INSTITUTO NACIONAL DE ESTADISTICA

Statistics for Tourist Movements at borders and Tourist Expense

(FRONTUR-EGATUR)

Method for the linking of series with INE methodology and TURESPAÑA methodology

November 2015

Objectives

The linking aims to record the statistical effects due to the modifications in the design and other methodological changes, the objective of which is to provide monthly figures for annual variation for the first year of validity of the new design (October 2015 to September 2016), for a sub-group of main aggregates of the Frontur and Egatur series.

Similarly, it should allow the main aggregates to be obtained that are accumulated from months in 2015, from October onwards. Given that from that month onwards the accumulated information should be calculated using results obtained with two different methodologies, and that the middle months of the year correspond with the old methodology, for this purpose the main aggregates corresponding with October, November and December 2015 will be estimated, linking forwards the information produced according to the old design for operations carried out by Turespaña.

From January 2016 onwards, the monthly information and accumulated monthly information, as well as the annual figures linking backwards, will be disseminated calculated according to the new design of operations that is the responsibility of the INE.

Main methodological changes with an anticipated impact on the linking of series

The most important methodological changes, which can potentially have a statistical impact on the comparison of structures and levels of the new and old statistical series, for the main aggregates of Frontur-Egatur, are:

- The method of allocation and selection of the Frontur sample has been changed, in all of its channels (motorway, airport, port and railway).
- Similarly, the allocation and selection of the Egatur sample has been changed, so that it fits with the Frontur sub-sample, in such a way that all Egatur records are associated with the corresponding Frontur records, which would not have occurred with the previous design, in which both samples were independent, whilst maintaining, in the same way as in the new design, the Frontur variables as a sub-set of those of Egatur.
- In the four channels, the processing criteria for the lack of complete answers has been amended, which may have an impact on some structures in relation with internal characteristics for trips or excursions, but not on the total levels of visitors, given that the main variable for the study, the 'foreign visitor' event, is contained in the framework, which is the same both before and after the re-design.

- In the event of entries for motorways, with the aim to extend the variability of the typologies of visitors captured in output, a complementary sample (FRONTUR_COM) has been designed for service stations, the vehicle flows for which are associated with the so-called conflictive points located on fast departure routes in which the interview is hindered at borders.
- The estimate process deriving from the adjusting of bollards and gauging at the border by motorways has been altered slightly with the introduction of a combined change estimator.
- Use for the air route of the database from administrative sources about structures of nationality of passengers deriving from non-Schengen airports, which were not being used in the previous design and which are expected to improve the cost/efficiency for this sub-sample. These structures in the previous design (which continue to be in non-Schengen flights) were solely calculated based on the sample observations.
- In terms of the cost variables in Egatur, a model assisted estimate procedure has been introduced (described in the methodology of this operation), substantially different to what was previously used, with the aim to include up-to-date techniques for these types of circumstantial operations with objective monetary variables, tending to control the variability and bias of the series, within the sub-populations of interest and for the different types of cost.
- Another methodological change that affects all of the channels is the different estimation procedure, due to having introduced a calibration phase for exogenous variables deriving from the monthly surveys for the Occupancy in Tourist Establishments of the INE (EOHyAT) as an innovation, maintaining the distributions of the main shared variables for Frontur and Egatur.

General procedure: statistical link based on microdata

The general procedure for the four channels will consist of creating a microdata file that is instrumental in both operations, simulating, based on the original microdata from the past, the methodological changes, among those previously listed, which will supposedly have a greater impact on the changes to the level and structure of both series of aggregates (with the old and the new methodology), to know, those that are calibrated to exogenous marginal costs and the simulation of the same cost model for the months of the base year. That is how results are obtained as if these procedures were implemented in parallel with the real world in month M-12, M being the current month.

The monthly estimated links will be considered as provisional, being able to be subject to updating after twelve months of survey with the new design.

There is also the possibility that the study of the simulated series derives from the fact that there is no need to carry out a statistical link, in the event that a rather insignificant impact is observed for the re-design.

Obtaining accumulated and linked aggregates, in relation with months in 2015

The general procedure for obtaining an aggregate for the month M (Year_T: October 2015 - September 2016) linking forwards, will be:

$$\hat{Y}_{M(ENL)} = \frac{X_M}{X_{M-12\_SIM}} * Y_{M-12};$$

Y being the data obtained with the old methodology: in the month M-12 real data from the base year B (October 2014 – September 2015) or linked M (ENL) of the year T;

X represents the real data for the month M of the Year_T, or simulated with the new methodology for M-12_Sim (Year_B).

Obtaining linked aggregates, in relation with October 2015

With the linking methodology, variation figures are obtained from a month of the initial year, October 2015 - September 2016 with respect to the same month of the base year (base year, October 2014 - September 2015), as if both months were hypothetically using similar estimate procedures. The annual variation figures from a month of the base year going backwards are the same as those published by Turespaña. Multiplying both, and applied to an aggregate of a month from the initial year estimated with the new methodology, it is possible to obtain estimates going backwards, with the new methodology, for the main aggregates that are the subject of the linking.