

Calibration as a tool to enhance coherence at regional level in tourism statistics

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What is this presentation about?

- It is about trying to answer a question...

How many tourists come to my **REGION** every month?
(17 questions indeed!)

AnswerS coming from:

- Surveys to accommodation establishments (supply side): arrivals/nights spent at **market** accommodation
- Demand surveys:
 - ✓ Inbound tourists: FRONTUR-EGATUR
 - ✓ Domestic tourists: Residents Travel Survey (RTS)



How many tourists come to my REGION every month?

- Supply side surveys had a good geographical detail but only tell one part of the story

Figure 1. Share of nights spent at market accommodation establishments by region. **Domestic tourism**. Residents Travel Survey. 2017

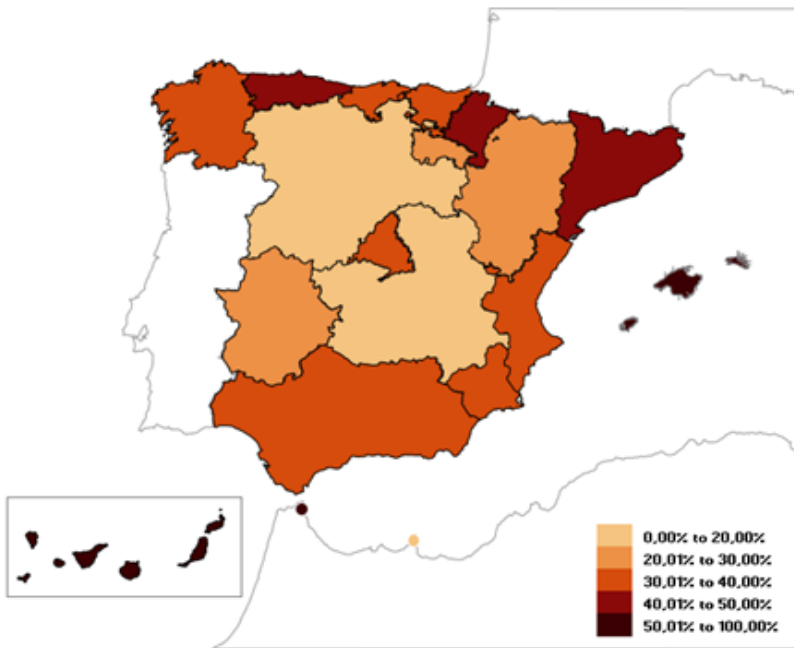
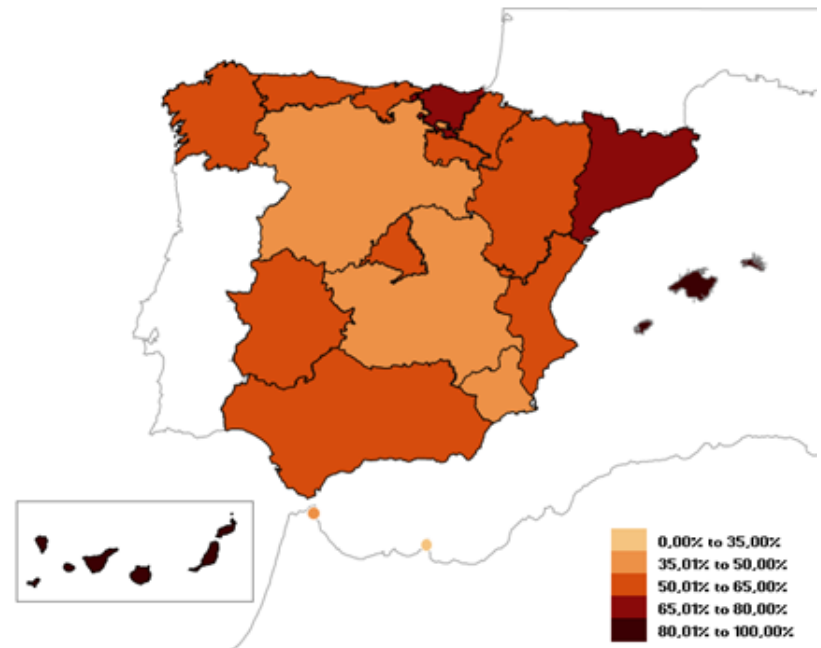
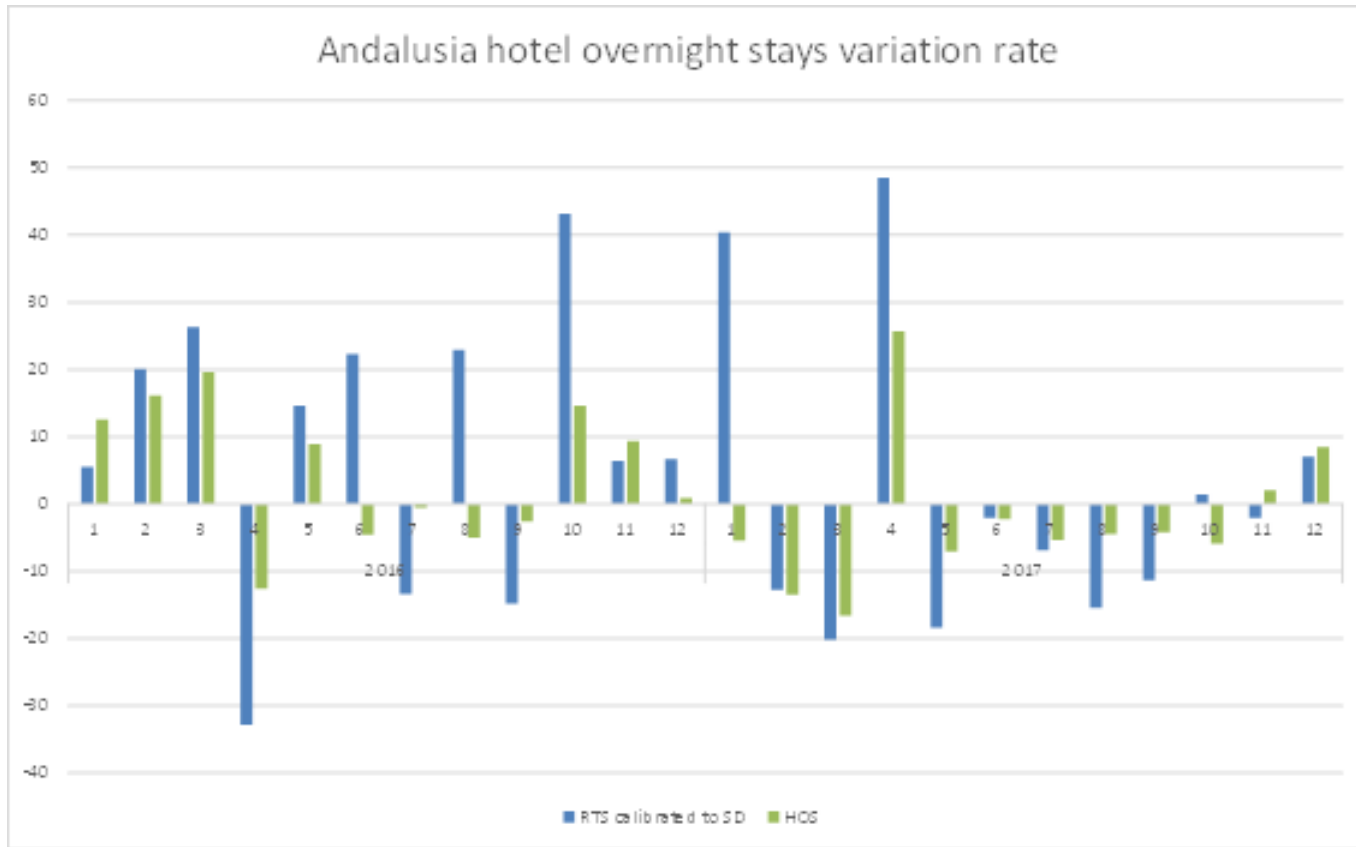


Figure 2. Share of nights spent at market accommodation establishments by region. **Inbound tourism**. EGATUR. 2017



How many tourists come to my REGION every month?

- Demand surveys can tell the whole story... but not always the same as supply side!



What is this presentation about?

- It is about solving problems...
 - Lack of coherence
 - Bias
 - High sampling errors
- ...with statistical techniques: **calibration** – a method to adjust sampling weights using external information



Residents Travel Survey: description

- Household survey: CAPI, CATI, CAWI
- Trips (and same-day visits), overnights stays and expenditure made by residents in Spain
- Characteristics: origin, destination, length, purpose, accommodation, means of transport,...
- Monthly and quarterly estimates published on a quarterly basis
- Monthly estimates based on 16,400 questionnaires per month meaning 6,000 trips



Residents Travel Survey: design measures

Increasing sample efficiency:

- Small percentage of travellers (24% in 2017)
- Small samples sizes for trips and same-day visits
- High sample errors

Solution:

- Regression model on sampling frame to assign a propensity score to travel
- More prone to travel households oversampled
- Weighting factors correction to avoid estimation biases



Residents Travel Survey: post-measures

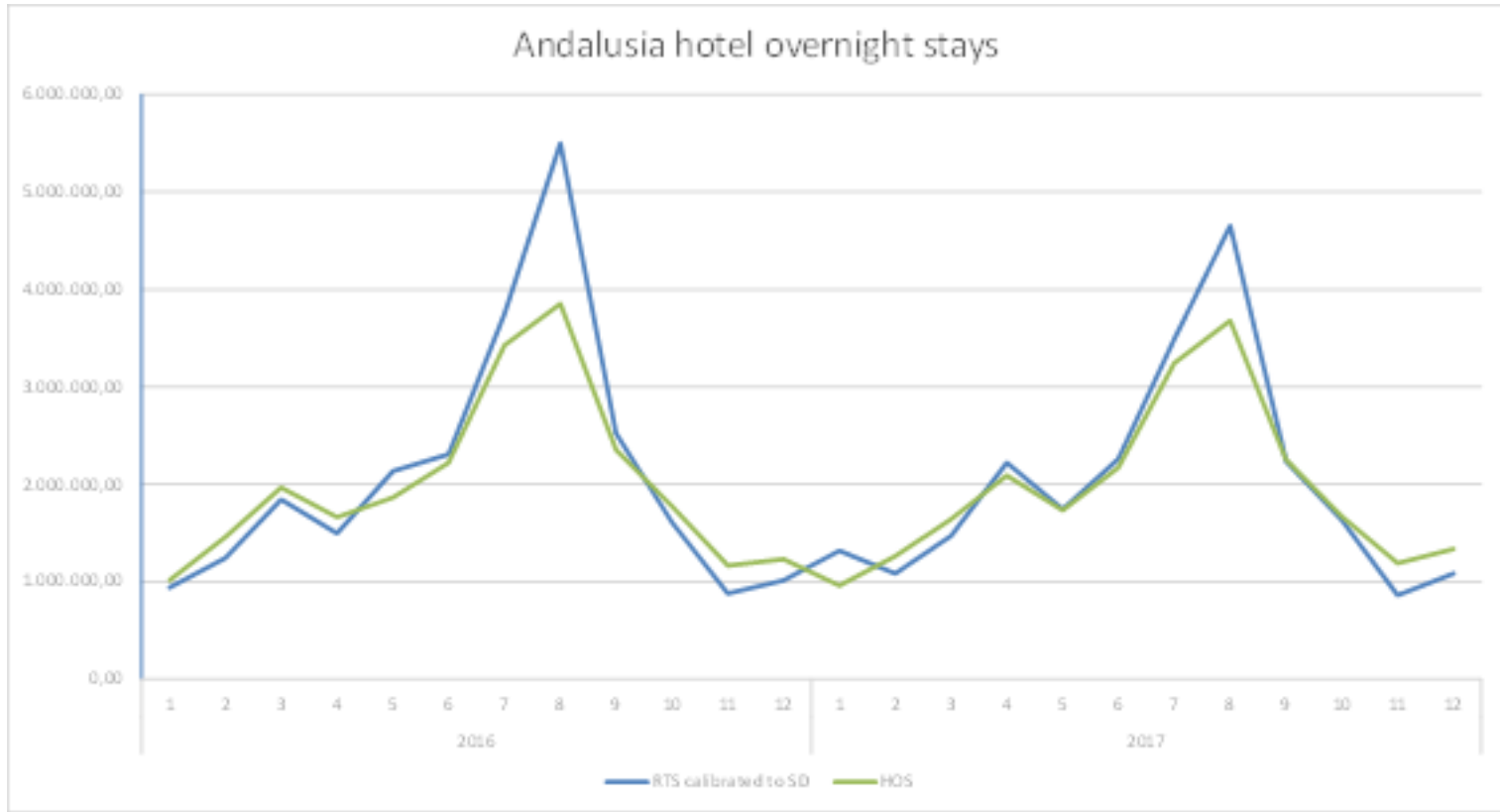
- Adjustment of design weights to improve estimates accuracy using socio-demographic information from official sources

- Variables used to calibrate at regional (NUTS-2) level:
 - Population by nationality (Spanish or foreign)
 - Population by gender and age (five-year groups)
 - Population by educational level (primary, secondary and higher education)
 - Population by provinces (NUTS-3 level)



Residents Travel Survey

➤ But still...



IN e Residents Travel Survey: HOS calibration

- Monthly calibration to HOS hotel overnight stays
- Pre-adjustment to overcome methodological differences:
 - coverage: hotel nights within usual environment
 - reference periods: RTS assigns all nights to the date of end of the trip
 - real destination vs. main destination (questionnaire)

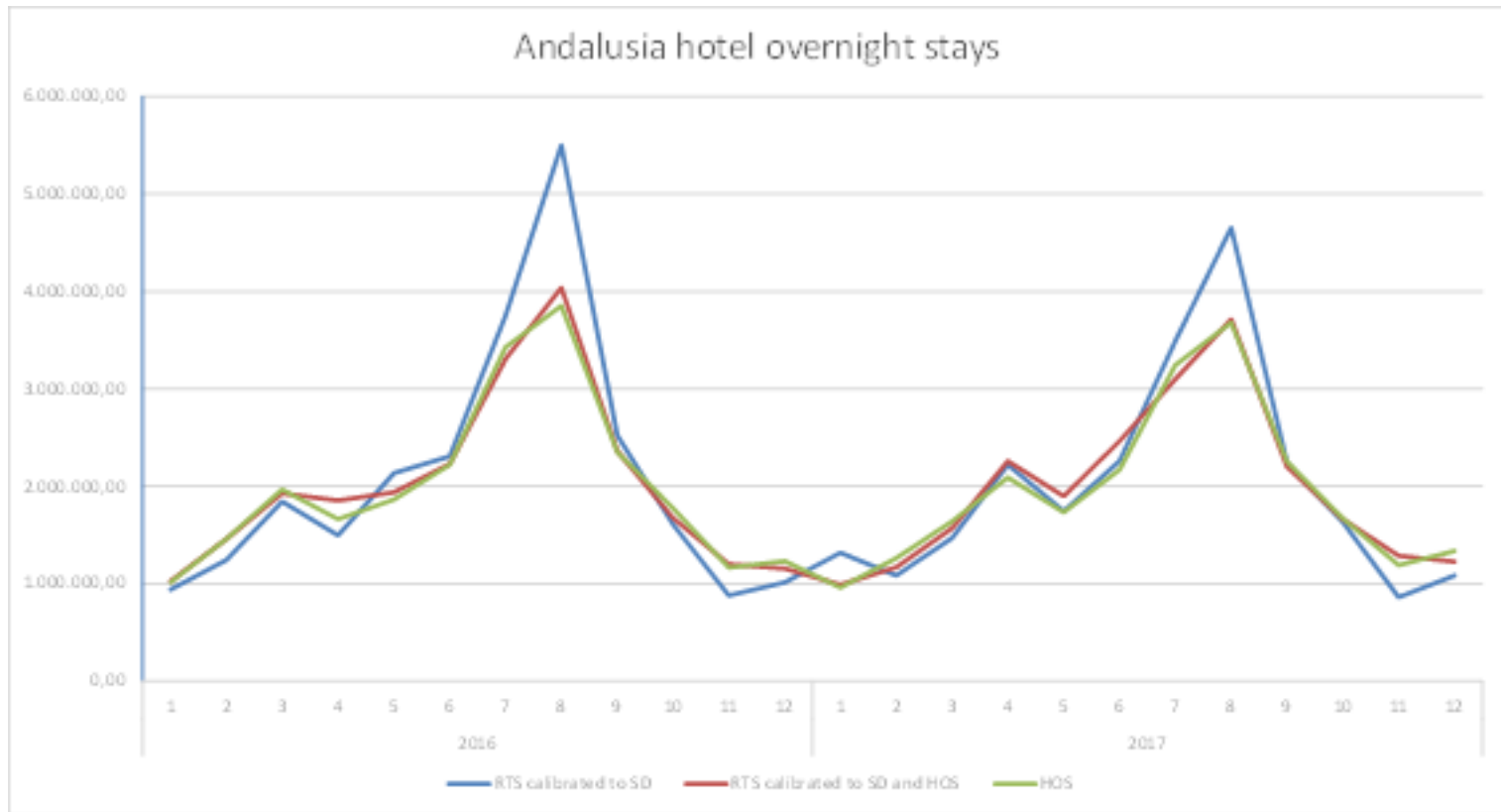
Adjustment was made for a base year (2015) and updated with HOS variation rates.

- Five regions (NUTS-2) calibrated individually: Madrid, Canary Islands, Andalusia, Catalonia and Valencian Community
- One group for regions with smaller sample sizes



IN e Residents Travel Survey: HOS calibration

- Much better adjustment of the two sources
(RTS results for main destination vs HOS results for real destination)



IN e Residents Travel Survey: HOS calibration

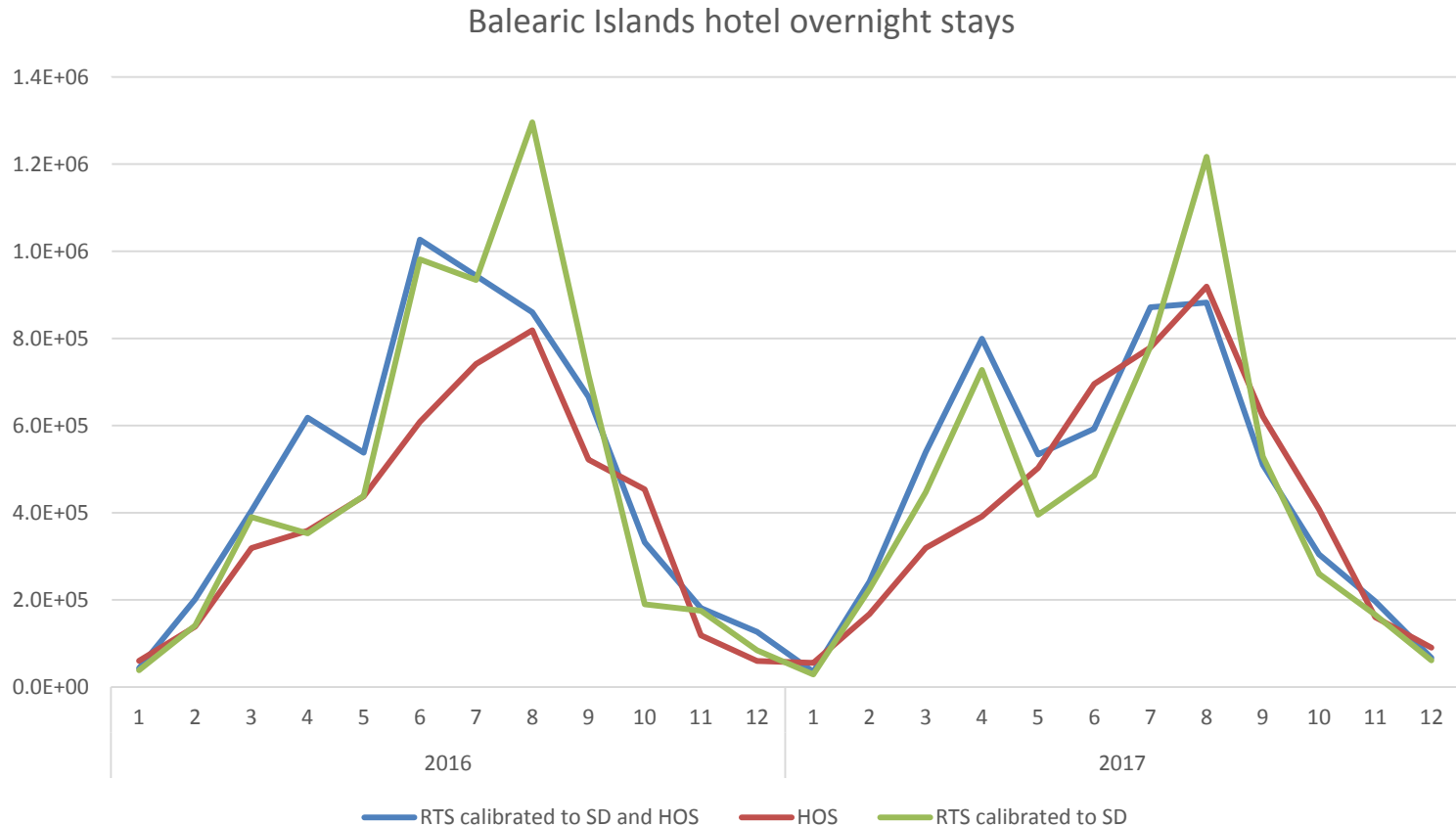
➤ More similar signals

(RTS results for main destination vs HOS results for real destination)



Residents Travel Survey: next steps

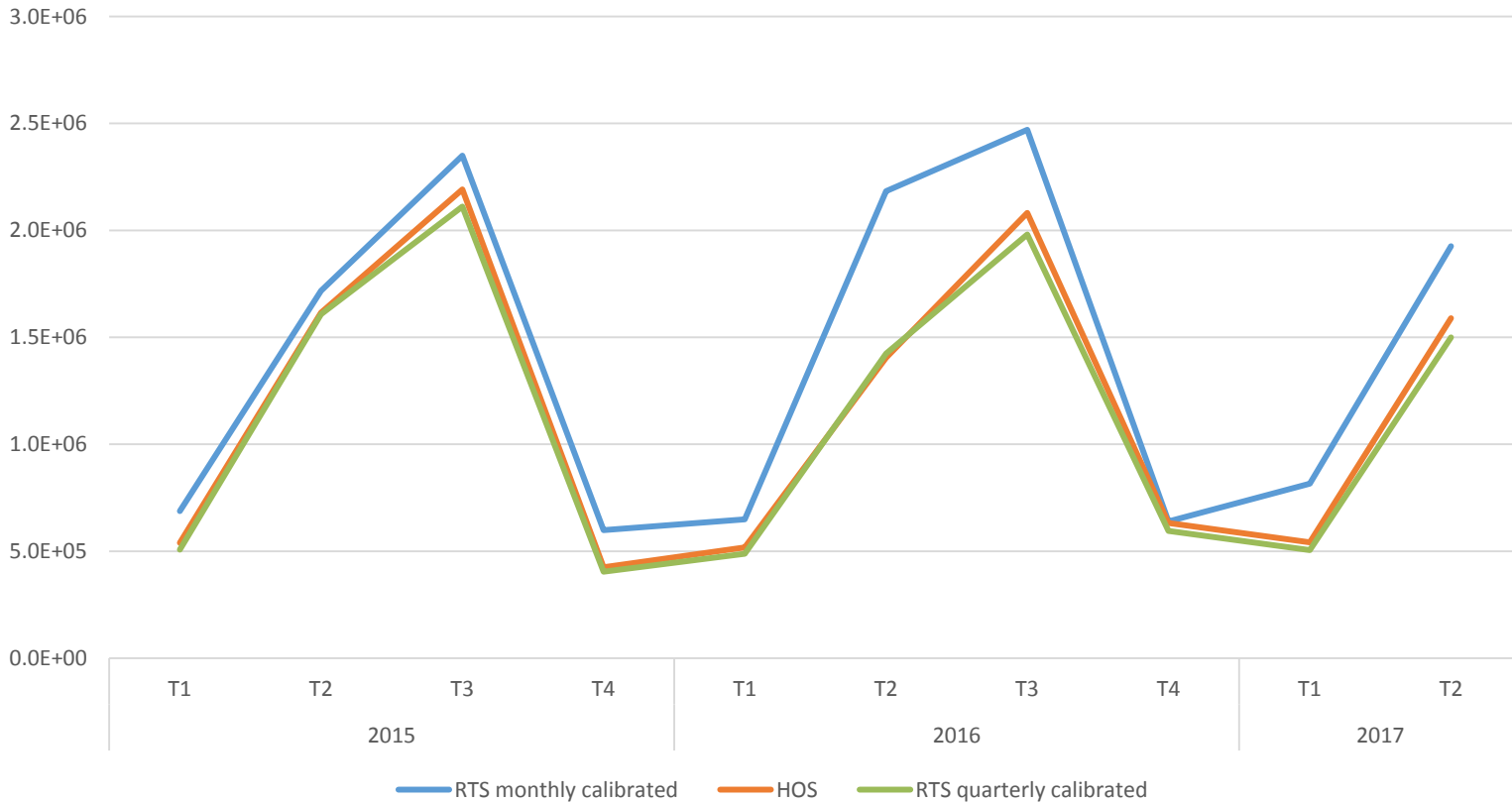
- Not enough for less popular destinations (calibrated together under 'others')



Residents Travel Survey: next steps

- Combining reference periods: **month** for bigger destinations + **quarter** for smaller ones

Balearic Islands hotel overnight stays



Frontur-Egatur: inbound tourism

- FRONTUR: monthly border survey measuring visitors
- EGATUR: monthly border subsample measuring expenditure

- Consistency among FR, EG, Accommodation Surveys:
region of destination *country of residence

- Three steps process:
 1. FR adjustment to AS (tourists)
 2. EG adjustment to AS (nights) and FR (tourists)
 3. FR adjustment to EG (tourists)



What has been this presentation about?

- It has been about making the most with:
 - available information and
 - statistical tools
- To provide coherent figures at regional level and
- Enabling a more meaningful regional analysis

Thank you for your attention!

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