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Conducting Census of Population 2020 in Singapore amidst COVID-19

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About the Census of Population

Singapore carries out the Census of Population once in ten years. Conducted by the Singapore Department of Statistics (DOS), the Census is the largest national survey undertaken to collect and compile information on detailed characteristics and the profile of the population and households. Since 2000, Singapore has adopted a register-based approach for Census-taking, using administrative data from different sources to provide basic demographic information such as age, sex and ethnicity for the whole population. In-depth information on socio-economic and household characteristics that are not already available from administrative sources are then captured through a large-scale sample survey.

To raise public awareness of the Census of Population 2020 (C2020) in general and to reach out to survey respondents in particular, relevant information about the C2020 was made available through the mass media (e.g. radio and newspaper ads), posters (e.g. in community centres, MRT trains, neighbourhood police posts etc.) and the SingStat Website (www.singstat.gov.sg/census2020). The Census webpage includes a video on the conduct of C2020 and its purpose as well as access to the Census Online Submission Form.

Even though Censuses have been conducted regularly about once in 10 years since 1871 in Singapore, the impact of the COVID-19 pandemic posed unprecedented challenges for the conduct of C2020 and presented valuable lessons for the planning and implementation of future household surveys.

Adjustments to C2020 Data Collection Strategy

The C2020 sample survey covering some 150,000 households, was launched on 4 Feb 2020. A tri-modal data collection strategy is implemented to cater to the varied profile and needs of the population while balancing resource considerations. Based on the experience of C2010, data collection for a Census was expected to take about 6 months to complete. However, the COVID-19 outbreak and the ensuing measures implemented nationwide to control its spread severely impact the timeline for the conduct of C2020. The Census Office in DOS swiftly made adjustments and adapted to the new operating environment for the C2020 operations.

Online Self-Enumeration

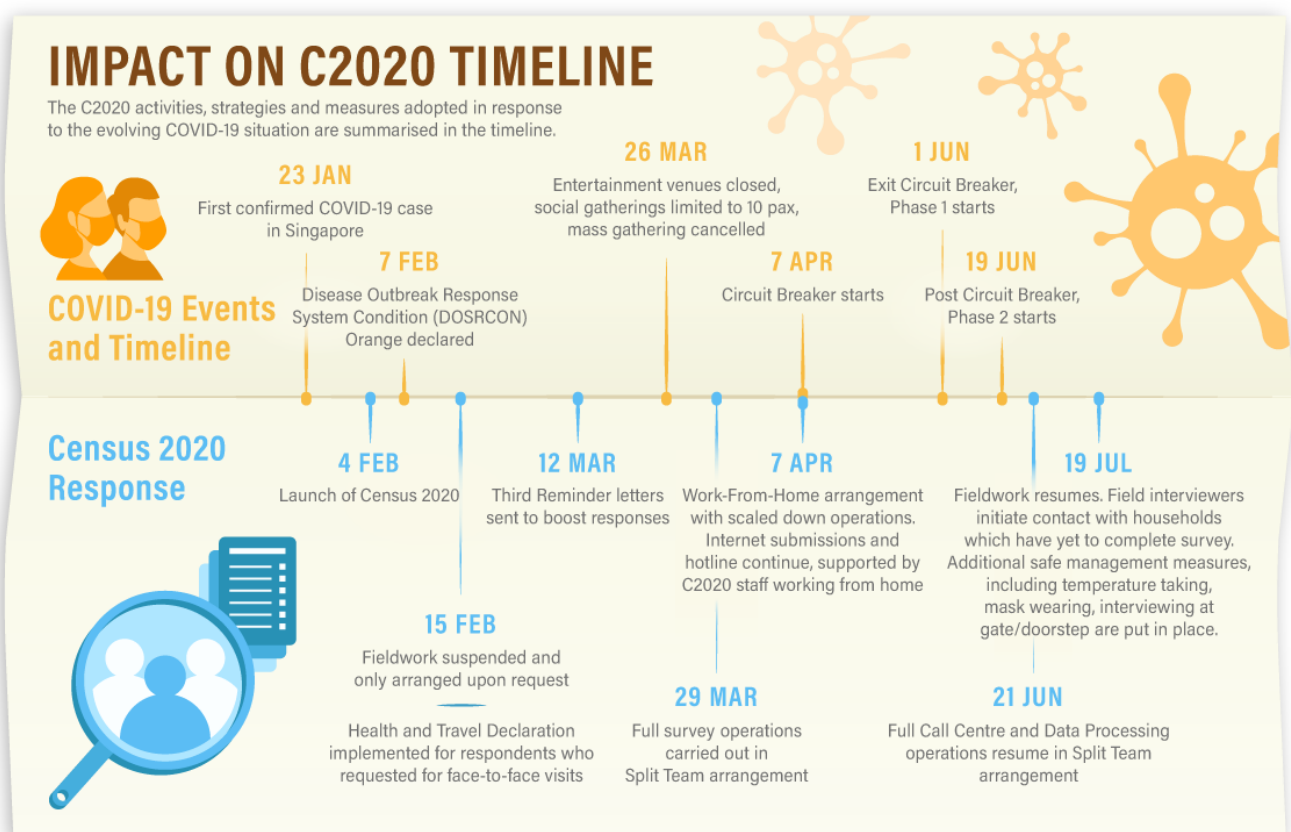
In C2020, respondents are able to submit their survey returns directly through the Internet. This provides flexibility for respondents as the online submission platform is available round the clock for them to provide their returns at their convenience. Through online enumeration, the manpower required to reach out to respondents is reduced. Despite the COVID-19 outbreak, the online submission mode allows for the C2020 data collection to continue as respondents could complete and submit their returns themselves in the convenience of their homes any time of the day. To encourage online self-enumeration, respondents who did not complete and submit their survey returns by the deadline would receive up to three reminder letters, one more compared to the two reminder letters that were sent in C2010.

Computer-Assisted Telephone Interview

Respondents are able to complete the survey over the phone via a Census hotline. The Census Call Centre also reaches out to respondents who have not completed their returns online by a stipulated date. Besides providing assistance in the completion of survey over phone interviews, the Census hotline is critical in supporting respondents in completing their online submission and attending to other general enquiries and feedback on C2020. With work-from-home arrangements being in place during the Circuit Breaker period between April and June 2020, operations at the Census Call Centre were scaled down. Work processes were changed to allow for a smaller pool of C2020 staff to continue supporting the operation of certain scope of work over the telephone. This includes receiving incoming calls for phone interviews and survey enquiries. Calls made to respondents were cut down.

Face-to-Face Interview

Face-to-face interviews are conducted for respondents if they did not respond through the online survey and could not be contacted by phone. At the initial launch of C2020 in February, a small number of households were visited by C2020 interviewers. Due to the COVID-19 outbreak, face-to-face visits were only arranged upon request from mid February to early March, and face-to-face visits were only carried out after health and travel declarations were obtained from these households which had requested for face-to-face interviews. These additional precautionary measures were put in place to ensure the health and safety of both the C2020 respondents and C2020 staff. Field visits were suspended from April to mid July 2020 due to measures implemented nationwide to fight against COVID-19, and only resumed towards the second half of July, well into Phase 2 post Circuit Breaker.



Lessons Learnt

In reviewing the design of C2020 and reflecting on the adjustments made, the following areas were identified to have helped mitigate the impact of COVID-19, and will continue to be leveraged if needed.

Staggered Rollout

In the design of the Census workflow, the Census Office has adopted a staggered approach where the full Census sample is split into a number of smaller groups, which have survey start dates spread over

several weeks. This is to help manage the case load on the Internet server, call traffic to the Census hotline and minimise risk of data exposure for individual households on the Internet.

This design provided flexibility for the dispatch dates and sizes of each batch to be adjusted in response to the evolving COVID-19 situation and measures. For example, when call operations were scaled back, we were able to release smaller batches in less frequent intervals to cushion the effect of reduced manpower.

Applying Analytics to Schedule Reminders and Optimise Response

Analytics were used to monitor the progress of individual batch and follow up with adjustments, in particular on the intensity of reminders to households. Due to the suspension of reminder letters being sent during the Circuit Breaker period, there was a drop in responses for selected groups (Chart 1). This demonstrates the effectiveness of reminder letters in boosting survey completion rates.

Earlier Census Launch Date

In C2010, contingency plans were discussed to provide for potential challenges that may arise due to the H1N1 outbreak between 2009 and 2010 ahead of the launch of the Census but these were not activated eventually. C2020 was launched one month ahead of schedule compared to the previous Census, to cater for unforeseen circumstances. The earlier launch provided some buffer time for Census operations to gradually resume after the main operations had to be scaled down for over two months due to the implementation

of the Circuit Breaker measures between 7 April and 18 June 2020.

Online Submission

With more than half of the households submitting their returns via the Internet, a large proportion of responses continued to be received during the Circuit Breaker. The higher take-up rate for online mode compared to the previous Census was expected but still served as a critical factor in reducing the load that needs to be followed up on.

Register-Based Census

As data on population estimates are compiled from administrative records, top-line population data such as population count, sex ratio, age and ethnic composition for 2020 have been made available through the annual Population Trends report. This is despite the impact of COVID-19 measures and scaled-down Census operations over a protracted period.

Data Processing Enhancements

Using administrative data for consistency checks and implementing machine learning to the coding of selected data items mitigated resource constraints in data processing during the COVID-19 pandemic as work-from-home arrangements were put in place.

Current Progress

As of September 2020, the Census 2020 collection is still ongoing. The Census Office strives to complete the data collection as soon and safe as we can, while we adapt to the COVID-19 situation when required. Detailed statistical releases are expected to be released progressively from 1Q 2021.

CHART 1
COMPLETION RATE OF C2020 BATCHES

