from MOBILE POSITIONING DATA to OFFICIAL STATISTICS

November, 2022
The Legal Basis
1. Laws that authorize BPS to collect data: UU No 16 Tahun 1997
The Indonesian Statistical Law No. 16 of 1997 legally protects the confidentiality of individual data and information, which states that the conductor of statistical activities must ensure the confidentiality of the information obtained from respondents.

1. Personal data protection:
   ● Customer data used for BPS purposes can be accessed by BPS in the condition that MSISDN is masked, and geolocation is masked in the regulations still in the same sub-district (3rd level Local Administrative Unit);
   ● For in-depth research purposes, BPS can access raw data with MSISDN without masking it, if BPS manages to get approval from the customer to collect the data;
   ● Disseminated data is aggregated to a certain regional level.
Memorandum of understanding

conducted between institutions

Non-disclosure agreement

accessing Mobile Network Operator data starts with the signing of the NDA

Form consent

get specific subscriber data using the consent form from the subscriber
Initiation of the use of MPD by the Ministry of Tourism

The Ministry of tourism has started using Mobile Positioning Data in the border areas of Indonesia, and is considered successful, in 2018 BPS was asked to do it for domestic tourists.

BPS starts using MPD

BPS: Initiating the use of MPD for domestic tourists; Accompanying Bappenas for event analysis at the Asean Games and IMF Annual Meeting

Added MPD use case

BPS: commuting and non-permanent mobility statistics; Bappenas: Metropolitan Statistical Area (MSA); Ministry of Transportation: Origin Destination Matrix; BNPB: use of MPD for disaster dashboard.

Start working with 3 operators.

In 2021, BPS initiates cooperation with all operators for outbound tourism.

2017

2018

2019

2020

2021

The problem rise

This year, there is a policy change in MNO which results in changes to the available variables. As a result, one of the ICT indicators was not calculated successfully. In 2020, BPS was also appointed to hold MSA and Visits to Super Priority Destinations.
The Data
how the data is created

1. Mobile signals have embedded synchronization codes.
2. Devices receive identity location and radio frequency.
3. The devices pass data to a server, which computes position.
4. Results are sent back to the devices.

The transaction leaves a log, log creates data.
A trip is defined as a journey from one usual environment to another, in each trip, there can be visits to several places, but it is necessary to determine the main destination of the trip.

Please note that there are anomalies in the data, such as fast movers, that could affect your analysis. For that, data cleansing needs to be done.
Findings
TRAVEL WORLD WITH US

Data Collection

Quality Gates: Data Input

Data Calculation

Quality Gates: Data Output

Publish

routines
Comparing registration data and volunteers’ mobile data.

992

VOLUNTEERS

MPD Trial Activities for Metropolitan Statistical Area (MSA) in the Cekungan Bandung Metropolitan Area year 2019
<table>
<thead>
<tr>
<th>No</th>
<th>MPD Approach</th>
<th>Household Approach (Conventional)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Estimates for smaller areas: districts/cities</td>
<td>Estimates up to the provincial level</td>
</tr>
<tr>
<td>2</td>
<td>Monthly data period</td>
<td>Yearly data period</td>
</tr>
<tr>
<td>3</td>
<td>No surveyors needed</td>
<td>The number of surveyors needed depends on the number of samples</td>
</tr>
<tr>
<td>4</td>
<td>With a more detailed level of estimation, the required budget is only around IDR 15 billion</td>
<td>To conduct a conventional domestic tourist survey, a budget of around IDR 30-40 billion is needed (based on the 2018 and 2019 conventional domestic tourists survey budget).</td>
</tr>
<tr>
<td>5</td>
<td>It has the potential to be able to generate statistics for domestic tourists monthly</td>
<td>Can only generate statistics for domestic tourists on annually</td>
</tr>
<tr>
<td>6</td>
<td>The solution for collecting data for domestic tourists during the covid-19 pandemic, no door-to-door interviews needed</td>
<td>The Covid-19 pandemic condition limits conventional data collection activities</td>
</tr>
<tr>
<td>7</td>
<td>MPD can be used for other statistical calculations</td>
<td>One activity is only used for one type of statistical calculation</td>
</tr>
<tr>
<td>01</td>
<td>DEPENDENCY</td>
<td>There is a dependency on MNO, this is also experienced by several countries in the world. Data confidentiality issues make MNO unable to provide raw data to NSO.</td>
</tr>
<tr>
<td>02</td>
<td>PROCUREMENT</td>
<td>Complicated procurement, for each case to be analyzed, MNO establishes new cooperation, with the consequence of additional costs.</td>
</tr>
<tr>
<td>03</td>
<td>OTHER MNO’s</td>
<td>BPS only cooperates with one MNO, communication to be able to work with Telkomsel as a research partner takes ± 2 years.</td>
</tr>
</tbody>
</table>
THANKYOU

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