# Trial of the Air Transportation Demand Forecast Model (NILIM Model) for Outbound Tourists Considering Differences by Gender and Age

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## 1. Purpose and Background of the Study

The National Institute for Land and Infrastructure Management Policy has been developing and improving an air transportation demand forecast model (Hereinafter referred to as the " NILIM model ".). The NILIM model has played a major role in policy deliberations, for example, in the demand forecasting presented at the 9th Basic Policy Subcommittee of the Aviation Subcommittee of the Transport Policy Council.

In this study, we analyzed the departure rate by gender and age of a sub-model of the NILIM model that predicts the number of outbound tourists in light of the declining birthrate and aging population, and experimentally examined a model that takes these differences into account.

## 2. Analysis of departure rates by gender and age

**Fig.1** shows the departure rates by gender and age, using data published by the Immigration Services Agency and the Statistics Bureau of the Ministry of Internal Affairs and Communications. As a result, it was confirmed that the departure rates differed significantly by gender and age.
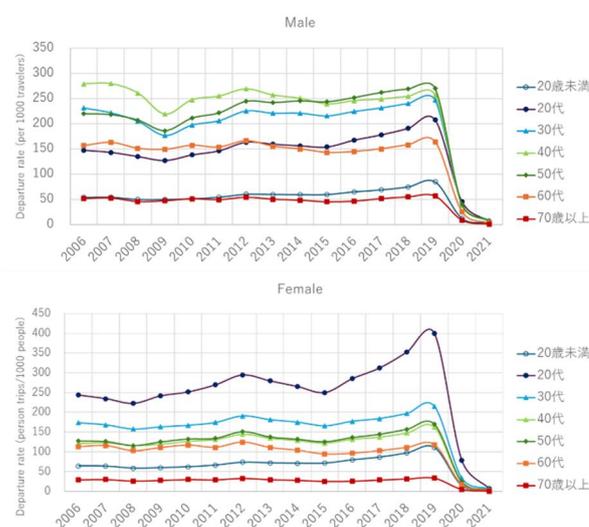


**Fig.1 Changes in departure rates by gender and age**

## 3. Reproducibility of a model considering differences by gender and age

Therefore, a model considering differences by gender and age was examined, and the reproduction value of the number of outbound tourists was calculated using the model. **Fig.2** compares the reproduction value with the actual value based on the data of the International Air Passenger Movement Survey. The model could generally reproduce the actual value.
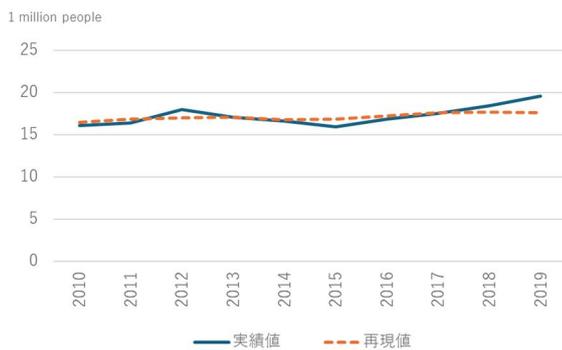
1 million people

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**Fig.2　Comparison of reproduced values and actual values**

## 4. Significance of the results of this study and future development

As the declining birthrate and aging population are expected to progress, it is significant that we were able to examine models by gender and age with a certain degree of reproducibility. In the future, we will proceed with the verification of whether this sub-model can be used for future prediction, and aim to improve the prediction accuracy of the NILIM model.

☞ For references,

1) Material 2 of the 9th Basic Policy Subcommittee of the Aviation Subcommittee of the Transport Policy Council -1 pp. 20-24

https://www.mlit.go.jp/common/001013530.pdf