



Virtual Event 15-18 June
2020
**2020 Asia-Pacific
Statistics Week**

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The Use of Mobile Positioning data to Measure Visitors of a Multisport Events: A Case study of ASIAN Games 2018 in Indonesia

Action Area C. Methodological approaches to integrated analysis (SC1)

Use of sound methodologies

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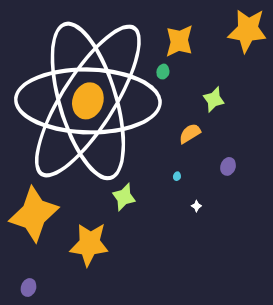
Present by:

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Event Analysis **ASIAN GAMES**





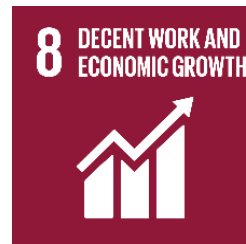
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Background

- Tourism has explicitly mentioned as targets in Goal 8 (8.9.1 and 8.9.2).
- In Indonesia, NSO (Statistics Indonesia) collected and published the data regularly (Monthly and Annually)
- There are data gaps, in terms of coverage, granularity (sub-national), timeliness
- The data sources for inbound, domestic and outbound tourism are from immigration data, MPD, digital survey, and CAPI.



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Background

- Indonesia hosted ASIAN Games in 2018, which was the second time after hosting it in 1962.
- This multi sport event is hopefully could increase tourism and gave positive impact to the Indonesian economy and especially to regional/provincial economy in both short and long term.
- The economic impact is analysed using Computable General Equilibrium (CGE) model





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Research Objectives

The objective of this study is to analyze the mobility of people visiting the Asian Games 2018 in Jakarta and Palembang.

The mobility analysis covers:

- number of people by their originated countries or provinces
- their movement during the games period, as well as their interests
- Their length of stay for the event by their origins

*In particular to support **the ex-post analysis** of the economic impact of Asian Games*

The number of visitors to the Asian Games 2018 is, then, used as one input for Computable General Equilibrium model



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Data Sources

- Daily Immigration data from Directorate of Immigration
- Mobile Positioning Data from one MNO (with 60 percent of market)
- Population Projection
- CAPI Survey to obtain expenditure of the visitors during their stay in Indonesia
- Household survey result for extrapolation (weight)



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Mobile Positioning Data



Mobile Positioning Data (MPD)

Tracking the locations of mobile devices in time and space.
MPD is collected by Mobile Network Operators (MNOs)



Type of Mobile Positioning Data

The location of the mobile devices can be obtained in real-time or historically. The owner of the located devices can be known or unknown. There are two main collection methods for obtaining the mobile positioning data:

- a) Active positioning;
- b) Passive positioning.



Passive Positioning is used in this research/paper



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Methodology

Why Mobile Positioning Data?

Immigration data only gave foreign visitors to Jakarta and Palembang, ticket sales data can not give country and province of origin, household survey need long time to process.

Mobile Positioning Data can give data until venue (e.g GBK, JSC, JIEXPO etc)

Method

- ❖ Set the venues as point of interest
- ❖ Set the events days and time (Period)
- ❖ Get the MPD
- ❖ Tracked the mobility
- ❖ Estimate for population (using immigration data and market share of MNOs)



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Mobile Positioning Data – A Good Predictor for Participation Number at the Event



78,854

Unique Foreign Visitors



267,141

Foreigner Visits



977,866

Unique Indonesian Visitors

1,677,889

Indonesian Visits

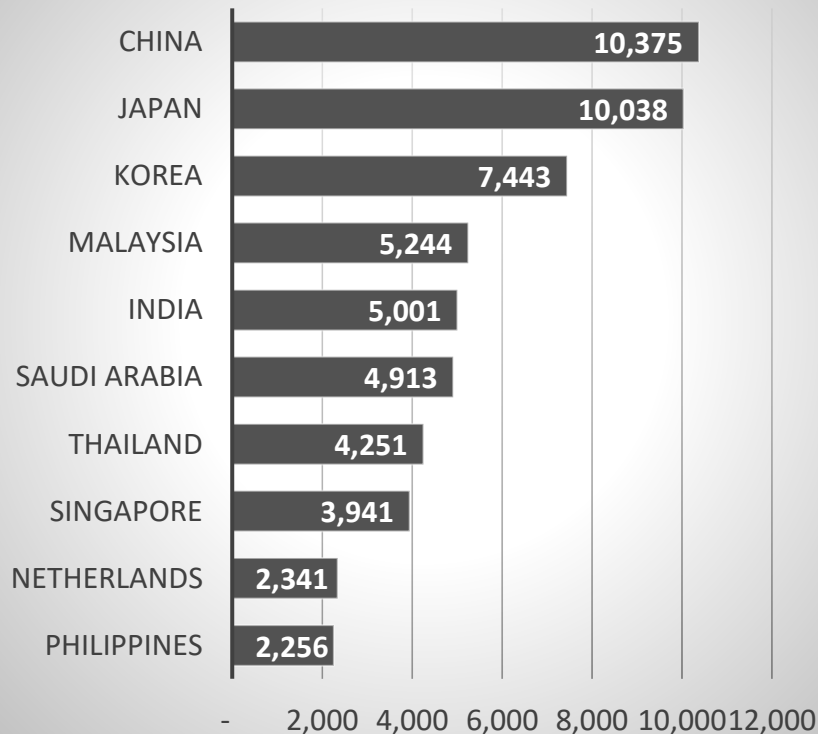
Each foreign visitor did
3-4 visits to the
venue

Each domestic visitor
did **1-2 visits** to the
venue

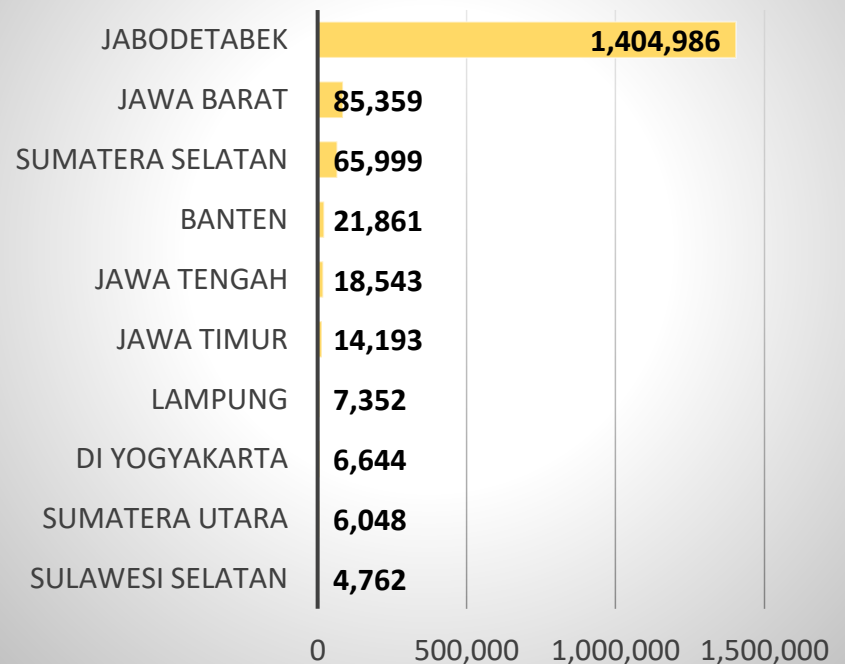


Where do the Participants Come From?

Top 10 Foreign Visitors



Top 10 Number of Indonesian Visits

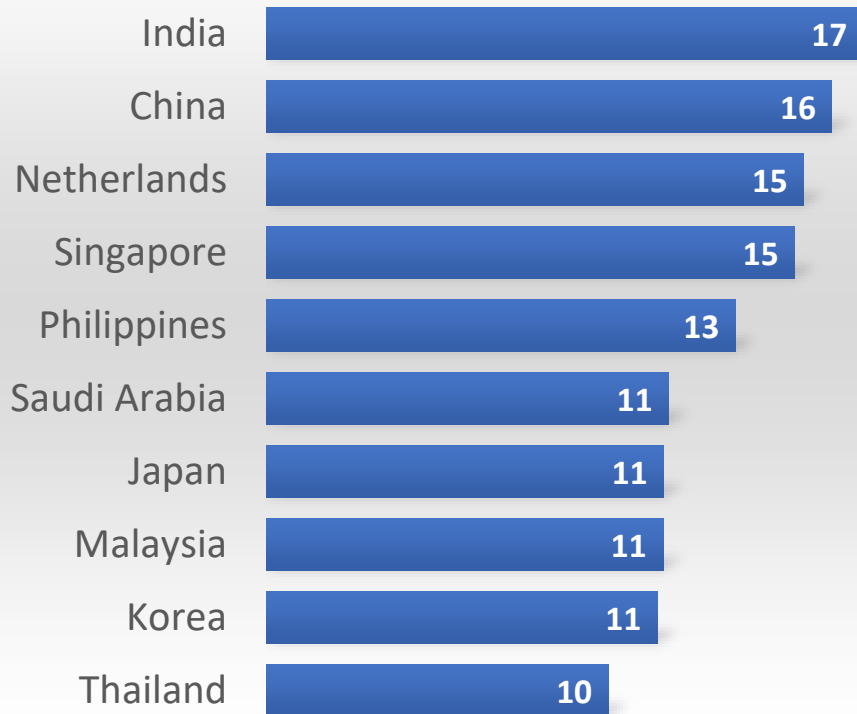




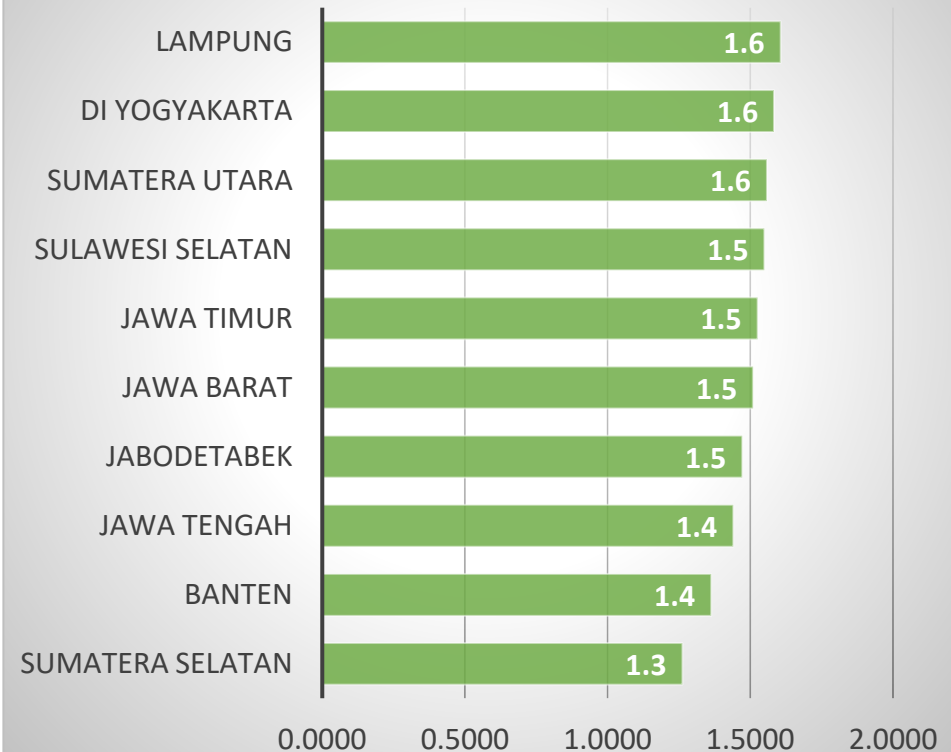
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How long did they stay

Average length of days of Top 10 Foreign Visitors
(Observation Period: 1 July 2018 – 8 Sep 2018)



Average length of days of Top 10 Indonesian Visitors



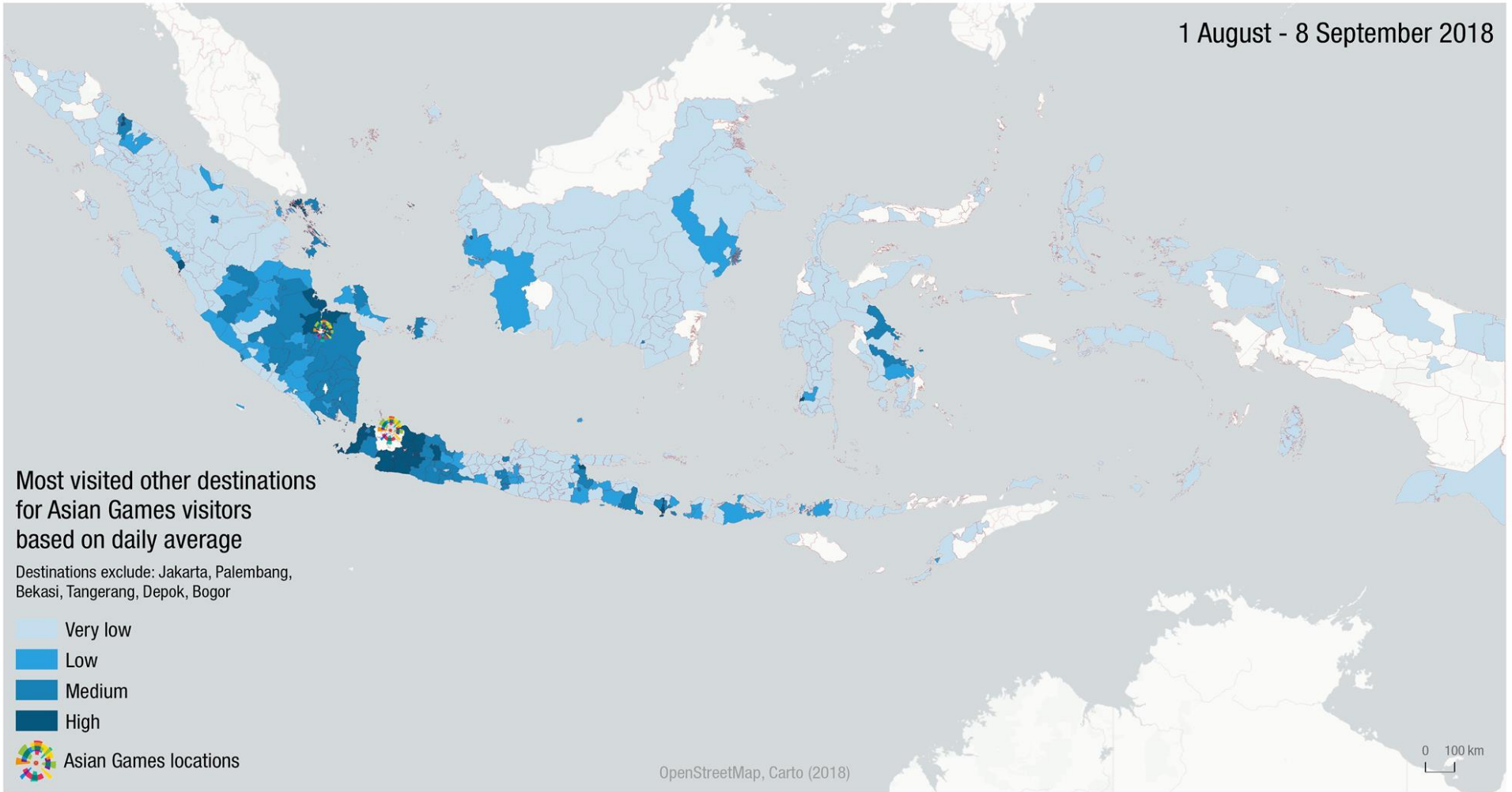


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1 August - 8 September 2018



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Conclusion

1. Mobile Positioning Data is a powerful new data source to track people mobility, and a good complimentary data for event analysis
2. Some visitors did visit tourism spots nearby the sport venue and other tourism spots in other provinces, as the Asian Games visitors tend to visit the games for leisure. Asian Games 2018 has been successful in inviting people interests to the event and to some tourism attraction in Indonesia.
3. However, not many visitors undertake the other tourism destinations, due to unavailability of attractive tourism package or lack of information of tourism package/destination
4. In future, the government should provide the tourism package in advance, e.g: one year before the event, in order the visitors to be able a better plan of holiday



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Conclusion

5. MPD is then use as one of the input for the CGE model to measure the economic impact of Asian Games to Indonesia's economy and to local economy (DKI Jakarta and South Sumatera).
6. Based on simulation, the economic impact to Indonesia's economy is not big (0,05 percent), however the impact on local economy are quite big (0,22 and 0,54 percent). Also the impact on employment (0,22 and 0,31 percent).



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