

# Singapore's Census of Population 2010

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## What is a Census?

The United Nations (UN)'s Principles and Recommendations for Population and Housing Censuses (2008) defines a population census as the total process of collecting, compiling, evaluating, analysing and publishing or otherwise disseminating demographic, economic and social data pertaining, at a specified time, to all persons in a country or in a well-delimited part of a country.

In Singapore, the population census is the most comprehensive source of information on population and household. It provides benchmark data for all demographic, social and labour force statistics. Data from the population census are key inputs for policy review and formulation. The large sample size and coverage of the population census also facilitate analyses on different population groups and studies by broad geographical area.

## History of Census Taking in Singapore

Singapore's first census was taken in April 1871 as part of the Straits Settlement Census. Since then, regular censuses were undertaken at ten-year intervals up to 1931. The Second World War delayed the next censuses till 1947 and 1957.

In 1970, Singapore conducted its first post-Independence population census. Three other censuses were subsequently conducted in 1980, 1990, and the latest in 2000. The Census 2010 will be the fifth census carried out since Independence and the fourteenth in the series of census-taking in Singapore.

In the early censuses and up to as recent as 1990, census information was collected by field work. Census officers had to make home-to-home visits to each and every household in Singapore to perform face-to-face interviews. Responses to the census questions were then recorded on paper forms and sent back to the census office for processing and compilation.

## *The Census 2000*

Post Census 1990, the Singapore Department of Statistics (DOS) reviewed the entire framework in which social and demographic statistics were collected. Three important trends were identified as having a profound influence on the collection of social and demographic statistics for Census 2000.

Firstly, there was increased demand for comprehensive data on the population on a timely basis. Secondly, advances in Information Technology (IT) including the widespread use of Internet, data warehousing software and integrated call-centre

technologies opened up new possibilities in data collection and capture. Thirdly, the stability and reliability of public databases developed in the 1980s and 1990s meant that a large amount of administrative data could be matched, captured and used for statistical purposes. Data collection methods and procedures for Census 2000 were refined along these lines.

In 2000, Singapore conducted its first register-based census. Basic demographic data were obtained from administrative records. This was supplemented with a 20 per cent sample enumeration which collected detailed data required for in-depth studies. Steering away from the reliance on field work, a tri-modal data collection approach, comprising of Internet enumeration, Computer Assisted Telephone Interviewing (CATI) and field work, was introduced for the sample survey.

## The Approach for Census 2010

The Census 2010 will continue to adopt a register-based approach. Basic population count and characteristics such as age, sex and nationality will be compiled from administrative sources. A sample enumeration of some 200,000 households for additional information not available from any administrative data sources would be sufficient.

Leveraging on the success and lessons learned from the Census 2000, a tri-modal data collection strategy comprising Internet enumeration, CATI and field work will be used to facilitate data collection for the households in the census sample.

## Internet Enumeration

DOS first introduced the Internet for data collection in Census 2000. High Internet penetration rate and computer literacy in Singapore, coupled with the increasing difficulty of reaching respondents at their homes, are key considerations in the adoption of Internet enumeration for census taking.

Available 24 hours a day, 7 days a week, Internet enumeration provides respondents with the flexibility of responding at any time they desire. It allows respondents to provide their survey returns directly to the system without having to go through a third party (i.e. the interviewer).

The acceptance of Internet enumeration by the public was evident from the growing proportion using this mode in our last two household surveys. The proportion of respondents opting for Internet enumeration increased from 15 per cent in the Census 2000 to almost 25 per cent in the General Household Survey (GHS) 2005.

Several key features were addressed in the implementation of Internet enumeration:

- *Automated branching of questions is used to direct respondents to questions that are only relevant to them based on previous entries/selection. Tips and definitions are also included to aid respondents.*
- *To ensure completeness of returns and data consistency, basic verification rules are built in the system.*

- *As the Internet is open to threats such as computer hacking and viruses, security features are put in place to protect the confidential data that respondents provide.*
- *All electronic transmissions of data through the Internet are also encrypted.*

### **Computer Assisted Telephone Interviewing (CATI)**

CATI is a tried-and-tested data collection strategy, having been deployed thrice in earlier Census and General Household Surveys. Respondents, who are not able to complete their returns via the Internet, have the option to provide their returns over the phone with the assistance of telephone interviewers.

As in the conduct of Census 2000, households who do not complete their returns via Internet by a stipulated date will also be contacted by CATI interviewers for telephone interviews.

CATI was the main mode of collection for the last Census 2000, accounting for more than 60 per cent of all survey returns. To better support the public in their submission, the operating hours of the Census 2010 CATI hotline will be extended from 9pm (during the conduct of Census 2000) to 10.30pm daily.

### **Field Work**

Face-to-face interviews will continue to be offered as a mode of submission for respondents in Census 2010. Households will be scheduled for field work if they do not

respond via Internet and cannot be contacted by CATI after several attempts.

Field workers will visit these households to conduct face-to-face interviews. In the event where they fail to contact the respondents in these households, they will leave appointment slips behind for the respondents to contact them to schedule a convenient time for an interview.

Unlike the traditional paper and pen approach, the Ultra-Mobile Personal Computer (UMPC) will be adopted in the field collection in Census 2010. The use of technology will provide logistic convenience, eliminating the need for printing and transportation of hardcopy survey forms, and transcribing the responses back in office. Automatic branching of questions with consistency checks will also be introduced to reduce back-end processing efforts with electronically coded data captured directly in the field.

### **Census 2010 Data Topics and Uses**

Information from the censuses provides a detailed profile of how Singapore's population is changing over time. The data collected and tabulated from censuses are essential to meet the planning needs of Government Ministries, Departments and private sector organisations. The following table provides an indication of the data items that will be collected in the Census 2010 and their possible usage.

Data Items	Uses
<b>Demographic and Social Data</b>	
<ul style="list-style-type: none"> <li>• Birth Date</li> <li>• Ethnic/Dialect Group</li> <li>• Sex</li> <li>• Identification Type</li> <li>• Country of Birth</li> <li>• Citizenship</li> <li>• Marital Status</li> <li>• Religion</li> <li>• Address</li> </ul>	Basic demographic profile of the population is used to monitor population changes through the years. Some examples: <ol style="list-style-type: none"> <li>1. The age by ethnic group breakdown would indicate how fast and which group of the population is aging, enabling organizations to provide for appropriate facilities.</li> <li>2. The use of marital status data by sex and ethnic group would help track the singlehood rates of different cohorts.</li> </ol>
<ul style="list-style-type: none"> <li>• No. of Children Born Alive</li> </ul>	Studies on the effects of delayed marriage and childbearing on population growth.
<ul style="list-style-type: none"> <li>• Language/Dialect Most Frequently Spoken at Home</li> <li>• Language Literate In</li> </ul>	Curriculum planning for schools, and for use in private sector media advertisements.
<b>Economic and Employment Data</b>	
<ul style="list-style-type: none"> <li>• Current Activity Status</li> <li>• Industry</li> <li>• Occupation</li> <li>• Nature of Employment (Full-time/ Part-time/Serving National Service)</li> <li>• Usual No. of Hours Worked Per Week</li> <li>• Income and Bonuses</li> <li>• Action Taken to Look for Work</li> <li>• Main Reason for Not Working</li> </ul>	This is used to provide numerous indicators on Singapore's labour force and employment opportunities. Some examples of use: <ol style="list-style-type: none"> <li>1. A combination of age, education, income, industry and occupation tabulations provide in-depth study of the labour market demand and supply.</li> <li>2. Profile of full-time and part-time workers.</li> <li>3. Profile of the unemployed.</li> </ol>
<b>Education Data</b>	
<ul style="list-style-type: none"> <li>• Level of Formal Education Attending</li> <li>• Highest Qualification Attained</li> <li>• Major Field of Study</li> <li>• Skills upgrading - Technical/Commercial/ Vocational Qualification</li> </ul>	It is a useful gauge on the type of new entrants to the workforce. Some examples of use: <ol style="list-style-type: none"> <li>1. To estimate the supply of potential manpower.</li> <li>2. The education by age and by sex data would provide an indication of how fast Singapore's education profile is improving.</li> </ol> Education and skills groupings are also crossed with many different types of data including occupation and income to provide indications of job matching, etc.
<b>Transportation Data</b>	
<ul style="list-style-type: none"> <li>• Usual Mode of Transport to School/Work</li> <li>• Usual Time Taken to Travel to School/Work</li> </ul>	This is used to study the change in transport mode and transportation network for planning transport system for the population.

Data Items	Uses
<b>Data on Elderly Population aged 65 years and over</b>	
<ul style="list-style-type: none"> <li>• Ambulant Status</li> <li>• Main Source of Financial Support</li> </ul>	This is used to gauge the well-being of elderly and to plan for the welfare and services required by this group of the population.
<b>Housing Data</b>	
<ul style="list-style-type: none"> <li>• Type of Present Dwelling</li> <li>• Tenancy of Present Dwelling</li> </ul>	This is used to study profile of house/flat owners and tenants. The data is often crossed tabulated with households and geographical location data fields to provide further analysis by urban planners.

## Confidentiality and Security of Information

As the key producer of official statistics in Singapore and the custodian of data provided to our Department, data confidentiality and security are of paramount importance to DOS. The design and approach of the Census 2010 data collection is built based on this underlying principle.

As part of the security measure, all selected respondents will receive a notification letter with a unique, randomly generated House Reference Number (HRN). Respondents who wish to provide their information via Internet may register their Internet accounts using the HRN and selected personal information. Administrative procedures will be put in place to ensure proper authentication before respondents could access the Internet form.

In CATI, interviewers will quote the respondent's unique HRN over the telephone to identify themselves as genuine Census 2010 officers before proceeding with the interview. A Census 2010 hotline will be provided for respondents to verify the identity of the CATI interviewers.

In field work, each Census 2010 field interviewer will carry a Letter of Authorisation and Identification Badge as a form of authentication. Similar to CATI, respondents may also call the Census 2010 hotline to verify the interviewer's identity.

Confidentiality of individual information collected in the Census 2010 will be protected under the legal provisions of the Statistics Act. Data provided are used solely for statistical purposes. All survey officers are required to sign an undertaking to safeguard individual information under the Statistics Act.

## Concluding Remarks

A series of publicity programmes will be launched to generate awareness about the Census 2010 among the general public. This includes press releases, radio announcements and publicity posters at public places. Notification letters and information brochures will also be mailed to the selected households before commencement of the survey to notify them of the census. The success of Census 2010 depends critically on the full cooperation and support of the population of Singapore.

## The Census 2010 Logo and Tagline Revealed!



**Your Response Matters.  
Help Shape the Future Together.**

The Census 2010 logo depicts four stylised drawings of individuals embracing "Census 2010". It represents people from the different ethnic groups coming together to embrace "Census 2010". It symbolises the cooperation and active participation of every individual and household towards the successful conduct of this national statistical project.

Each individual's response to the Census is important. With data from these responses, we can shape the future of Singapore together.

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