

A Short Review on Japanese Demographic Statistics

-present state and tasks for the future-

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1. Introduction

Demographic statistics have substantial importance in a variety of dimensions. First of all, they provide a set of basic information required to assess many aspects of demographic development. The policies of modern governments, no matter what the government claims to be big or small, are dependent upon various information including those given by demographic statistics.

It is well known that the modern population census was initiated as a tool to produce an objective measure for apportionment. The census provides a snapshot of the entire population of a nation, and thus presents high quality population counts for small areas across the country. Local government finance in many countries depend to a greater or lesser extent on subsidies from the central government. Census results and mid-year population estimates compiled from the census and other demographic figures are used to ensure that large amounts of government funds are distributed in a politically fair way. In addition, population estimates as well as future forecasts compiled from demographic statistics are indispensable to central and local governments, as well as health, education and other authorities, as they administer and formulate plans on health, education, transport, housing and other matters.

Demographic statistics also have a basic importance for carrying out other surveys. Enumeration districts prepared for population censuses are widely used in other surveys as sampling frames, and applied to individual and household surveys such as the Labor Force Survey (LFS), the Housing Survey, the Family Income and Expenditure Survey (FIES) and so on. At the same time, the size of each population subgroup given by the census works as a basic denominator in deriving various statistical indicators including ratios and densities.

As is widely accepted, demographic development has three-dimensional aspects; static

population, vital aspects of population and population mobility. Among these aspects, static population is cross-sectional stock data which appears as a snapshot of a particular moment of time. The second component of demographic statistics is vital statistics, which describe the natural dynamism of population such as births, deaths and marriages. Population mobility, the third aspect of population development, is further subdivided into regional and social mobility. The former relates to change of geographic location by people in a variety of ways such as migration, temporary movements and commuting. Social mobility refers to changes in social position, such as occupations, positions at work, employment status and so on.

The aim of this paper is three-fold. The first aim is to draw up a list of data which form the system of demographic statistics in Japan. Although government statistics are rich sources of data for each aspect of population, the different survey results and administrative records represent only partially the structural characteristics and dynamism of population. The second aim relates to the present limitations of current public-use data with special regard to population estimates. The final aim of the paper is to focus on a set of issues needed to further improve Japanese demographic statistics, with reference to various inputs from the latest foreign experiences. Institutional requirements, including the arrangement of legal frameworks for exploring new dimensions of data use with appropriate protection measures for privacy, will also be discussed.

2. The System of Japanese Demographic Statistics: Major Components

2.1 Static population

Population is defined as a varied compound of biological and social variables, which demonstrates dynamic metamorphosis in space with coordinate axes of geography and time. The various elements which compose aspects of demographic phenomenon appearing at any particular time are generally categorized as static population.

The statistics which fall in this category can be further subdivided into first, static statistics in a narrow sense enumerated by censuses and surveys or counted through current administration practices such as registration of national and foreign residents,

and second, population estimates given for intercensal years and forecasts of future population compiled from various statistical sources. With regard to population estimates, readers will find a detailed discussion in later paragraphs with regard to the combined use of static, vital and migration statistics together with several constraints caused by the absence of required data.

The major source of static population data is the “Population Census” taken by the Statistics Bureau, Management and Coordination Agency (SBMCA). The stock of population is also provided by the Ministry of Home Affairs (MoHA) based on reports such as “Basic Resident Registers.” Also available are “Statistics of the Japanese Abroad” compiled by the Ministry of Foreign Affairs (MoFA), on Japanese residents abroad, and “Statistical Survey on the Registered Aliens” compiled by the Ministry of Justice (MoJ), on registered foreigners.

The Population Census has in principle been taken quinquennially, with some disturbances due to World War II. The 17th census is to be carried out in the year 2000. The current census has been conducted, since the 7th in 1950, based on the *de jure* concept of population: all persons living within the territory of Japan as of October 1st are enumerated whether they are native or not. Persons who fall into the following categories, however, are excluded: first, foreign diplomatic corps, their suite and dependents; second, foreign military personnel including troops, civilians and their dependents, and third, foreign visitors intending to reside in Japan for less than 3 months.

Each municipality in Japan maintains civil registration, which covers records on persons’ vital affairs as well as on regional migration among Japanese. MoHA compiles and publishes population data based on this registration. Since 1994, the MoHA data have been improved so as to indicate population by sex in five-year age groups, with the completion of an electronic data processing system for resident registration.

Regarding the stock of foreign residents in Japan, “Statistical Survey on the Registered Aliens” gives the population size of registered foreigners based on registration records submitted to municipalities. Prefecture-based data for registrants are finally submitted through each prefecture to the MoJ. In addition to the registration data, the ministry also has compiled and published since 1991 estimates of unqualified foreign residents who

have overstayed their visas.

As for the Japanese population abroad, the MoFA maintains “Statistics of the Japanese Abroad.” Their basic data source is notifications which Japanese embassies and legations abroad receive from Japanese with permanent resident status abroad and temporary visitors who intend to stay abroad for more than three months.

In addition to these basic statistics, which are categorized as static statistics covering major segments of the population, there are a set of statistical data sources which provide aspects of population subsets related to the activities of people, such as daytime and night populations, and population engaging in particular activities.

2.2 Vital statistics

Two different categories of statistics describe the dynamism of population: vital statistics and statistics on regional movements. The former cover dynamic aspects of population in terms of time, and the latter in terms of space.

“Vital Statistics” record persons’ life events such as births, deaths and marriages, appearing on a time axis. These events reflect biological aspects of demographic phenomena, and are generally characterized as natural population changes. With regard to the vital affairs of demography, the Ministry of Health and Welfare (MoHW) compiles vital statistics according to periodical reports submitted by municipalities and prefectures. This information is based on administrative records on live births, deaths, marriages, divorces and fetal deaths pursuant to the provisions of the Civil Registration Law and the Regulations Regarding Declaration of Foetal Deaths.

In addition to Vital Statistics, some surveys such as the Japanese National Fertility Survey and the Basic Survey on Population and Social Security Research conducted by the National Institute of Population and Social Security Research (NIPSSR) provide nationwide sample data on births and marriages.

2.3 Statistics on regional movements

A principal data source on regional movements of population is “Internal Migration in Japan Derived from the Basic Resident Registers,” which is compiled quarterly by the SBMCA. According to articles 8 and 22 of the Law of the Basic Resident Registers, SBMCA obtains seasonal reports from municipalities, through the prefectures on migratory movement of

residents. Since the Basic Resident Register system covers only Japanese, people without Japanese nationality are excluded from the count. Those who have changed their residence within a single city, town and village, and those whose former residences were abroad or who departed from Japan, are also excluded.

In addition to information obtained by the Basic Resident Registers, some variables on peoples' regional movements are carried in the Population Census and many other surveys, such as the Employment Status Survey and the Housing Survey by the SBMCA.

The Population Census and the Employment Status Survey of the SBMCA provide information on migration by asking people whether their present address is different from that of one year (or five years) earlier. The Housing Survey is a large-scale sample survey covering about four million households (about one tenth of total households). Respondents are asked for an address of former residence (city, town or village) and the number of years they have resided at the present residential spot. As for the period of residence in the former dwelling, the Housing Demand Survey by the Ministry of Construction (MoC) provides related data. The Education Census by the Ministry of Education (MoE) details migratory movements of high school graduates who have found job beyond prefectural borders. The NIPSSR has periodically conducted surveys on the dwelling history of residents, and regional movements of household heads.

The Statistical Survey on Legal Migrants of the MoJ reports figures of Japanese and non Japanese who have legally entered (returned) or departed from Japan. Data on migration flows, including those of a temporary nature, beyond national borders, are compiled and made public monthly and annually.

Finally, apart from the migration which usually accompanies a change of residence, there exists another type of movements, namely commuting. Regarding this type of movement, the Population Census provides data on day-return commuting to work or school on a city, ward, town or village basis. The Housing Survey and the Survey on Time Use and Leisure Activities by the SBMCA collect information on commuting hours to works and schools.

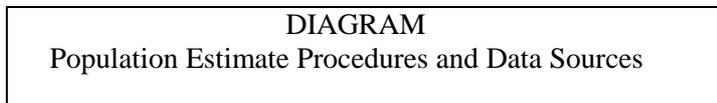
3. Population Estimates and Demographic Statistics

Japan is one of the few countries where censuses are taken every five years. Nevertheless, population data needs to be provided for policy and other uses even in years when census data are not available.

3.1 Estimates of Whole Country Population

For intercensal years, the SBMCA provides estimates of the population for the whole country as of October 1st. These estimates are based on bench-mark figures enumerated in the Population Census, considering subsequent changes of population, ie., adding live births and entries, and subtracting deaths and departures from Japan. SBMCA also estimates the population size of Japanese nationals annually by subtracting cases of renunciation and adding cases of naturalization.

In addition to each year's population, the Statistics Bureau estimates the whole country's population in five-year age groups, as of the first day of each month. The following Diagram illustrates the process through which each age group population is estimated, together with data sources employed in the estimation.



(Remarks on the source data for population estimate)

Firstly, for natural changes of population, the Vital Statistics by the MoHW are employed as source data.

①Births of Japanese: The number of live births by sex and month is obtained publicly from *Vital Statistics Yearbook* (Vol. 2). Live births from October of the previous year to September are counted as the annual number of births.

②Deaths of Japanese: Figures are published in Table 5 of the above volume as deaths by sex, month of occurrence, and birth year and age of decedents. Deaths which occurred during the 12 months following October are counted as the annual number of deaths, with cases of unknown age distributed according to the age distribution of deaths.

Secondly, regarding the contribution to net migration of Japanese nationals, immigration data by the MoJ offers relevant information. Those who plan a short stay abroad or who have returned after a short absence are, in principle, to be disregarded from count. However, all Japanese migration is taken into count regardless of the period of stay abroad, because of the absence of detailed information in immigration data.

As for ③Japanese returnees and ④Japanese departure data, public-use data reported in *Annual Report of Statistics on Legal Migrants* by the MoJ carries only aggregate data in terms of age (in five-year groups). Due to the absence of exact age data, the SBMCA asks for information on the migration of Japanese to the MoJ. Those whose ages are unknown are portioned among age groups.

Thirdly, for variables regarding natural changes of foreigners in Japan, namely ⑥births and ⑦deaths, vital statistics provides the basic materials. However, required data for the estimates, i.e. number of live births by sex and month and deaths by sex, month of occurrence, birth year and age of decease for foreigners are not available in published reports. Therefore, the Bureau in charge of population estimates asks for the necessary tabulation to the MoHW, according to the approved use of individual questionnaire under paragraph 2 of Article 15 of the Japanese Statistics Law. In due course, the MoHW provides the SBMA with case data on births and deaths of foreigners in Japan.

The migration flow of foreigners to and from Japan is also a factor to be considered in population estimates. Foreign visitors whose period of (intended) stay in Japan is not longer than 90 days are excluded.

Data on foreigners migrating not longer than 90 days by sex and age are not available in published data on legal entry and exit offered by the MoJ. Thus, the SBMCA asks the MoJ for ⑧entry and ⑨departure data for foreigners to be counted in the estimates. Cases of unknown age included in the data obtained from the MoJ are distributed proportionately.

The SBMCA provides population estimates for Japanese nationals. In addition to the changes described above(①~④,⑥~⑨) applied to the Base Japanese Population (BJP) enumerated in the census, the effects caused by changes of nationality:⑤renouncements of nationality by Japanese and ⑩naturalizations by foreigners should be taken into consideration.

Data on ⑤renouncements of Japanese nationality, which are needed for the estimates, are not available in published statistics. Thus, the SBMCA asks for the relevant data from the MoJ. Since the MoJ data do not totally meet the requirements of estimation in terms of age, the cases are distributed proportionately among age classes.

The Official Gazette of Japan carries notifications giving the names and dates of birth of foreigners whose naturalization has been accepted. The SBMCA compiles naturalization data by sex and age. Since the gazette, however, does not give sex for naturalized cases, the compilation process includes some possibility of incorrect conversion in terms of sex.

As the above observations elucidate, the public data given in the statistics which form the major components of the system of demographic statistics are not always sufficient for estimates of the national population. The estimation work depends partly on additional data prepared on demand by the relevant organizations.

3.2 Population Estimates for Smaller Areas

3.2.1 Prefecture Level Population

The SBMCA publishes population estimates of each prefecture for October 1st of each year by extrapolating the census population, adjusting figures on natural as well as social changes for intercensal years. The SBMCA estimates include the Japanese population by prefecture after adjusting for cases of renouncement of Japanese nationality and naturalization. The estimates also show population by sex and by five-year age groups. In addition to the estimates of the

SBMCA, each prefectural government maintains its own population estimates. The following paragraphs examine smaller area population estimates, focusing on a set of constraints for the source data.

The same source data are employed here as are used in estimating total and Japanese population as a whole. However, due to the absence of detailed breakdown information by prefecture, calculations of prefectural population depend more on statistical guess work rather than on the actual data used in estimating the national population.

First, regarding the dimension of net international migration of foreigners, prefecture level data for sum less the flow of short-term visitors is not available in data offered by the MoJ. Therefore, the macro data are portioned in accordance with the annual net increase of registered foreigners by prefecture.

Second, statistics on inter-prefecture migration of foreigners are not well developed in Japan. This comes from the fact that the Immigration Bureau of the MoJ primarily concerns itself with immigration and residence control over foreigners, and has only a marginal interest in furnishing data on their internal migration. Only a limited number of prefectures compile inter-prefectural migration figures for foreign residents, and even these do not contain variables on age. Due to the absence of available information, the internal migration of foreigners is disregarded in estimates of population by prefecture published by the SBMCA.

Estimates of population by five-year age group by prefecture are subject to larger data constraints. Due to the absence of uniformed guidelines for documenting local statistics, some prefectures have insufficient relevant data for estimating the population by age. Thus, population estimates by five-year age class by the SBMCA depend on differences in methodologies.

The prefectural populations by five-year age class enumerated in the census are employed as the base population for the first intercensal year. However, due to ageing, transitions occur among age classes. For prefectures where age estimates are available, 5X-1 age estimates works to indicate the basic population transferred from one age class to the next in estimates of the ensuing year. This procedure is not applicable for prefectures with no such estimates for the second to fourth intercensal years. Proportion by age given in the censuses are used to obtain 5X-1 age population estimates.

Two different methods are also used in assessing the dimension of inter-prefecture migration. Basic Resident Registers provide total annual inter-prefecture migration data by sex for Japanese citizens. Some prefectures have advanced further, and keep figures on migration by age as well. For prefectures which fall in this category, the SBMCA obtains population estimates by five-year age group by multiplying the annual totals by the percentages of five-year age classes reported from the prefectures.

Estimating figures for prefectures with no relevant data requires the following alternative circuit. First, average survival rates (SR) by five-year age cohort are calculated based on the two latest census results. Second, the annual excess of immigration for each five-year age group in each prefecture (EI) is calculated as one fifth of the portion of the five-year age group given in the latest census minus the cohort population in the previous census multiplied by SR. Annual excess immigration rates are calculated by dividing the excess number by an average of the cohort populations in the two censuses. Third, the base population by five-year age group for the prefecture under question multiplied by EI gives the annual excess of immigration for the prefecture.

Because two heterogeneous estimation procedures are used to assess the five-year cohort estimates by prefecture, the sum total of age classes does not equal that of the whole population. Thus, iterative adjustments are needed to obtain the final result.

Along with the SBMCA, prefectures provide population estimates for their area. Although some prefectures produce estimates of their population in detail comparable to that of the SBMCA, others do not, due to a set of constraints in terms of available data.

Gunma prefecture is known as one of the most advanced prefectures in terms of regional population estimates due to wide coverage of its foreign population. It publishes population estimates for each age group as of October 1st for intercensal years. A special survey conducted on Japanese nationals who emigrate and administrative records on the flow of foreign registrants are employed as source data for detailed population estimates.

The Tokyo Metropolitan Government maintains two series of monthly population estimates for Tokyo: Population Trend of Tokyo, and Households and Population Based on the Basic Resident Registers. The former is compiled based on enumerated population in the censuses,

considering subsequent movement and natural changes of Japanese and foreigners. Due to data constraints, the published tables do not carry any information on age. Estimates are adjusted retrospectively once every five years at the time when the new census results become available. The population estimates given in the latter statistics depend exclusively on the Basic Resident Register. Although the report gives age estimates on a monthly basis, it does not cover the foreign population in the Tokyo Metropolis.

3.2.2 Estimates of Smaller Area Population

Thanks to the wide use of electronic data processing, age data has become available for Japanese in the Basic Resident Register. Local governments (cities, towns and villages) can compile population estimates for each age group by manipulating the register data. The tables compiled in local offices are reported to the MoHA through the prefectures.

There is another set of population estimates for cities, towns and villages. Prefectures compile and publish data on relevant administrative regions. Although these estimates do not contain any information on age, the census-based data, including subsequent natural and social changes, cover the whole population including foreigners. These estimates are published as provisional data until adjusted figures became available according to newly published census results.

Finally, small area population estimates for Japanese by age are available for sub-regions in municipalities, based on the Basic Resident Register.

There is significant variety, in terms of data quality, among the estimates compiled by prefectures and municipalities, due mainly to the availability of sets of source data at the local level. All source data other than the census results employed in population estimates are compiled into statistical materials from the individual case records which local offices accept in their everyday administrative practices. These data are reported through competent divisions in the prefectural offices to the ministries such as the MoJ, MoHW and MoHA. They are, however, rarely used in population estimates at the local level, as bureaucratic sectionalism hinders their effective use.

As the above discussion elucidates, the statistical data which compose the system of demographic statistics do not necessarily provide sufficient information to compile population estimates. Sets of data compiled by the Ministries in question exclusively for such estimates help to compensate for the absence of source data.

4. Further Possibilities for Demographic Statistics

In the following paragraphs, we will discuss further possibilities for principal demographic statistics (the Population Census, the Vital Statistics and Reports Based on the Basic Resident Register) involving the latest developments in extensive arrangement of demographic statistics for new types of data usage, which have been acquiring wide popularity in many other countries.

4.1 Diversified Dissemination of Data

Printed tables and CD-ROMs are the major media of public-use data dissemination for these statistics. In addition to these ordinary channels, the government offers some computer output for public perusal. A third channel of data release under the current system is anonymised individual records offered according to special permission as stipulated in Article 15, paragraph 2 of the Statistics Law. Some selected variables, based on individual records, and copied from master tapes, are provided mainly to authorized users for administrative or academic purposes which are considered to be for the public good.

Disclosure risks for individual records are much larger than those for aggregate data, which are the major conventional form of data release. Therefore, the release of individual record data, in accordance with approval of the use of designated survey questionnaires for purposes other than primary ones, has been practiced in a restrictive way under conditions of full protection of confidentiality of data and public nature of data use.

A first option for improving data service would be to launch tabulation and data analysis services on demand, to be carried out in house in order to protect individual records from malicious intruders. In order to meet the diverse and specific requests of users, the government would receive data requests and analytical data processing, and examine each request in an appropriate panel with regard to data protection measures as well as reliability of the results. In case when these requirements were judged appropriate, the data would be provided to clients through a due process. Establishing a new data-offering system would require additional costs as well as the allocation of staff to examine applications and perform data processing.

A second possible option would be to arrange and provide public-use micro data sets, as have

been used widely for decades in many developed countries. These data sets are characterized as anonymised sample data, and are compiled by deleting identifiers such as names and addresses from individual records and applying a set of protection measures into variables such as ages, codes on regions, industries occupations and others, so as to maintain confidentiality and minimize disclosure risks to a reasonable level.

The manner in which outside users can access anonymised sample data sets differs from country to country. In the US, for example, users can buy public-use files at sales departments of government statistics or bookshops without any conditions, while universities play a principal role as channels for micro data release. A system of so-called “sworn officials” is used in some countries to provide temporary access opportunities to outside users to the micro data sets which government statistical organizations keep in house, and which usually contain more detailed information with less aggregated variables compared with those of public-use files.

The creation and furnishing of public access to such micro data in demographic statistics can be expected not only to work as an effective substitute for certain current forms of release of individual records which are quite limited in practice, but also to expand the possibilities for micro-based data use.

In section two of this paper we examined population estimates provided by the central and local governments in relation to the current system of demographic statistics. As the discussion has already elucidated, case data on vital events and migration offered in publications do not necessarily meet the requirements of their inner use such as estimating population.

The documentation of vital events of Japanese nationals in Japan is the major concern of vital statistics. Thus, final reports contain quite limited numbers of tables which document the vital events of foreigners in Japan. Although the economic downturn has made Japan unattractive for foreign migrants, one may well expect that a future economic recovery will provide a new occasion for the foreign population in Japan to expand. Therefore, more intensive provision of data on foreigners would be one major improvement for vital statistics.

Other issues worth considering are improvements of statistics on migration, ie. Report of the Basic Resident Register and Statistics on Legal Migrants. These would be indispensable not only for analyzing trends and characteristics of internal as well as international migration *per se*, but also would constitute an important segment for population estimates.

The completion of computerized processing and storage of Basic Resident Register data in local government offices has the potential to open up a new avenue for the further improvement of migration statistics for Japanese nationals. Due to constraints in data provided, however, only inter-prefectural migration, or origin-destination (OD) matrix, is available from existing statistics compiled out of the Basic Resident Register. It may become possible, first, to produce a municipality-base OD matrix with more than 3,000 rows and columns. Second, since register data include information on the date of birth, the Basic Resident Register can be expected to add age data to data on the internal migration of Japanese nationals.

The MoJ is responsible for everyday immigration and resident control over foreigners in Japan. Statistics on legal foreign residents are compiled in the process of administrative practices, and for the purpose, among others, of control over foreigners. Thus, the statistics compiled are less user-friendly for outside users, including other government organizations.

Existing statistics on registered foreigners do not cover inter-prefectural migration. Due to the absence of an inter-prefectural OD matrix for foreigners by sex and age, their internal migration is disregarded in assessing prefectural level population estimates.

Case data for movements across national borders are already kept in electronic form in the Immigration Bureau of the MoJ. As the Basic Resident Register and Alien Register are maintained independently, these two sets of registers are not linked to each other, and the responsible administrative sections in each municipality and prefecture submit their current reports to the MoHA (and SBMCA) and to the MoJ, respectively. These two registers are processed differently in terms of electronic data management. Some prefectures, where these register data are shared between sections, are already able to compile more comprehensive information on migration.

Notwithstanding the undercount of foreigners in the census, the completion of electronic data management systems for these registers and their systematic linkage would make possible smaller area population estimates including foreigners.

The foreign population in Japan is still at the level of 1.5 per cent, including overstayers who tend to be unregistered. However, it can be supposed that as economic globalization proceeds, the foreign population in Japan will increase in the future. Therefore, more accurate statistical

representation of foreigners will be of a cardinal importance in assessing various aspect of demography.

4.2 The Extensive Use of Demographic Statistics

A first type of extension of data could be described as arranging longitudinal data by linking individual records within a series of censuses or surveys. Designing relevant population subgroups in longitudinal data could help reflect dynamic changes in population development. This new type of data, which can offer possibilities for new approaches different from traditional analysis based on time series data, has decades of history in many foreign countries.

Longitudinal data can, for example, take into account the ageing effect and detect various factors governing transitions of socio-economic attributes over time. Moreover, longitudinal data on occupation can provide basic information on social mobility among social classes, which government statistics do not systematically offer now.

A second possibility would be the creation of new statistical information by linking different series of surveys. Among other things, the population census can play a substantial role in linking source data, because it is conducted, in principle, as a comprehensive enumeration and enjoys a "total linkability" with other individual- and household-based surveys. For example, linking Labor Force Survey records with those of the Census could produce tables on the state of employment of women along with the number and ages of the children living with them, thus providing effective information for working out measures to mobilize them into the labor market.

Even when occupation or living conditions have a significant effect on a particular death, this fact usually reveals itself only after a certain duration, or incubation period. Thus, it is not rare for chronic diseases to appear after a considerable period of time following retirement, and a move away from areas polluted, for example, by dioxin or heavy metals may suggest a possible correlation between cause of death and working or living conditions.

Japanese vital statistics, which provide death rates by occupation every five years, only document the events at the time of death, and carry no additional information on the deceased's occupational career. Thus, more than 70 per cent of deaths are recorded in statistics as the deaths of jobless people, because retirees and people who have lost their jobs due to long-term illness have no occupation at the moment of death. Therefore, the current vital statistics have

limited validity in exploring causal sequences between cause of death and socio-economic factors.

Vital events such as births, deaths, marriages and divorces are not generally counted in statistical surveys, but are rather compiled into statistics based on administrative documents given to offices in charge. The MoHW maintains a notification system for vital events primarily for policy objectives. In this sense, compiling statistics is of only secondary importance in terms of the usage of information submitted in notification forms. Since current notification forms contain only limited socio-economic variables, current vital statistics are not extensive enough to provide the necessary information to analyze the causes of vital events in relationship to particular occupational or habitation histories. Adding variables to the notification forms or adding supplementary forms has been repeatedly proposed but with no notable results.

A new solution to this problem has been pursued in many foreign countries. It is to compile new data sets by linking vital statistics with census records or population registers. Moreover, these linked records can further be organized as longitudinal or panel records that enable a dynamic analysis of vital events with regard to social aspects of the phenomena.

The linking of migration data with the census can also open up a new avenue to migration analysis which the simple combined use of migration data offered in existing government statistics cannot.

Some local governments have carried out occasional surveys on reasons for migration for analytical purposes. Linked records, when they come into being, can be expected to offer useful information for analyzing regional mobility as well as providing more reliable population forecasts at the local level.

5. Japanese Statistics Law and the Future Development of Demographic Statistics

Half a century has passed since the enforcement of the current Statistics Law. The fact that the law has survived for decades with no substantial changes in its provisions suggests that it has great validity as a basic legal framework for the performance of government statistical services in Japan.

Incidentally, the Law is principally devoted to ensuring the quality of government statistics by prescribing a set of articles in correspondence with the process of data collection, from the designing of surveys to the publication of the results. The following paragraphs give a brief sketch of the provisions in the law.

Regarding the preparation process for surveys, Article 7 requires organizations to receive approval in advance from the Director-General of the Management and Coordination Agency on matters such as surveying items, coverage and date of the survey, which relate to the implementation of designated statistics, meaning censuses and surveys of basic importance for Japanese government statistics. Another prescription regarding the preparatory process is Article 17, which prescribes legal requests of cooperation to administrative bodies involved in survey field work and reporting by authorities conducting a designated statistical survey.

Articles such as 5, 13 and 14 provide support for field work in various aspects of conducting surveys. First, Article 5 authorizes the placement of an obligation on survey respondents to answer the questionnaires. Second, Article 13 guarantees enumerators necessary access to respondents and to make inquiries according to the questionnaires. These articles prescribe the forced acquisition of statistical information from respondents. Third, Article 14 prescribes the guarantee of confidentiality in survey, compensating for the forced acquisition of statistical information by the government. These articles work to secure respondents' cooperation in surveys and are, on the other hand, reinforced by a set of penal provisions: Article 19-(1),(2) which corresponds to a violation of article 5; Article 19-(3) and paragraph 2 of Article 19, which correspond to articles 13 and 14, respectively.

The Statistics Law also provides some provisions on data processing, tabulation and publication. For the sake of protecting confidentiality, Article 15 prohibits, in principle, the non-statistical use of individual questionnaires collected for the purpose of compiling designated statistics.

Article 16 assigns surveying organizations the duty to quickly disseminate the results to the public. Along with the intrinsic meaning of the article, it also implies that statistical information collected through designated surveys is not only for the exclusive use of the government for administrative purposes, but is also recognized as a common property to be shared widely with the general public. The public dissemination of results stipulated in this article is therefore also understood as a potential measure to promote respondents' cooperation in surveys. As a supplementary provision to Article 16, section 2 of Article 19-2 prohibits any release of data

before the scheduled date of publication, as a means to secure the integrity of statistics.

As the above discussion elucidates, the Statistics Law in force has the general nature of a law which regulates the whole process of conducting government statistical surveys, including designated statistics. However, few articles cover issues related to the use of the data, including users' obligations and penalties for abuses such as violating respondents' privacy through malicious intrusion.

Since stipulations are lined up to ensure the smooth prosecution of surveys and obtaining of planned statistical results, the law has been applied in such a strict manner that surveys are conducted exclusively for statistical purposes. Government statistical organizations conduct surveys in order to compile sets of tables announced publicly in advance. It is of no doubt that this operation of the system provides the necessary conditions for the smooth implementation of surveys, with favorable cooperation by respondents.

There is another side of the coin, however, of this institutional practice of statistical administration. Statistical data are obtained at enormous expense in terms of manpower as well as national budget. In order to exploit them effectively, various sorts of secondary analysis have acquired wide acceptance in recent years in foreign countries. From the standpoint of the full use of statistical resources, and as a measure to alleviate the burdens of respondents, it would seem advisable to interpret Article 15, under appropriate conditions, to support more extensive use of data, including secondary analysis.

No legislation can totally be free from historical constraints. The Statistics Law is no exception. More than 50 years ago, when the Law was formulated, few government organizations were equipped with calculating apparatus capable of processing massive volumes of data. Because electronic data processing technology was not well developed, tabulation work was a labor-intensive task at that time. Thus, when tabulating results, variables have been deliberately selected in advance in order to produce a set of socially meaningful tables which can be made public in printed form. Given the less developed data processing technologies of the time, it may have been quite reasonable to design the articles in such a form, and apply them in the way they have been practiced up until today in Japan.

However, along with the development of information technology, measures have been taken to diversify the media of data publication, by adopting dissemination of data in machine-readable

forms such as MTs, floppy disks, CD-ROMs and online networks by expanding the interpretation of Article 7 of the Cabinet Order for the Enforcement of the Statistics Law, which stipulates actual methods of data dissemination.

Despite these partial advances, the government statistical service has firmly maintained the principle of only offering aggregate data. Disaggregate data have been offered to users in exceptional cases, according to section 2 of Article 15, under special permission for the use of individual data for public objectives.

6. Concluding Remarks

Thanks to the remarkable development in data processing technology, present public users are equipped with personal computers which may far exceed the older mainframes in terms of processing performance. These technologies have enabled end users to process not only tabulated aggregate data but also large numbers of individual records. Moreover, the manner in which statistical data are processed has become quite varied from traditional analysis based on cross tables to the application of statistical methods such as multi-variable regression analysis or time series analysis using aggregate data, to new types of analysis based on panel or longitudinal data.

As is well known, as early as in the 1960s some countries started to formulate micro data. Furthermore, the compilation of panel and longitudinal data as well as the obtaining of additional statistical information through linkages of survey data with administrative records have acquired wide acceptance among foreign government statistical services in recent years.

International comparisons of occupational death rates, for example, are now being carried out among European countries. The WHO has launched a similar program on a worldwide scale, including developing countries. It is noteworthy that these programs require common statistical bases. That is, only countries or regions with longitudinal or cohort data compiled by linking cause of death information in vital statistics with census records or population registers are qualified to participate. Thus, traditional estimates of death rates by occupation or social class based on simple cross-sectional data no longer enjoy validity in these international comparisons.

Due partly to concern for protecting respondents' privacy, and partly to a sort of territoriality

over inherent data among ministries, data sharing among ministries seems to have failed to develop well in Japan. It was only recently that some surveys, such as the Basic Enterprise Survey (MITI) and the Survey of Research and Development (SBMCA) have started to partly share the surveyed information among relevant ministries, in order to alleviate the burden on respondents. This progress in government statistics, however, is still a far step from the creation of new statistical information by heterogeneously linking surveys and administrative records. Although individual survey results still seem to be first class in terms of data quality, Japan has not even qualified to participate in international programs because of the lack of relevant data.

Statistical data are obtained at enormous expense from the national budget, which is derived from taxes paid by the public. In this sense, they should not be possessed and used exclusively by the government, but rather should be shared with the public and be increasingly given to the public. The ultimate goal of the activities of government statistical services is not simply the dissemination of survey results in the form of tables. Rather we should explore the potential of employing data in a more effective manner, paying due regard to the privacy of respondents. Tasks such as the enactment of legislation regarding rules for data use and new types of compilation and dissemination of statistics, including users' ethics, data sharing and compiling new data through linking survey records, should be considered as urgent policy issues.

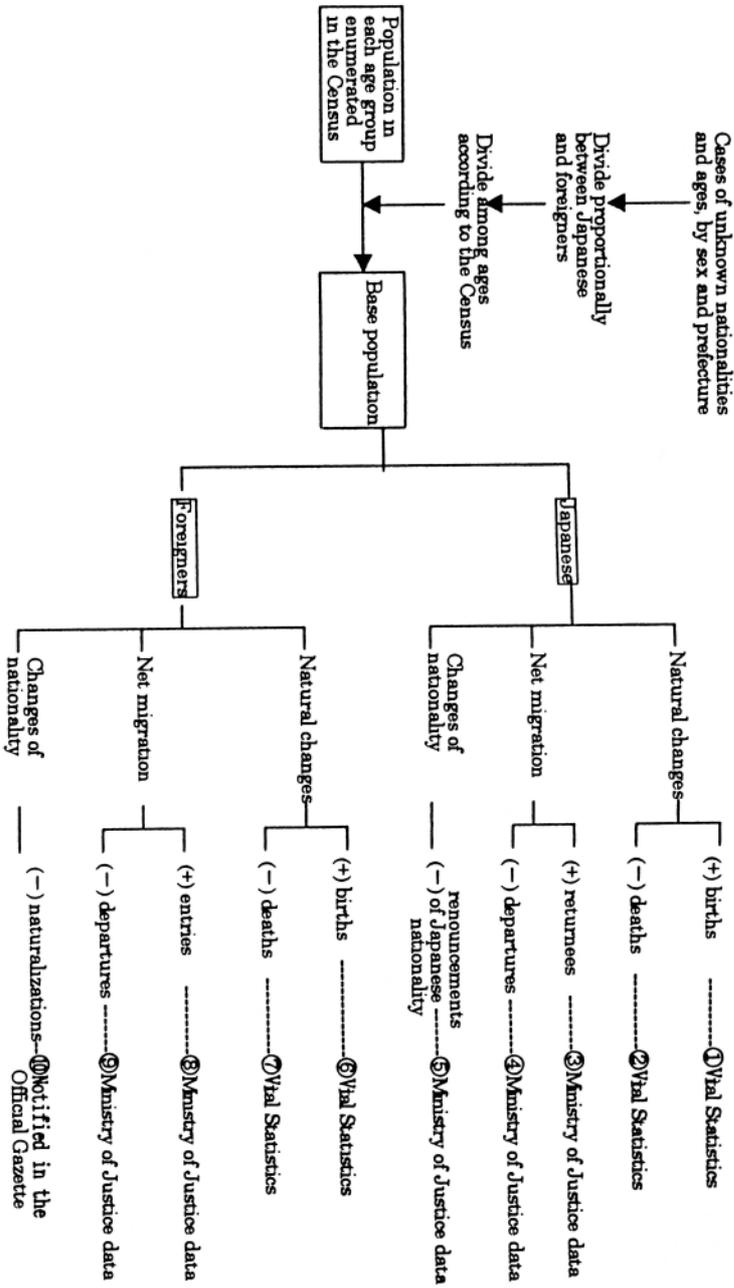


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