The Evolution of Population Census Undertakings in China, 1953–2010

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The Evolution of Population Census Undertakings in China, 1953–2010*

Xiaogang Wu and Guangye He

Abstract

This article documents the evolution of census undertakings in China since 1953, with a focus on how the recently completed 2010 census differs from the 2000 census. We argue that how the censuses were conducted and what social and demographic information was collected per se to a large extent reflect the changing social and political situations in China over the past six decades. The article highlights the changes made since the 1982 census, especially the improvements of the 2000 census over the 1990 census and of the 2010 census over the 2000 census. Selected data are drawn from censuses to chart key aspects of social changes in China, including migration, urbanization, and employment. Finally, problems encountered during the 2010 census undertaking and challenges for future censuses are identified and discussed.

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Since the founding of the People’s Republic of China, a total of six population censuses have been conducted in 1953, 1964, 1982, 1990, 2000, and 2010. How the censuses were conducted and what demographic information was collected per se to a large extent reflect the changing social and political situations in China over the past six decades. The first census in 1953, as a simple head count, collected information only on the respondent’s name, age, sex, nationality, relationship to the household head, and whether the community he or she lived in was rural or urban. The second census in 1964 added education, occupation, and class status, but the results of the census were not officially publicized until the early 1980s.¹ With the assistance of various international organizations, including the United Nations Fund for Population Activities (UNFPA), China conducted the 1982 census, which has been lauded as being significantly more reliable, accurate, and thorough than the previous two censuses. In addition, the new census added items on household type, industry, and occupation for the working population, status of the nonworking population (aged 15 or above), marital status, household registration and residence status, as well as items on fertility and mortality. Following the success of the 1982 census, the Chinese government has been regularizing the census once every ten years.

This article aims to document and analyze the Chinese experience with census implementation and, in particular, to compare the 2010 census with the 2000 census. It first presents an overview of the evolution of the six census undertakings in China since 1953 with respect to their organization, enumeration, items covered, and definition of certain key terms. It then highlights the major innovations and new features in the 2010 census undertaking, followed by in-depth analyses of selected

¹ United Nations Children Fund (UNICEF). We thank Wei Chen and Siyun Jiang for their assistance in this project, Mr. Nailing Feng, Ms. Hongyan Cui, and Ms. Lan Xu at China’s National Bureau of Statistics for generously sharing the information on census operation and quality assessment, and Mr. Arie Hoekman, Mr. Guoping Jia (UNFPA), Ms. Fang Yan (UNICEF), and two anonymous reviewers for their comments and suggestions. The writing of this article was supported by UNFPA and UNICEF, as well as a Prestigious Fellowship in Humanities and Social Sciences from the University Grants Committee (HKUST 602-HSS-12) and a General Research Fund (646411) from the Research Grants Council of the Hong Kong SAR.
issues to chart key aspects of social changes in China. Finally, the article identifies the problems and discusses the challenges for the 2020 census undertaking in an increasingly mobile and complex urban society.


It has always been a challenging task to enumerate the population in a vast and populous country like China. Despite its thousands of years of history, China had never conducted population census in the scientific sense until 1953, when the new communist regime, after two years of economic recovery, launched the first population census to collect information necessary for economic planning and social administration. The evolution of population censuses in China since then could be divided into three stages: the primitive stage, the transition stage, and the modern stage, based on their respective designs and operations of enumeration. In the first stage, the population census was a simple head count via administrative fiat, covering fairly limited items; in the second stage, enumeration items become more standardized and international practice are followed to ensure data accuracy. In the third stage, the enumeration designs and operation are further revised and expanded to meet the demand for social and demographic data in an increasingly modernized society with great complexity.

A. The Primitive Stage: The 1953 and 1964 Censuses

In the first stage, the 1953 and 1964 censuses were both conducted in a primitive mode, with 1 July as the reference date. To keep the enumeration simple, the 1953 census included only five items: name, sex, age, nationality, and relationship to household head, as well as whether the community was urban or rural. The 1964 census added education, occupation, and class status (階級成分 jieji chengfen). Even though the items included were very limited, the two censuses encountered obstacles. In 1953, before the installment of the household registration system (戶口 hukou), there was no distinction between permanent and temporary residents. The census included the population indirectly enumerated, including 11,743,220 overseas Chinese, 7,591,298 residing in Taiwan, and 8,397,477 residing in Tibet, the Qamdo and other remote regions. Apparently, it was difficult to reach the entire population even within the same territory. The organization of the first census also reflected the new
regime’s capacity for mass mobilization: representatives of each household were summoned by government staff to the registration stations and most arrived with written drafts of their answers to the census questionnaires, which were printed at their work units or in their communities. The fieldwork organization, enumeration procedures, and the methods of checking accuracy in 1964 were essentially the same as those employed in 1953.

The strong administrative support had ensured the data accuracy in census enumeration. The 1953 census undercounted the population by only 0.116 percent, with a double-count rate of 0.139 percent and an omission rate of 0.255 percent. The 1964 census had an even lower undercount rate of 0.0014 percent (see Table 1 on Page 180). While the undercount rates were lower than those in the developed countries such as the United States and Canada, Western specialists in Chinese statistics and demography were often suspicious of the postenumeration accuracy checks, because the areas that performed the checks, as they recalled, were not selected on a random basis, and the central census directives did not even provide a standard method of checking. As a result, the postenumeration checks may not provide a true picture of accuracy.

Due to various reasons, the planning of the first two censuses lacked transparency in terms of designs and implementation, and the access to data was restricted to a large extent. For instance, the planning process of the 1953 census was not discussed in public until the promulgation of the Government Administration Council’s census directives on 6 April 1953. The approach to planning was a rather top-down administrative fiat without much technical consultation and empirical testing that is typically expected in a modern census undertaking. The implementation and the results of the 1964 census were not publicized and its very existence was even not officially acknowledged until the early 1980s. Moreover, the tabulated data released consisted of only limited information and micro-level data were not available, which meant that the use of census information gathered for planning and further research was much limited.

B. The Transition Stage: The 1982 and 1990 Censuses

Compared to the previous two censuses, the 1982 census marked a milestone in the development of the modern census undertaking in China.
After the chaotic years of the Cultural Revolution, the economic reform launched by Deng Xiaoping in 1978 called for an accurate population count to be obtained for policy planning. Under the new open-door policy, the Chinese census planners seemed to be ready to adopt international practice and to accept assistance and advice from various organizations, including the United Nations Fund for Population Activities (UNFPA). The 1982 census, with the same reference date (1 July), was a far more ambitious project not only because the population had grown so much during the interim decades but also because more new items were added to the census forms. The household form included household type (domestic or collective), address, and other items such as the number of births and deaths, and the number of household members away for more than a year. The individual-level information collected included name, relationship to household head, sex, age, ethnicity, household registration status, education, employment status, industry and occupation for those aged 15 and above, marital status, children ever born and children surviving (for women aged 15 or above), and birth order in 1981.

While the previous two censuses relied on the hand tabulation methods, the vast amount of data collected in the 1982 census could not have been managed without employing automatic data processing equipment. It was the first time that the newly available computer technology was used in a census undertaking in China. Moreover, separate coding schemes were developed to categorize occupation and industry, which continue to be updated to this day. To ensure data accuracy, great efforts were made to develop and elaborate procedures, which were specified in the central directives. The postenumeration survey revealed a double-count rate of 0.071 percent and an omission rate of 0.056 percent, with a net error of 0.015 percent. More importantly, partly due to the confidence in data quality and partly due to the use of computer technology, the census results were published in detail and a 1 percent sample of the micro-data was also made available to the public, even to researchers outside China.

The 1982 census is the first attempt to modernize China's large-scale population census, representing a major progress in the collection of demographic statistics in the country with far-reaching significance. Following the huge success of the 1982 census, the Chinese government has been regularizing the census once every ten years since 1990. This
practice reflects the country’s return to the normal social and political conditions after the chaotic years in the Cultural Revolution and the government’s commitment to modernizing its statistical system.

The number of items in the 1990 census continued to expand in response to rapid social and economic changes. Unlike the 1982 census, in which the addresses were recorded in accordance with the hierarchy of China’s administrative jurisdiction, the fourth census adopted the concepts of census tracts and enumeration areas (普查区 pucha qu; 調查社區 diaocha shequ, roughly equivalent to residents’ committee and residents’ group in urban areas and administrative village/villagers’ group in rural areas, respectively). In addition to the highest level of education, the fourth census also added the current enrollment status to differentiate graduates from others. For employment status, the category “waiting for state job assignment” was dropped to reflect the transformation of the socialist employment system in 1990, and a new category “lost ability to work” was added. Population migration emerged in the mid-1980s as a new phenomenon with far-reaching social consequences, despite the persisting role of the household registration (hukou) system in restricting population migration to cities. Thus the 1990 census added several questions on migration. Hukou registration type (agricultural vs. nonagricultural) was specifically collected, given the increasing discrepancy between residence place and registration type. Those aged five or above were asked about both their permanent residence location and their registration type five years prior to the census (1 July 1984), based on which migration status was defined. Those who had migrated were further asked about their reasons for migration.

Notwithstanding the additional information collected, the 1990 census adopted the same enumeration criteria as the 1982 census: (1) a person who resides in the current location (a county or a city) and holds household registration there; (2) a person who has resided in the current location for one year or more but has household registration elsewhere (in a different county or city); (3) a person who has resided in the current location for less than a year but has left the place of household registration for more than a year; (4) a person who resides in the current location but has household registration pending; and (5) a person who used to reside in the location but does not hold the registration because he or she is in a foreign country. This definition, however, fails to count short-term migrants who have resided in the current location for less than a
year but kept their household registration in the original place of residence. Moreover, the migration questions in the 1990 census only distinguished mobility across county/city boundaries and circular migration within the five years before the census may have been omitted. These limitations became increasingly problematic given the acceleration of internal migration in the 1990s. A major revamp was thus necessary for the 2000 census.

C. The Modern Stage: The 2000 and 2010 Censuses

China underwent dramatic economic and social transformations in the 1990s between the fourth and fifth censuses. After the paramount leader Deng Xiaoping made his political tour to southern China in 1992 and called for further market reform, the private economy boomed and the state enterprises were fundamentally restructured, resulting in massive layoffs and rising unemployment in urban areas. Since the government’s bureaucratic control over population migration and labor mobility was waning rapidly, geographic mobility became much easier than before, and out-migration to cities, especially from rural inland to coastal provinces, prevailed from the late 1990s onward. Moreover, the privatization of housing as an integral part of the market reform opened up a housing market and housing issues were a growing concern in China. The 1990s also witnessed a substantial expansion of educational opportunities in China, with the nine-year compulsory education largely fulfilled by the mid-1990s and the opening up of tertiary education in 1998.

Given the increasing complexity of Chinese society on the one hand and the rising demand for social and demographic data to inform policy on the other hand, the fifth national population census in 2000, which differed substantially from the previous four censuses, was revised and expanded, laying down a new framework for the modern census undertakings in China.

A new feature of the 2000 census is the inclusion of the questionnaires in both a short form and a long form—a practice that continued in the 2010 census. The short form covered the standard items, such as age, sex, nationality, registration status, registration type, and educational level, whereas the long form was administered to 10 percent sample of the households in most provinces, with many additional items included. In addition, a new criterion was adopted to categorize registration status and define migration. The reference period was changed from one year
in previous censuses to six months, placing more migrants at their current abode rather than at their place of hukou registration, although those away from their residence for less than the reference period were still uncounted. This new definition of migration duration also explains another instance of breaking away from tradition—the reference date of the 2000 census was 1 November. Finally, while the 1990 census could only distinguish migration across county boundaries and in the five years before the census, the 2000 census was able to classify migrants with considerable spatial precision, helping to capture mobility across township/street committee boundaries.13

There were two questions on education targeting those aged six years or older in the short form of the questionnaire: whether or not he or she was illiterate and his or her educational level. For educational level, a new item—“graduate student”—was added to reflect the expansion of higher education. The number of rooms in the house and the floor area also appeared as new items in the short form, but the long form contained 15 new items, covering the use and age of residence, construction materials, kitchen, fuel use, tap water, sanitary facilities, the source of housing, the purchase price or monthly rent, and so on.

Indeed, the long form provided unprecedented scope for data collection. Items related to economic activity and unemployment were all relegated to the long form. In addition to the items about work status, industry, and occupation that also appeared in previous censuses in 1982 and 1990, questions about work for pay in the week preceding the census, working hours, and source of support for those not working permitted a basic but systematic investigation of the labor force participation and employment/unemployment issues in the country. The enrollment status in the 1990 census was relegated to the long form, with an additional question on whether it is adult education for senior high school to four-year college. Marital status collected in the 1990 census appeared in the long form only, with an additional question on the timing (age, year/month) of the first marriage.

The long form provided a rich source of social and demographic data for policy planning. In addition to the revised definitions of migration in the short form which enabled the government to chart mobility across township/street committee boundaries, the long form collected information on the birthplace, the location of last residence (county), and the year of last move, whereas the 1990 census revealed the mobility five
years before the census (1 July 1985). Despite the improvement, the newly added items pertaining to migration did not permit a full assessment of the floating population because those who have been away for less than six months were still counted at their de jure instead of de facto residence. Therefore, a portion of the floating population was not counted and their impact on urban destination was understated.

To remedy this problem, the 1 percent population sample survey in 2005 (known as the mini-census), as a pilot trial, was designed to capture the population at both their de jure and de facto residence on the reference date (12 midnight on 1 November). In the sampled census tract, all Chinese citizens were asked whether they resided in the current residence or they were registered in the residence but lived else. This approach captured migrants in both origins and destinations, regardless of the duration away from their registration residence. In this case, the registered population, floating population, and residential population can all be calculated in different ways as needed (see the next section for more details). Another improvement in the mini-census was that it relied on the mapping of the residential community (census tract), on the basis of the fifth census, to help enumerate migrants, who may not have a regular place of abode. The 2005 mini-census made significant contributions to the 2010 census, representing a new stage of the census undertakings in China, thanks to the sophisticated designs, the utilization of new technology, and the mobilization capacity of the Chinese bureaucratic system (to be elaborated later).14

Table 1 summarizes the evolution of the six population censuses. We can see that the reference time of census, the population coverage, the enumeration principles and the use of technology have substantially altered the features of the census undertakings in China, especially since 2000. Meanwhile, the items covered and the information collected have become increasingly sophisticated. As shown in Tables 2a and 2b, items in census questionnaires since 1982 (especially the long form) provide rich information such as housing, migration, employment, and regional development beyond the usual birth and death counts. In sum, the population census serves as an indispensable source of information for tracking the tremendous social and economic changes and informing the policy making in China.
<table>
<thead>
<tr>
<th></th>
<th>Primitive stage</th>
<th>Transition stage</th>
<th>Modern stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Std. reference time</td>
<td>12 midnight, 1 July</td>
<td>12 midnight, 1 July</td>
<td>12 midnight, 1 July</td>
</tr>
<tr>
<td>Population size</td>
<td>582,603,417</td>
<td>694,581,759</td>
<td>1,008,175,288</td>
</tr>
<tr>
<td>Population coverage</td>
<td>Chinese citizens within territory</td>
<td>Chinese citizens within territory</td>
<td>Chinese citizens within territory</td>
</tr>
<tr>
<td>Enumeration principle</td>
<td>Unclear</td>
<td>Hukou registration</td>
<td>Regular residents as defined</td>
</tr>
<tr>
<td>Quality check % Overcount</td>
<td>0.139</td>
<td>0.0377</td>
<td>0.071</td>
</tr>
<tr>
<td></td>
<td>−0.116</td>
<td>−0.0014</td>
<td>0.015</td>
</tr>
<tr>
<td>New technology</td>
<td>Manual input tabulations</td>
<td>Manual input and tabulations</td>
<td>IBM computer system</td>
</tr>
<tr>
<td>Address code</td>
<td>Unclear, at least rural and urban</td>
<td>Unclear, at least rural and urban</td>
<td>Province, county/city, commune/street committee, production brigade/residents’ committee, and production team/residents’ group</td>
</tr>
</tbody>
</table>
Table 2a: Summary of the Expansion of Items in China’s Population Censuses, 1982–2010

<table>
<thead>
<tr>
<th>Item</th>
<th>1982</th>
<th>1990</th>
<th>2000</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Household level</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>HH series #</td>
<td>II I</td>
<td>I</td>
<td>H1</td>
<td>H1</td>
</tr>
<tr>
<td>Type</td>
<td>I</td>
<td>II</td>
<td>H2</td>
<td>H2</td>
</tr>
<tr>
<td># of members in the HH</td>
<td>III (# and # by sex)</td>
<td>III (# and # by sex)</td>
<td>H3 (# by sex)</td>
<td>H3 (# by sex)</td>
</tr>
<tr>
<td><strong>Vital statistics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># of births (period)</td>
<td>IV (# by sex)</td>
<td>IV (# by sex)</td>
<td>H7 (# by sex)</td>
<td>H4 (# by sex)</td>
</tr>
<tr>
<td># of deaths (period)</td>
<td>V (# and # by sex)</td>
<td>V(# and # by sex)</td>
<td>H8 (# by sex)</td>
<td>H4 (# by sex)</td>
</tr>
<tr>
<td>Household members absent</td>
<td>VI (# and # by sex)</td>
<td>VI (# and # by sex)</td>
<td>H4 (# by sex)</td>
<td>H3 (in long form only):</td>
</tr>
<tr>
<td></td>
<td>(1 year above, cross-county/city)</td>
<td>(1 year above, cross-county/city)</td>
<td>(below 6 months, across township/street committee)</td>
<td># living in the residence</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>H5 (6 months or above, cross-township/street co.)</td>
<td># registered in residence</td>
</tr>
<tr>
<td>Housing</td>
<td>–</td>
<td>–</td>
<td>H9 (# of rooms)</td>
<td>H6 (# of rooms)</td>
</tr>
<tr>
<td>Individual level</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>I</td>
<td>I</td>
<td>R1</td>
<td>R1</td>
</tr>
<tr>
<td>Relationship to HH head</td>
<td>II</td>
<td>II</td>
<td>R2</td>
<td>R2</td>
</tr>
<tr>
<td>Item</td>
<td>1982</td>
<td>1990</td>
<td>2000</td>
<td>2010</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>Sex</td>
<td>III</td>
<td>III</td>
<td>R3</td>
<td>R3</td>
</tr>
<tr>
<td>Birth year and month</td>
<td>IV (plus birth date and age)</td>
<td>IV (plus age)</td>
<td>R4 (plus age)</td>
<td>R4</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>V</td>
<td>V</td>
<td>R5</td>
<td>R5</td>
</tr>
<tr>
<td>Hukou registration status</td>
<td>VI</td>
<td>VI</td>
<td>R6</td>
<td>R6</td>
</tr>
<tr>
<td>Hukou registration type</td>
<td>—</td>
<td>VI</td>
<td>R7</td>
<td>R10</td>
</tr>
<tr>
<td>Education</td>
<td>VII (6 levels)</td>
<td>IX (7 levels, with specialized tertiary as a separate category, and enrollment status)</td>
<td>R8 (illiteracy)</td>
<td>R11 (Illiteracy)</td>
</tr>
<tr>
<td>Industry (age 15+)</td>
<td>VIII</td>
<td>X</td>
<td>Long form</td>
<td>Long form</td>
</tr>
<tr>
<td>Occupation (age 15+)</td>
<td>IX</td>
<td>XI</td>
<td>Long form</td>
<td>Long form</td>
</tr>
<tr>
<td>Status of nonworking people (age 15+)</td>
<td>X</td>
<td>XII</td>
<td>Long form</td>
<td>Long form</td>
</tr>
<tr>
<td>Marital Status (age 15+)</td>
<td>XI</td>
<td>XIII</td>
<td>Long form</td>
<td>Long form</td>
</tr>
<tr>
<td># Children ever born (women aged 15-64)</td>
<td>XII</td>
<td>XIV</td>
<td>Long form</td>
<td>Long form</td>
</tr>
<tr>
<td># Children alive (women aged 15-64)</td>
<td>XII</td>
<td>XIV</td>
<td>Long form</td>
<td>Long form</td>
</tr>
<tr>
<td>Childbearing status (age 15-49)</td>
<td>XIII (age 15-49)</td>
<td>XV (age 15-50)</td>
<td>Long form</td>
<td>Long form</td>
</tr>
<tr>
<td>Residence 5 years ago (location/type/reasons for moving)</td>
<td>X</td>
<td>Long form</td>
<td>Long form</td>
<td>Long form</td>
</tr>
</tbody>
</table>

Note: The Roman numerals represent the item label in the questionnaires in 1982 and 1990, whereas Hx and Rx stand for the labels of items for the households and individuals, respectively, in the questionnaires in 2000 and 2010 censuses.
Table 2b: Items Included in the Long Form: Comparisons between the 2000 and 2010 Censuses

<table>
<thead>
<tr>
<th>Item</th>
<th>2000</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Address</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household ID</td>
<td>H1</td>
<td>H1</td>
</tr>
<tr>
<td>Household type</td>
<td>H2</td>
<td>H2</td>
</tr>
<tr>
<td># of people qualified for enumeration (by sex)</td>
<td>H3</td>
<td>H3</td>
</tr>
<tr>
<td># of people away for less than 6 months (by sex)</td>
<td>H4</td>
<td></td>
</tr>
<tr>
<td># of people away for 6 months or above (by sex)</td>
<td>H5</td>
<td></td>
</tr>
<tr>
<td># of people away for less 6 months but within township and street committee (by sex)</td>
<td>H6</td>
<td></td>
</tr>
<tr>
<td># of births and deaths within a year, by sex</td>
<td>H7/H8</td>
<td>H4</td>
</tr>
<tr>
<td><strong>Housing conditions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td># of rooms</td>
<td>H9</td>
<td>H7</td>
</tr>
<tr>
<td>Floor area</td>
<td>H10</td>
<td>H6</td>
</tr>
<tr>
<td>Use</td>
<td>H11</td>
<td>H5</td>
</tr>
<tr>
<td>Building year</td>
<td>H13</td>
<td>H9</td>
</tr>
<tr>
<td># of stories</td>
<td>H14</td>
<td>H8</td>
</tr>
<tr>
<td>Outside decoration/structure type</td>
<td>H15</td>
<td>H9</td>
</tr>
<tr>
<td>Kitchen</td>
<td>H16</td>
<td>H13</td>
</tr>
<tr>
<td>Cooking materials</td>
<td>H17</td>
<td>H11</td>
</tr>
<tr>
<td>Water</td>
<td>H18</td>
<td>H12</td>
</tr>
<tr>
<td>Bathing</td>
<td>H19</td>
<td>H15</td>
</tr>
<tr>
<td>Sanitation</td>
<td>H20</td>
<td>H14</td>
</tr>
<tr>
<td>Source of housing</td>
<td>H21</td>
<td>H16</td>
</tr>
<tr>
<td>Purchase price</td>
<td>H22</td>
<td></td>
</tr>
<tr>
<td>Rent</td>
<td>H23</td>
<td>H17</td>
</tr>
<tr>
<td>Name</td>
<td>R1</td>
<td>R1</td>
</tr>
<tr>
<td>Relationship to household head</td>
<td>R2</td>
<td>R2</td>
</tr>
<tr>
<td>Sex</td>
<td>R3</td>
<td>R3</td>
</tr>
<tr>
<td>Birth year and month</td>
<td>R4</td>
<td>R4</td>
</tr>
<tr>
<td>Nationality</td>
<td>R5</td>
<td>R5</td>
</tr>
<tr>
<td>Current Residence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hukou registration place</td>
<td>R6</td>
<td>R6-R10</td>
</tr>
<tr>
<td>Hukou registration type</td>
<td>R7</td>
<td>R11</td>
</tr>
<tr>
<td>Birth place county</td>
<td>R8</td>
<td>R12</td>
</tr>
<tr>
<td>Residence 5 years ago</td>
<td></td>
<td>R13</td>
</tr>
</tbody>
</table>
2. Innovations and New Features in the 2010 Population Census

The sixth population census was conducted in a special historical moment in China and received much attention for several reasons. During the decade from 2000 to 2010, China had become the second largest economy in the world only after the United States. Accompanying the economic boom had been the accelerating migration, urbanization and urban renewals, rendering the accurate enumeration of the increasingly mobile population more difficult than ever before. On the
other hand, the Chinese government, after placing too much emphasis on economic development and promotion of GDP growth for decades, had started paying more attention to issues related to education, medical care, employment, housing, and public service, all of which were closely tied to people’s livelihood. Population data were needed for economic/social planning and policy making to address these issues. Last but not least, given that population aging and labor shortage were predicted for the coming decades, the one-child policy, after nearly 30 years of implementation, came under scrutiny. Update and accurate information on fertility and mortality via the population census was seen as essential to the debate on how the country’s population policy should be adjusted.\textsuperscript{15}

Hence, the accurate enumeration and full coverage of the population has always been a high priority for the census administrators. While China’s relatively immobile population under the surveillance of a powerful and pervasive administrative system once made a full enumeration easier in early censuses, this has no longer been the case since 1990. The revamp of the 2000 census attempted to address some of the challenges in this regard, albeit with limited success. The postenumeration assessment identified three aspects that hindered accurate enumeration, namely fertility, mortality, and internal migrants.\textsuperscript{16}

Based on the lessons learned from the 2000 census and the pilot trial in the 2005 mini-census, further innovative measures were adopted in the 2010 census to address the problem of underenumeration. These measures were (1) the introduction of a new principle of enumeration; (2) the use of new technology in mapping census tracts; (3) the inclusion of the alien population, including foreign citizens and immigrants from Hong Kong, Macau, and Taiwan; and (4) the introduction of new initiatives to strengthen the administrative system of enumeration.

A. The New Principle of Enumeration

As we have summarized in Table 1 on the enumeration principles, whereas the 1990 census defined migrants as those who had moved across counties/cities and stayed for over one year in their destinations in the five years before the census, many more short-term, within-county/city, or circular migrants were not counted in their de facto residence. To tackle the underenumeration problem of the migrant population, the 2000 census further improved the enumeration of migrants at their de facto rather than de jure residence by lowering the threshold of stay duration from one year to six months and also recording movement
across township/street committee boundaries. Following the mini-census in 2005, the 2010 census went further to register both the de jure and de facto populations at the same time. In other words, everyone was required to put down the residence place where he or she stayed on the evening of 31 October 2010 (reference date) regardless of his or her household registration place, and his or her hukou registration place regardless of where he or she was that night.

The new principle emphasized practicality and left little room for either the respondent’s own interpretation or the enumerator’s own judgment as to who should be counted and who should not. As illustrated in Figure 1, the 2010 census enumeration covered both the current residential population (A + B) and the registration population (B + C), in which A refers to those living in the residence on the census reference date with hukou registered elsewhere, B refers to those living with hukou registration in the residence, and C refers to those living elsewhere but with hukou registration in the residence. Part A in Figure 1 covers both short-term (less than six months), short-distance (e.g., across census enumeration areas) movers and the migrant population (six months or above), the latter of which constitutes an important part of the regular residential population (常住人口 changzhu renkou) nowadays.

Figure 1: The Enumeration coverage of the 2010 population census

![Diagram of census enumeration coverage]

- A: (lived here but registered elsewhere)
- B: (lived and registered here)
- C: (registered here but lived elsewhere)
Figure 2 further illustrates three segments of the regular residential population (shaded areas $A_2 + B + C_1$). $A_2$ refers to migrants who have been living in the current residence for six months or more without *hukou* registration in the place. While the threshold was set the same as that adopted in the 2000 census, it also covers those who moved across the boundary of census enumeration areas—a much more precise spatial unit than either township/street committee in the 2000 census or county/district in the 1990 census. Therefore, $A_2$ covers a subpopulation whose residence and registration are different but still within the same township or a street committee. $C_1$ refers to those who are registered but have not been in the residence for six months or less. $A_1$ (living here for less than six months but registered elsewhere) and $C_2$ (registered here but left for six months or more) refer to the floating population whose regular residence could not be determined. $A_1$ may partially overlap with $C_1$, and $C_2$ may partially overlap with $A_2$.

Figure 2: The Calculation of Regular Residential Population in the 2010 Census

<table>
<thead>
<tr>
<th>$A_1$</th>
<th>$B$</th>
<th>$C_1$</th>
<th>$C_2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>(lived here for less than 6 months but registered elsewhere)</td>
<td></td>
<td>(registered here but left for less than 6 months)</td>
<td>(registered here but left for 6 months or more)</td>
</tr>
<tr>
<td>$A_2$</td>
<td>(lived and registered here)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(lived here for 6 months or more but registered elsewhere)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This new principle of enumeration in the 2010 census was aimed at covering everyone in their current residence (*現有人口 xianyou renkou*) as well as those who were registered but absent from the residence (*戶籍外出人口 huiji waichu renhou*), thus permitting a full assessment of the floating population because those who have been away for less than six months were still counted at their de jure instead of de facto residence in 1990 and 2000 censuses. It is clear that this more fine-tuned method greatly reduced the chance of underenumeration, but the risk of double counting could increase at the same time.
B. The Use of New Technology in Mapping Census Tracts/Enumeration Areas

Under the new enumeration principle, to determine where a person is a regular resident of, it is crucially important to gather accurate information on both residence and hukou registration places. Many migrants have unstable/irregular residence which makes it difficult for enumerators to reach them. In a decade of rapid urbanization and urban renewal, villages and neighborhoods have disappeared whereas new ones have come into existence. Moreover, the emergence of the urban housing market has made it possible for a household to have multiple domiciles. The 2010 census administrators made a special effort to tackle these issues in preparing for the enumeration. After the 2005 mini-census, remote sensing technology (see Figure 3 for a sample image) was employed to assist in drawing maps of all buildings and demarcating census tracts and enumeration areas.

Figure 3: A Remote Sensing Image

According to the “Detailed Regulations for the Sixth National Population Census Area Partition, Address Coding and Mapping,” issued by the Office of Leading Group for the Sixth National Population Census under the State Council, the list of census areas at the township level or above that was submitted to the office for approval could not be altered without the office’s permission. Within each township/street committee, a census administrator who was familiar with the local communities was then assigned to work on the division of census tracts and enumeration areas, using the ArcGIS system modified specifically for the census and preloaded with remote sensing images (Figure 4).
The census administrator then plotted a detailed map of all commercial and residential buildings with major signs of demarcations (e.g., a river, a road), as shown in Figure 5. Each enumeration area included around 80 residential addresses, and each block or building belonged to one enumeration area only even if it sits on a boundary.

Figure 5: The Remote Sensing Image for a Census Enumeration Area (EA)
The mapping of census enumeration areas enhanced the population coverage, especially the coverage of temporary migrants living in unconventional dwellings. Indeed, 58 percent of all countries in the world conduct population census with the assistance of digital mapping technology and China is one of them. The map boundaries of census tracts were first created in the 2010 census and will continue to be used in future census undertakings in China.

C. The Inclusion of the Alien Population

While the previous five censuses counted only Chinese citizens residing within the territory, the sixth census attempted to cover also the alien population (including foreign citizens and residents from Hong Kong, Macau, and Taiwan) for the first time in history, albeit with a separate and brief enumeration form. The enumeration items included address and household ID, name, relationship to household head, sex, birth date, purpose and duration of stay, education, and citizenship. Those from Hong Kong, Macau, and Taiwan were asked three additional questions: duration of residing in these regions in the past six months, industry, and occupation for those aged 15 or above who were working in mainland China.

According to the sixth population census, 1,020,145 alien people were successfully enumerated, including 234,829 from Hong Kong SAR, 21,201 from Macau SAR, 170,283 from Taiwan, and 593,832 foreign citizens. Half of these immigrants resided in Guangdong (316,138) and Shanghai (208,602). While it is unclear how much effort the census takers made to ensure the accurate enumeration of the alien population in China, any attempt at doing so represents a significant progress in the evolution of modern census undertakings in China. Given the increasing globalization of the Chinese economy and the new trend where China is becoming a destination for international migration, enumeration of the immigrant population should be further strengthened and integrated with the national population census in the future.

D. New Initiatives in Strengthening the Enumeration Administrative System

The sixth census has adopted new initiatives to strengthen the administrative system of population enumeration. First, the census has taken advantages of the administrative statistics, such as the household
registration records. The *hukou* registration used to be the major basis for the population enumeration in earlier censuses, but the increase in migration and the separation between people and their *hukou* registration place (de jure residence) had made the *hukou* data largely outdated. Nevertheless, the 2010 census stipulates the enumeration of both de facto and de jure populations at the same time, the latter of which requires the careful checking and cleaning of the *hukou* registration data, such as birth without registering *hukou* and death without eliminating *hukou*, and any discrepancy between registration and residential locations. Hence, as an important part of census preparation, the rectification of *hukou* registration by the police bureaus was strengthened for the count of de jure population in the 2010 census. Children born out of the violation of the family planning policies have been a particular concern because families and the local government also had strong incentives to hide the additional births.¹⁹ Prior to the census, these children were provided the opportunity to register in the *hukou* system. While the 2000 census has started adopting such practice, the census authority in 2010 made special effort to promise that such information would not be passed to the birth control authority as a basis for fines, nor would the rectified fertility data be used for the evaluation of local government performance in family planning.²⁰ These data, together with the administrative data from other government offices (civil affairs, public health, education, and family planning), were all submitted to the Local Office of Population Census for preparation of the household head rosters before the enumeration.

Second, the Chinese census authority continued to rely on their past experience by setting up a strong administrative system as institutional support. At the central level, the Leading Group for the sixth Population Census involving 25 government agencies was established under the State Council, headed by then Vice Premier Li Keqiang, to coordinate the census activities. Similar agencies were set up at provincial, prefectural, county and township levels to coordinate and organize the census activities, whereas the implementation was mainly carried out at the census tract level (village committees/neighborhood committees), where a tract was divided into multiple census enumeration areas (CEAs), with at least one supervisor for each tract, at least one enumerator for each CEA and one director for every four or five CEAs.

The sixth population census mobilized 6.5 million enumerators to visit more than 400 million households within a period of 40 to 60 days.
According to the “Regulations on the National Sixth Population Census” issued by the State Council on 24 May 2010, the enumerators are required to have at least junior high school education, be seconded by staff in a variety of work units such government, social institutions, or public enterprises, or be recruited from village committees/neighborhood committees or local communities at large. The regulations encourage qualified citizens to volunteer for the census enumeration. The seconded enumerators were paid by their own work units, whereas the ones recruited from committees/communities were remunerated with funds earmarked specifically for this purpose in the central and local government fiscal budgets for the census.

A separate team was set up for quality control at each level of the census agency, with detailed guidelines provided by the Office of the Leading Group on the Sixth National Population Census. In the precensus stage, the quality control staff rechecked the CEA map, the vacant residences, and household head rosters. During the enumeration and review stage, the team monitored the whole progress, with a particular focus on the items reflecting the new design, such as those pertaining to individuals living in the residence on the night of 31 October 2010, and individuals whose hukou were registered in the residence but in absence on that night, as well as the number of births and deaths in the household in the year preceding the census (1 November 2009 to 31 October 2010). The quality control team also manually checked the logic of the items, the completion of the long-form questionnaires, and the accuracy of address records. In the quick aggregation stage, the total numbers of de facto population and de jure population were checked against the hukou registration records maintained by the public security bureaus, with the assumption that the enumerated population, either de facto or de jure, should not be smaller than the registered population. The quality control also covered data coding/recoding and data processing at the county/city/district level. Finally, the quality-check forms were filled out and submitted together with the enumeration forms to the upper-level office in charge of census undertaking. The quality of enumeration was deemed acceptable if seven criteria were met. For instance, the underenumeration rate must be less than 0.4 percent; the rate of underreported births and the rate of underreported deaths must both be less than 0.5 percent.21

Unlike in previous census exercises, the “Regulations on the National Sixth Population Census” also stipulated explicitly legal
punishment for those who forged data or modified data without authorization and any citizens who obstructed the enumerations in the 2010 census undertaking. This massive operation combined the traditional top-down administrative system with new means to accommodate the changing social environments for data collection, thus marking another milestone in the development of the modern census undertakings in China.

With the new measures taken, the Chinese government seemed to be very confident about the quality of the 2010 census data. The quality control procedures described above revealed that the low-age group (0–9) was undercounted by 11.07 million or 7.56 percent; the 2010 census seems to have captured a sizable group of youngsters aged 10 to 19 who were missing from the 2000 census population (children aged 0–9); and the middle-age group (15–54) were double counted by 6.04 million, due to the new designs implemented in the 2010 census. As a result, the revised enumerated population is very close to the total population released in the *Communique* (1339.72 million).

The good quality can be further affirmed by checking the consistency of the 2010 census data against the 2000 data and other administrative information collected by various government agencies, such as household registration data, education statistics, and fertility data provided by the birth control authority, and mortality data provided by the civil affairs authority. The postenumeration survey of 40,000 households and 120,000 individuals from 402 census enumeration areas also suggested that the underenumeration rate was 0.12 percent, far below the 1.81 percent in the 2000 census (also see Table 1 on Page 180).

### 3. Tracking Social Changes from China’s Population Censuses

As we pointed out at the beginning, the evolution of the census undertakings per se over the six decades largely reflects the trajectory of social and political changes in China. The data obtained from the censuses provide an indispensable source of information for social scientists to track the large-scale social changes, especially those related to education, employment, family and marriage, migration and urbanization, housing, and among others. The micro-data from a census with a large sample size and increasingly complicated designs can be analyzed to address the interrelationships between population and other social system variables.
that are seldom addressed in conventional demographic analysis.

Many key indicators that characterize population, nevertheless, have had their definitions and classifications altered over time. To track the social trends, we must adopt measures that are comparable across different census rounds, especially between the transition stage (1982 and 1990) and the modern stage (2000 and 2010). Three issues—internal migration, urbanization, and occupational changes—which reflect important aspects of China’s socioeconomic transformation are chosen here to illustrate the necessity of paying attention to the way measures are defined.

A. Internal Migration

As discussed in the overview of the Chinese census undertakings, the definition of migration has been revised several times for the enumeration of the increasingly mobile population since the 1990s. In the 2000 and 2010 censuses, the migrant population is similarly defined as those who have stayed in the residence for over six months but have their hukou registered in other townships. As shown in Table 3 on Page 195, the cross-township migrants increased by 81.03 percent from 144,390,748 in 2000 to 260,937,942 in 2010. Of course, these figures also cover the residence-hukou separation (人户分离 renhu fenli) within the county/city boundaries.

In the 1990 census, only cross-county movements for over a year were considered as migration, whereas in both the 2000 and 2010 censuses, movements across the township and street committees over six months were considered as migration. Furthermore, migration in 2000 and 2010 can be further differentiated into within-county, cross-county (within province) and cross-provincial migration.

Therefore, the increase in the migration counts is partly due to the change in criterion. As shown in Table 3, cross-county migration clearly dominated all migrations, accounting for 83.9 percent (121,175,062 of 144,390,748) of all migrations in 2000 (29.4 percent cross-provincial) and 98.3 percent in 2010 (32.9 percent cross-provincial). Internal migration and geographic redistribution have fundamentally transformed the Chinese society and economy over the past decades, and their profound impacts deserve further analyses with the availability of the census data.
Table 3: Trends in Population Migration, 1990–2010

<table>
<thead>
<tr>
<th></th>
<th>1990</th>
<th>2000</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defined migrants</td>
<td>20,059,571</td>
<td>144,390,748</td>
<td>260,937,942</td>
</tr>
<tr>
<td>Cross-county</td>
<td>20,059,571</td>
<td>121,175,062</td>
<td>256,441,680</td>
</tr>
<tr>
<td>Within province</td>
<td>78,756,500</td>
<td>170,565,343</td>
<td></td>
</tr>
<tr>
<td>Cross-province</td>
<td>—</td>
<td>42,418,562</td>
<td>85,876,337</td>
</tr>
</tbody>
</table>


B. Urbanization and the Persisting Hukou System

China has experienced a rapid urbanization over the past two decades. As shown in Table 1, the earlier population censuses recorded only addresses in accordance with the Chinese administrative hierarchy at the time. In the 1953 census, urban population referred to those enumerated in the administrative jurisdictions of cities and towns and included both agricultural and nonagricultural populations, whereas in the 1964 census, only those with nonagricultural hukou were counted, though the actual discrepancy might be negligible because of the rigid control of migration via the hukou system. The 1982 census, like the 1953 census, simply considered all those enumerated in the jurisdictions of cities and towns as the urban population, and recoded the hukou registration type (agricultural vs. nonagricultural) based on whether the enumeration community is a production team or neighborhood committee. In other words, individuals were not asked directly about their hukou registration type in the census questionnaires; this item was simply recoded, as was the residence type, from the address. As the defined urban population included those living in villages within suburban areas, the level of urbanization may be overestimated. Given the substantial restructuring of China’s administrative jurisdictions in the 1980s, in which many counties (縣 xian) were promoted to cities (市 shi) and many townships (鄉 xiang) were upgraded to towns (鎮 zhen), the inclusion of rural residents in the designated urban administrative jurisdictions in population enumeration would inflate the level of urbanization in China.

Indeed, the differentiation between urban and rural areas has become an even more difficult task since the 1980s because of the
surging internal migration and the industrialization in the countryside. The urban/rural distinction is no longer as clear cut as it used to be. In response to the increasing criticism of the urban-rural classification schemes, the Chinese statistical agencies adopted another dimension in defining urban and rural populations in the 1990 census, by resorting to smaller and subdivided residence units as a basis for aggregation. Starting from the 1990 census, the census tracts and enumeration areas were standardized and assigned 17-digit address codes, which were subsequently revised in 2000 and 2010. The first 6 digits for province (1–2), prefecture (3–4), and county (5–6) or their equivalent are drawn from the national standard code for the jurisdiction of the People’s Republic of China, whereas the next six digits for township (7–9) and village (10–12) or their equivalent are coded by local statistical agencies. Following the standard address codes are the urban-rural residence type (13–14) and classification (15–17). The last three digits are most relevant to the measure of urbanization. The details of the urban-rural classification scheme are presented in Table 4, in which 1 stands for urban areas and 2 stands for rural areas at the first digit (the 15th digit in the census address code). The division of urban and rural areas as well as cities, towns, and villages is based on these standardized codes, which are publicly available on the website of the National Bureau of Statistics.

Table 4: Urban-Rural Classification Scheme of Addresses in Chinese Censuses

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>111</td>
<td>City main district area (zhuchengqu)</td>
</tr>
<tr>
<td>112</td>
<td>City and township mixed area (chengxiangjiehequ)</td>
</tr>
<tr>
<td>121</td>
<td>Town central area (zhenzhongxinqu)</td>
</tr>
<tr>
<td>122</td>
<td>Town and township mixed area (zhenxiangjiehequ)</td>
</tr>
<tr>
<td>123</td>
<td>Special area (teshuquyu)</td>
</tr>
<tr>
<td>210</td>
<td>Township central area (xiangzhongxinqu)</td>
</tr>
<tr>
<td>220</td>
<td>Village (cunzhuang)</td>
</tr>
</tbody>
</table>


The new standardized classification scheme has enhanced, to a significant degree, the temporal and international comparability of the official account of the Chinese urban population. As shown in Table 5, China has made much progress in urbanization over the past two decades, and the pace has only accelerated since 2000.
According to the roughly comparable criterion, the populations residing in cities and townships (de facto population) accounted for 26.2 percent of the national population in 1990, 36.1 percent of the national population in 2000, and 49.7 percent of the national population in 2010. The urbanization trend could be driven by two major forces. The first is the rural-to-urban migration, particularly to the coastal metropolitan areas (also see Table 3 on Page 195); the second is the urban spatial expansion which has incorporated more of the rural population into the jurisdiction of cities and townships. On the other hand, the reform of the hukou system continues to lag far behind, as evidenced by the slow growth of the population with nonagricultural (urban) hukou status (urban de jure population).\(^28\) As the new leadership of the Chinese government places much emphasis on promoting urbanization in the policy agenda, the 2010 census data are expected to provide a solid basis for the analyses of trends and for policy advice in this regard in the future.


<table>
<thead>
<tr>
<th></th>
<th>1990</th>
<th>2000</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban de facto population</td>
<td>26.2</td>
<td>36.1</td>
<td>49.7</td>
</tr>
<tr>
<td>Urban hukou (de jure) population</td>
<td>19.5</td>
<td>24.7</td>
<td>29.1</td>
</tr>
<tr>
<td>Nonagricultural employment</td>
<td>29.4</td>
<td>35.5</td>
<td>51.7</td>
</tr>
</tbody>
</table>


C. Occupational Classification and Occupational Changes

The fundamental driver of urbanization is the creation of various non-farm employment opportunities. Over the past decades China has reached a historical turning point in its urbanization process, accompanied by the transfer of laborers from farm to nonfarm sectors. The population census has provided a unique source of information documenting the temporal trends in occupational changes in much greater detail in this regard.

In the transitional stage of the census undertaking, the classification of occupation (as well as industry) has been standardized.\(^29\) Enumerators
typically recorded on the questionnaires descriptions of the jobs held by working adults. These descriptions are subsequently coded by a group of well-trained staff into the three-digit Chinese Standardized Classification of Occupation (CSCO) issued by the National Bureau of Statistics. The 1982 and 1990 censuses adopted a similar CSCO scheme, consisting of 7 large categories, 69 medium categories, and more than 300 detailed occupations. Both the 2000 and 2010 censuses relegated occupation to the long questionnaire. They also completely changed the CSCO scheme, which now consisted of 6 large categories, 62 medium categories, and 407 detailed occupations. Census data analysts on relevant issues shall pay attention to these changes.

As Table 5 in the preceding section clearly shows, the growth of nonfarm employment had been much faster between 2000 and 2010 (from 35.5 percent to 51.7 percent) than between 1990 to 2000 (from 29.4 to 35.5). More specifically, Table 6 presents the changing occupational structures from 2000 to 2010. Whereas the employment population increased by only 7 percent, the population specifically in farm employment declined by 19.8 percent, in contrast to the growth in the number of commercial and service workers (by 88.6 percent), the number of operators of production and transportation equipment and related workers (by 52.0 percent), the number of office workers and related staff (by 49.4 percent), and the number of professional and technical staff (by 28.2 percent). The transition from rural to urban, and from farming to manufacturing to services, marks fundamental changes in social organization and the lives of individuals, with profound implications for the country’s socioeconomic future.

The long-form questionnaire in 2000, and especially the one in 2010, solicited rich information on those who were not working. In 2010, those who were not working were further divided into the economically inactive group and the unemployed group. Overall, as shown in Table 7, China’s nonworking population had increased by nearly 90 million ([30,150,823 + 2,118,312 – 23,403,664] × 10) in that decade alone. There were several reasons behind the growth of the nonworking population: an increase in the number of students enrolled in school by about 21 million (due to the protracted education), an increase in the number of retirees by about 22 million (as a result of population aging), an increase in the number of household workers by 14 million (mostly women), and an increase in the number of people who have lost the ability to work by
14 million (presumably due to health reasons). The 2010 census also recorded some of the other reasons for why people were economically inactive or unemployed. For example, about 9 million people had never worked after graduation, and more than 5 million of them were still looking for a job. There were 16 million \((87,519 + 84,183)\) landless peasants in the countryside, half of whom were looking for employment. Such insights could not have been gleaned from tabulations released by the National Bureau of Statistics, but required more carefully designed in-depth analysis of the micro-level data.

Table 6: Changes in the Occupational Structure in China, 2000–2010

<table>
<thead>
<tr>
<th>First code</th>
<th>Large category</th>
<th>2000</th>
<th>2010</th>
<th>Growth</th>
<th>Growth %</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Leading cadres of party and government organizations and institutions</td>
<td>1,115,723</td>
<td>1,268,641</td>
<td>152,918</td>
<td>13.7</td>
</tr>
<tr>
<td>1/2</td>
<td>Professional and technical staff</td>
<td>3,814,175</td>
<td>4,890,841</td>
<td>1,076,666</td>
<td>28.2</td>
</tr>
<tr>
<td>3</td>
<td>Office workers and related staff</td>
<td>2,071,048</td>
<td>3,093,184</td>
<td>1,022,136</td>
<td>49.4</td>
</tr>
<tr>
<td>4</td>
<td>Commercial and service workers</td>
<td>6,136,967</td>
<td>11,572,490</td>
<td>5,435,523</td>
<td>88.6</td>
</tr>
<tr>
<td>5</td>
<td>Farming, forestry, animal husbandry, fishery and water resources workers</td>
<td>43,107,741</td>
<td>34,565,439</td>
<td>−8,542,302</td>
<td>−19.8</td>
</tr>
<tr>
<td>6/7/8/9</td>
<td>Operators of production and transportation equipment and related workers</td>
<td>10,584,962</td>
<td>16,087,734</td>
<td>5,502,772</td>
<td>52.0</td>
</tr>
<tr>
<td>Unclassified</td>
<td></td>
<td>44,273</td>
<td>69,560</td>
<td>25,287</td>
<td>57.1</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>66,874,889</td>
<td>71,547,989</td>
<td>4,673,100</td>
<td>7.0</td>
</tr>
</tbody>
</table>

Table 7: The Growth of the Nonworking Population Aged 15 or Above, 2000–2010

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not working</td>
<td>Economically nonactive</td>
</tr>
<tr>
<td>Enrolled in school</td>
<td>4,880,557</td>
<td>6,988,586</td>
</tr>
<tr>
<td>Household work</td>
<td>7,015,953</td>
<td>8,411,391</td>
</tr>
<tr>
<td>Retiree</td>
<td>4,129,668</td>
<td>6,411,884</td>
</tr>
<tr>
<td>Lost ability to work</td>
<td>3,657,920</td>
<td>5,138,434</td>
</tr>
<tr>
<td>Never worked but looking for a job</td>
<td>1,317,487</td>
<td></td>
</tr>
<tr>
<td>Never worked after graduation</td>
<td>409,319</td>
<td>509,093</td>
</tr>
<tr>
<td>Jobless but looking for a job</td>
<td>1,162,401</td>
<td></td>
</tr>
<tr>
<td>Jobless (danwei reasons)</td>
<td>198,316</td>
<td>404,441</td>
</tr>
<tr>
<td>Jobless (personal reasons)</td>
<td>445,611</td>
<td>321,458</td>
</tr>
<tr>
<td>Land requisitioned</td>
<td>87,519</td>
<td>84,183</td>
</tr>
<tr>
<td>Others</td>
<td>1,239,678</td>
<td>2,059,763</td>
</tr>
<tr>
<td>Total</td>
<td>23,403,664</td>
<td>30,150,823</td>
</tr>
</tbody>
</table>


4. Summary and Unanswered Questions

To sum up, this report documents the evolution of census undertakings in China since 1953, which have come a long way. The six population censuses are divided into three stages according to their design, operation, and sophistication: the primitive stage (the 1953 and 1964 censuses), the transition stage (the 1982 and 1990 censuses), and the modern stage (the 2000 and 2010 censuses). The report shows that how the censuses were conducted and what social and demographic information was collected to a large extent reflect the changing social and political situations in China over the six decades. Given the limited data collected and the relatively simple designs of the first two censuses, the report highlights the changes made to the 1982 census, the innovations in the 2000 census, and the improvements in the 2010 census as well as the rationales behind those changes. The review affords several insights into the trajectory of the census undertakings in China.
First, the population census has become increasingly sophisticated. To meet the public and government demand for social information, the Chinese census has been successfully transformed from a simple head counting exercise to a data collection enterprise in terms of its grand scale, refined design, expanded content, and application of technology. Both the 2000 and 2010 censuses, especially their long-form data, provided a rich and indispensable source of facts on the changing society.

Second, the population census continues to be highly focused on the quality of enumeration. Thanks to the Chinese government’s high capacity for mobilization, the enumeration quality of all censuses has proved to be reasonably high by international standards. Results from the intercensal analyses, the consistency check against other administrative data, and the postenumeration surveys lend strong support to the claim that the 2010 census is among the two best population censuses in China’s history, with the other being the 1982 census.

Finally, the census undertaking in China has become increasingly professionalized and standardized. Since the 1982 census, which has borrowed international expertise as the first attempt to modernize China’s census system, the Chinese census authority has made a constant effort to ensure enumeration accuracy by regularly revising the enumeration principles (definitions of residents to be enumerated), adopting innovative designs (having a short and a long form), and devising standard coding schemes (e.g., address codes for urban-rural classification, occupational codes) to minimize the room for enumerators’ own judgment. As this report has shown, the census undertaking had all but matured by 2010.

Needless to say, the census undertaking in China is expected to continue to evolve in response to the changing social environment, the increasing demand for relevant information and advances in technology. In light of the observations on the evolution of census undertakings, there are a few issues that deserve visionary thinking and stance on the part of the Chinese census planners.

First, how should the increasing data demands from a variety of stakeholders be accommodated? While a long-form questionnaire allows more questions of interest to different parties to be included, it is unclear to most data users/analysts as to what questions should be included and what should be left out. To enhance transparency in the process of consultation and decision making, a scientific committee comprising
experts and census officials might be formed to review and endorse the questionnaires and designs.

Second, how can the government bureaucratic system and administrative records be more effectively utilized in census operation? Whereas the success of past census operation is largely attributable to the bureaucratic system with its high mobilization capacity, whether such a hierarchical system will continue to serve the function and at what cost are open questions that the Chinese census authorities should attempt to answer in preparing for the next census in 2020. While the 1982, 1990, and 2000 census enumerations all witnessed a dramatic deviation from the registration records, the success of the 2010 one can be attributed partly to the new enumeration principle and partly to the substantial rectifications of hukou registration records at the police bureaus. The administrative records, including hukou registration, birth records, and school enrollment statistics, which are increasingly digitized and more frequently updated, could serve as an additional source of information for fine-tuning the census enumeration.

Third, how can the fieldwork be operated more effectively to enhance the access to certain groups that are typically underenumerated? Results from the intercensal analyses between 2000 and 2010 suggest that an underreporting of births and deaths among infants and children under age 10 continues to constitute a serious challenge for census enumerations in China in the years to come. Births might be underreported by families to avoid punishment for violating the one-child policy and by the local government to meet certain performance targets. Deaths of aged people might be also underreported by families so they could keep receiving benefits linked to pension and social security. New measures in both designs and data collection will have to be put in place to deal with these issues. Publicity programs should target specific groups.

Finally, how can the accessibility and utility of the census data be enhanced? While the tabulated data in each census have been published in printed volumes, the rich information contained in the census has yet to be thoroughly exploited. Under international guidance, the 1982 census had set a good precedent in making the micro data available. The quality census data would provide a great opportunity for further in-depth analyses to track social and economic changes that can inform social and economic policies. The data may also be integrated with other social, economic, and geographic data to realize even greater potential for applications. The infrastructures built in the 2010 census, such as
address database and community mapping, as well as the aggregated population statistics at even smaller spatial units, could provide a complete framework for other sampling surveys.

In sum, given that the social and economic factors that have rendered the population census undertaking even more difficult than before, the challenges discussed above are unlikely to fade away in the coming decades. The census authorities of China, therefore, should prepare for these challenges and continue to seek more innovative designs and methods to ensure a wide coverage, accurate enumeration, and comprehensive contents in the 2020 census.

Notes

2. We loosely use these terms to label three different stages of census undertakings with respect to the enumeration designs and operation, to be elaborated in the subsequent sessions.
3. Ibid. Information on the last item was collected but not aggregated.
8. The highest level of hierarchy was province/municipality/autonomous region, followed by county/city, commune/street committee, production brigade/resident’s committee, production team, and residents’ group. The commune, production brigade, and production team were abolished in the early 1980s after the introduction of the household responsibility system in rural areas.
10. Ibid.
12. Xiaogang Wu and Zhuoni Zhang, “Changes in Educational Inequality in


17. The regular residents in the frequently mobile population are still underreported, e.g., those people who have left their registration residence for more than six months but have lived in their current residence for less than six months (an overlap between A1 and C2).

18. The census areas include six levels: provincial, prefectural, county, township, census tract, and census enumeration areas. The boundaries for the first four levels are marked clearly, as they are roughly identical to the administrative jurisdictions.


20. As a result, the household registration status was pending for 13 million people in the 2010 census, compared to 8 million in the 2000 census (Cai, “China’s New Demographic Reality,” p. 373).


24. For instance, the undercount was, respectively, 1.7 percent in the 2011 Australian census and 1.9 percent in the 2011 Canadian census. The U.S. census had a net undercount of 1.61 percent in 1990, an overcount of 0.49 percent in 2000, and an overcount rate of 0.01 percent in 2010.


26. Trends in education and housing issues are not covered here for two reasons. First, some work has already been conducted with the census data (e.g., education; see Wu, “Economic Transition”; Wu and Zhang, “Changes in Educational Inequality”; Treiman, “Trends in Educational Attainment”). Second, the relevant items do not involve much change in measures across different censuses (e.g., housing).


28. “Directives on Further Reform of the Household Registration System,” issued by the State Council on 30 July 2014, stipulated establishing a nationally unified registration system with no distinction between rural and urban registration status, but the effect remains to be seen.

29. Here we focus on occupational classification as it is more relevant than industry classification to social scientists interested in analyzing population census data.

30. For instance, for 1982 to 1990, the seven broad categories (with code) in the CSCO scheme were (0/1) staff in various kinds of scientific and technical work; (2) government agency, party committee, organization and institution managers; (3) office workers and related staff; (4) working staff in commerce; (5) working staff in service trade; (6) farming, forestry, animal husbandry, and fishery workers; and (7/8/9) production, transportation and related workers. For 2000 to 2010, the six broad categories in the CSCO were (0) leading cadres of party and government organizations and institutions; (1/2) professional and technical staff; (3) office workers and related staff; (4) commercial and service workers; (5) farming, forestry, animal husbandry, fishery and water resources workers; and (6/7/8/9) operators of production and transportation equipment and related workers.
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