Novel Approach in Outbound Tourism Statistics in the Era of Revolution Industry 4.0 (Case Study of Indonesia Outbound Tourism Statistics)

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Background

Outbound tourism refers to activities of visitor crossing the international border from the country of residence. (meet the requirement in terms of duration [less than a year] and main purpose [leisure, business, health, visiting relatives, etc., except for working])

World Tourism Organization (2019): its related to strong economic performance and increment in citizens income. [fact: the fast rate growth of outbound tourism of China citizens during the last decades]

UNSD has recommended for determining the flows of outbound visitors using an entry/departure card; a specific survey at the border, or observing them from household surveys.

Problem: cannot distinguish between outbound tourists, nationals residing abroad (Bahasa named as Penduduk Luar Negeri [pendul]) , and frequent border crossers (movers).

Methodology

Data

- DGI and BPS have signed The Cooperation Agreement for concerning Immigration Data Exchange to Improve the Quality of Tourism Statistics and Transportation Statistics. This study use data from 2018 to 2019.

- It is collected using an integrated passport scanning machine system from immigration checkpoints across Indonesia at 91 airports and 33 harbors.

- Nevertheless, for land cross border gates with total around of 79 cross border gates, there are only small number cross border gate succeed to use integrated passport scanning machine system.

Variables

The variables are as follows: passport number, crossing type (arrival or departure), gate name, type of passport, crossing timestamp, gender and date of birth.

Big Data Approach

Official statistics are a public good that should efficiently meet user needs yet also reduce the burden on respondents, namely through more intensive use of administrative data.

The data generated is huge in volumes that a big data processing approach is needed to produce these statistics, especially for the needs of the official release on a monthly basis with short processing time.

Robot automation was built with Kofax Kapow ™ software to automate data exchange by executing API requests and eventually writes the JSON output files. Kofax Kapow™ is the Robotic Process Automation (RPA) software that allows users to deploy smart robots to mimic human actions and automate a wide range of manual, repetitive tasks while driving continuous improvements.

Result

Table 1. Number of national residing abroad, frequent border-crossers and outbound visitors in 2019

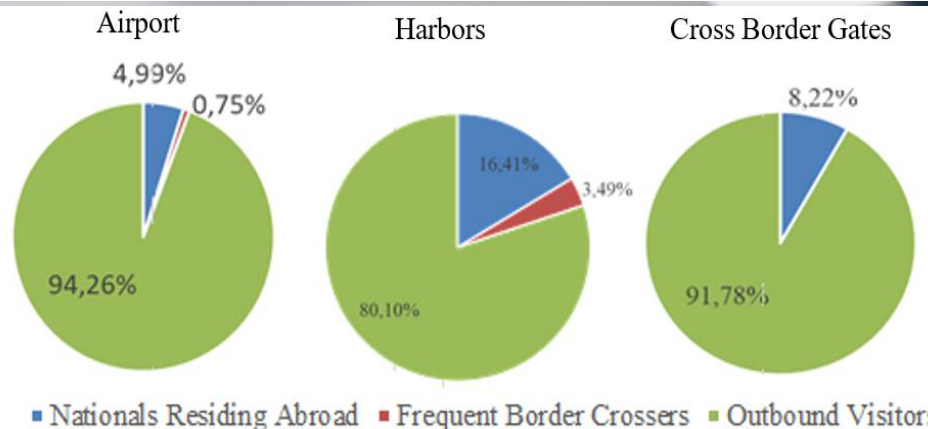| Type of Visitors	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Nationals Residing Abroad	54,298	63,128	59,141	44,611	47,812	75,120	47,181	65,769	55,298	48,071	47,408	56,808	664,645
Frequent Border Crossers	9,677	8,570	6,655	10,992	12,650	11,565	11,472	10,283	10,520	10,241	7,836	7,475	117,936
Outbound Visitors	864,872	597,753	778,688	610,294	687,507	781,478	634,337	591,148	648,851	567,574	675,373	746,486	8,184,361
Total	928,847	669,451	844,484	665,897	747,969	868,163	692,990	667,200	714,669	625,886	730,617	810,769	8,966,942

Figure 1. The percentage of visitor types from three types immigration checks point

Conclusion and Discussion

Discussion

- This study could improve outbound tourist number calculation which can be combined with the outbound and inbound survey for improving the national tourism balance and national financing balance.

- The number of frequent border-crossers is often not interested to be discussed. But the results of this study can be a trigger to discuss matters relating to it, such as the methodology and composition of expenses related to the trip.

- Furthermore, frequent border-crossers has another mechanism beside passport for entering and leaving the country. Caused they could not be detected in the study. Figure 1 has proved only on cross border gate did not have frequent border-crossers, it indicates they exempt for dealing with immigration authorities or has another mechanism for entering and leaving the country. Nowadays, BPS has another solving mechanism for this case. BPS use Mobile Position Data (MPD) for improving the flow number of frequent border-crossers.

Conclusion

Even though this study is still proof of concept study but its success distinguishes the three types of Indonesia citizen visitor.

Thank You

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