforms in the Dominican Republic: a Model a Socioeconomic Growth and Development*

1. BACKGROUND INFORMATION

1.1 In September 2015, Heads of State and Government adopted Transforming our World: the 2030 Agenda for Sustainable Development, including its 17 Sustainable Development Goals (SDGs) and 169 targets. The Agenda is a commitment to eradicate poverty and achieve sustainable development by 2030 worldwide, ensuring that no one is left behind. The adoption of the 2030 Agenda was a landmark achievement, providing for a shared global vision toward sustainable development for all. The 2030 Agenda for Sustainable Development called for special attention to Small Island Developing States (SIDS), as they face unique vulnerabilities in their sustainable development.

1.2 Achieving the 2030 Agenda's SDGs will rely on advances in mobility, including air transport that is safe, secure, efficient, economically sustainable and environmentally responsible. While sustainable transport and aviation do not have a specific SDG, it has been widely recognized that both are essential enablers in the achievement of the 2030 Agenda for Sustainable Development. In 2017, the International Civil Aviation Organization (ICAO) completed a thorough analysis of how its 2017-2019 Business Plan supports the 2030 Agenda for Sustainable Development. Through this analysis, the Organization mapped direct linkages with 15 of the 17 SDGs.

1.3 ICAO's No Country Left Behind (NCLB) initiative focusses the efforts of the Organization to assist States in implementing ICAO Standards and Recommended Practices (SARPs). The main goal of this work is to help ensure that SARPs implementation is harmonized globally so that all States have access to the significant socio-economic benefits of safe and reliable air transport.

1.4 The Dominican Republic, due to its close and uninterrupted work with ICAO, serves as a model to the SIDS, since they share same characteristics, such as the reliance on tourism and the air transport as the main mean of transportation. In the past 12 years, the State has stood out as one of safest and most reliable State to fly to, due to a group of reforms in the aviation sector, with the objective of conforming to the ICAO international standards. These reforms, coupled to other policies to foster tourism in the State, increased the number of passengers who fly to Dominican Republic, thus impacting greatly in the State's economy.

1.5 The main reforms can be summarized as: modernization of the institutional framework, defining and separating functions between autonomous institutions for each group of activities; liberalization of the aviation market, fostering an free competitive market and signing air services agreements with more than 60 States; capacity-building to public officers in order to deliver better services; modernization of the international airports and of the air navigation system; incorporation of ICAO international standards in the internal legal framework; Action Plan for the Mitigation of CO2 emissions in the aviation sector with goals and measures.

1.6 The objective of the case study was to describe these reforms from 2006 onwards and to measure, through rigorous econometric models, the impact of these reforms to the passenger flows to the State and the Dominican Republic economy. ICAO worked in close coordination with the Inter-American Development Bank to develop a case study that highlights the importance of policy initiatives in civil air transport to boost traffic and bring benefits to the national economy.

2. SCOPE, PURPOSE AND METHODOLOGY

2.1 The study included a two-day air transport workshop on aviation data analysis and economic regulatory framework and a one day meeting on the case study activities. The objective of the

meeting, which was organized by the North American, Central American and Caribbean (NACC) Office, was to bring together all stakeholders (Representatives of Dominican Republic Authorities (IDAC, JAC, Tourism Ministry, Transport Minister, UNPHU, ACI/LAC, IATA, Inter-American Development Bank) and experts from the ICAO Air Transport Bureau to work on a case study on the Dominican Republic. The Case Study will show the effects of when a State has political will and commitment in establishing aviation as a national priority versus when it does not.

2.2 The two-day workshop served as a basis for common understanding and included presentations on the latest applications in data and analytics, air transport economic policies and regulations that are used for efficient decision making by different aviation stakeholders. The workshop included presentations on the latest applications in data and analytics that are used for efficient decision making by different aviation stakeholders, including the latest sophisticated ICAO applications for connectivity and traffic forecasts.

2.3 Considering that previous studies tend to concentrate on aviation's contributions to States as represented over a continuous period, this case study had the objective to quantify the economic and social benefits from civil aviation to Dominican Republic, including data and analysis of the past two decades, seeking to demonstrate the direct empirical data (before and after) and the effects of aviation when a State chooses to make aviation a priority in its development and strategic plans as well as when a State does not provide the political will or commitment to its aviation. The incremental net benefits to the economy of the State from the investments in air navigation infrastructure, in improving effective implementation of safety audit scores and other activities in the civil aviation domain were quantified.

2.4 The case study seeked to provide a more relevant and accurate representation of the "before" and "after" effects on the economies and sustainable developments of SIDS as well as other small developing economies, including meaningful insight to civil aviation planners and to line ministries (tourism, finance, transport) on the returns on investments generated by the civil aviation sector. It is also expected to further investments and financing in the air transport sector, considering the forecasted growth in traffic of the State and to provide a template to civil aviation authorities in the region and to other SIDS, with which they can communicate the benefits from investments and financing in civil aviation activities in their respective States.

2.5 The study also provided ICAO, Directors General, Ministers, Heads of State, the industry, NGOs as well as developing States and SIDS in all parts of the world with a true and relatable representation of the impact and need of political will and commitment as a fundamental and required base for any true development and sustainability of the air transport system that would allow the States to reap the socio-economic benefits and sustainable growth of economy within each Member State. Lastly, and most critically important, it would provide a very real and relatable validation to many of the States that due to their size, or economic development, think that such socio-economic benefits obtained through air transport do not apply to them.

2.6 The methodology applied used a quantitative modelling technique called difference-in-difference (DID) estimators using a pool of 20 other comparable States. This technique is typically used when some groups, like States, experience a treatment, such as a policy change, while others do not. The groups are observed before and after the treatment. One of the most prominent methods of DID is the synthetic control approach. In the DID estimator, a simple average between units (cities, States) in the control group is used while in the synthetic control approach, there is a weighted average that is applied to each unit. The composite control group reproduces better the behaviour of the treatment unit before and after the policy treatment. The control group chosen for this case study is a mix of Latin American and Caribbean States and some tourist destinations around the world.

2.7 The model estimated Gross Domestic Product (GDP) per capita using a panel data estimation with growth rates. This model is simple and was estimated only to selected correlates. The variables assigned to the model selection are inflation using the Consumer Price Index (CPI), exchange rate, added value of industry and services, share of tourism expenditures in the GDP, tourism expenditures and population,. Moreover, there is a relationship between the exchange rate, inflation and interest rate. Inflation and exchange rate were also included as explanatory variables for the GDP per capita along added-value of services and industry.

2.8 The synthetic control group is estimated using added-value of services per capita, the added-value of industry per capita, inflation, and exchange rate. The estimation of the synthetic control DID was applied using a nested maximum likelihood routine to guarantee robustness when estimating the weights to the control group. From 20 States in the control group, the optimization method selected four, which is the standard result for the synthetic control approach. The comparison of the pretreatment characteristics of the actual Dominican Republic with that of the synthetic Dominican Republic shows that the pre-treatment averages are well reproduced by the control group.

3. CONCLUSION

3.1 The study demonstrated strong evidence that the reforms generated benefits to the economy of the Dominican Republic. The study also highlighted the positive impact on GDP per capita of the group of reforms in the aviation sector. The models showed aviation reforms during 2006-2012 had the following positive impact on the State's economy:

- net effect was a 15.5% increase in GDP per capita over 2006-2012 (increase of USD 607 per capita of income);
- net effect on the GDP was USD 5.5 billion in 7 years (2006-2012); and,
- net increase between 23% and 27% of the passenger traffic between the United States and Dominican Republic.