Can Mobile Phone Data Improve the Measurement of International Tourism in France?*
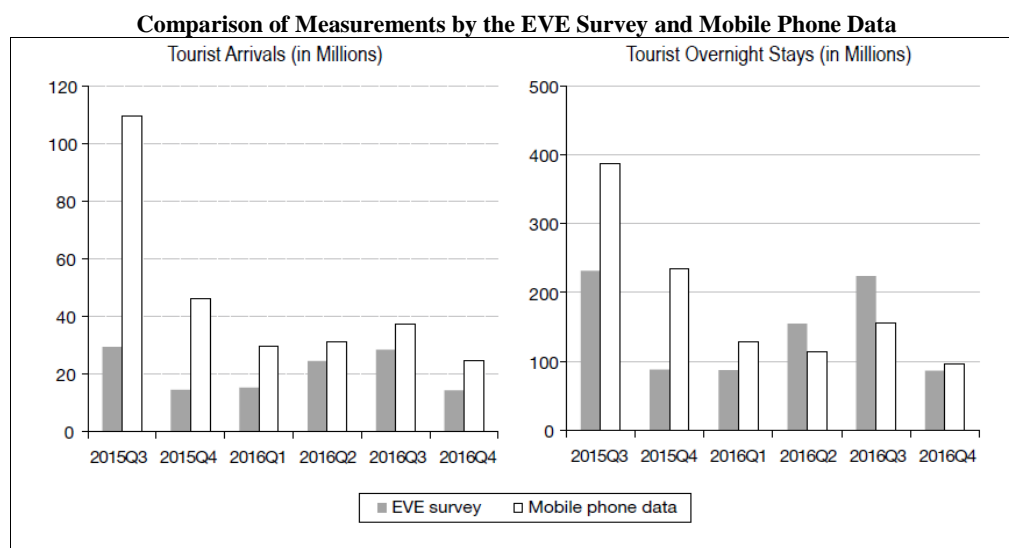*Guillaume Cousin and Fabrice Hillaireau*

Key Question
Since July 2015, the *Banque de France* and the French Ministry for the Economy and Finance have been experimenting with the use of mobile phone data to estimate the number and overnight stays of foreign visitors in France. The purpose of the experiment is to assess the ability of such data to eventually replace, in part or in whole, the traffic data by mode of transport currently used to determine the representativeness of the Foreign Visitors survey (*Enquête auprès des visiteurs venant de l'étranger* or EVE).

Methodology
The two institutions entered into a contract with a mobile phone operator, which provided them with estimates of arrivals and overnight stays by observing mobile phones roaming in France, based on algorithms modified during the experiment in order to address the problems highlighted by the initial results.

Main Results
• The benefits of mobile phone data include: speed of data availability, the degree of temporal and geographical detail and coverage of rare populations.
• By contrast, level assessments are biased, even if the corrections made reduced the bias.
• Sporadic connections (SIM cards communicating mainly with other operators) cause a bias in the adjustment by the market share of the operator from which the data originate, which is addressed by loyalty requirements.
• The country where the SIM card was issued may differ from the country of residence, which is corrected for French residents but not for foreign residents.
• Adjustment of the number of SIM cards to the number of tourists is biased by tourist behaviours (multi-SIM, non-connection while travelling, use of WiFi), which should be reflected by an addition to the EVE survey questionnaire.
• Reception interruptions result in an underestimation of overnight stays but an overestimation of entries.

Comparison of Measurements by the EVE Survey and Mobile Phone Data

Coverage: Quarterly arrivals of non-resident tourists.
Sources: Banque de France, DGE.

Message
The experiment demonstrated the value of combining Big Data with traditional survey data. EVE survey variables relating to tourist behaviours help to improve the adjustment to move from the counting of mobile phones to an estimate of tourist numbers. Conversely, mobile phone data can improve the quality of short-term estimates established prior to the reception of the survey results, help to identify tourists from rare countries or areas of origin and regionalise national data relating to overnight stays. However, the production of estimates in levels, as a substitute for existing sources, does not appear to be possible at present.