

## CENSUSES IN THE PHILIPPINES\*

by

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### 1.0 Introduction

When Dr. Magalit personally invited me to present a paper about censuses to this annual conference, I declined the invitation for the reason that I am not an expert on the subject. I thought I was already free from this assignment until I received the printed program last Friday. My first reaction was to be absent from this conference but I have an obligation to fulfill not to myself but to the Philippine Statistical Association of which I am a life member.

The topic that I am going to discuss is very broad in scope that I am at a loss as to which of the different censuses being conducted by the National Census and Statistics Office (NCSO) should be given emphasis considering the time constraint in the preparation of this paper.

I will attempt, however, to cover as many phases of work as possible with particular reference to the censuses where I have actively participated.

Many of you may have read or have a copy of my paper entitled "1980 Census of Population" which was presented during the Second National Convention on Statistics held on December 2-3, 1980. In the paper, I have discussed the planning issues and considerations that were taken into account in the preparation of the 1980 Census overall plan including the major phases of work.

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\*Paper presented in the 1982 Annual Conference, Philippine Statistical Association, Inc., on July 16, 1982 at the Executive Lounge, Central Bank of the Philippines.

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This paper, therefore, will delve into the common problems of census field operations and processing of returns.

## 2.0 Historical Notes on Census Taking

The NCSO which used to be known as the Bureau of the Census and Statistics (BCS) has undertaken 12 major census operations involving 20 different censuses over the past four decades. All these censuses were conducted under the authority of Commonwealth Act 591, the Act which created the BCS on August 19, 1940.

The first census taken by the BCS in 1948 was on population, housing, agriculture, and industry. However, prior to this period, available records show that the first formal census was taken in 1903 under the American regime. The second census was done in 1918, also under the direction of the Americans. The third census which was conducted in 1939 was under the direction of the Commission of the Census which was purposely created during the Commonwealth to supervise the operations.

The different censuses conducted so far by the NCSO under the present Republic were the following:

<u>Census Year</u>	<u>Kind-of Census Undertaken</u>
1948	Census of Population including housing, agriculture and industry
1960	Census of Population and Housing Census of Agriculture
1961 & 1967	Economic Census of the Philippines
1970	Census of Population and Housing
1971	Census of Agriculture and Fisheries
1972	Census of Establishments
1975	1975 Integrated Census of the Population and Its Economic Activities, Phase I and II
1975 & 1978	Census of Establishments
1980	Census of Population and Housing
1981	Census of Agriculture and Fisheries

### 3.0 Census Methodology and Procedures

#### 3.1 Scope and Coverage. —

All over the world, the modern trend in census taking employs the combination of complete enumeration and sampling. There is an emerging concept called "Sample Census" being advocated by Dr. Leslie Kish at the East-West Center in 1977, to take the place of a complete census. If I understood him correctly, this sample census is a large national sample taken every year for five years or so and each year uses different primary sampling units until all the PSUs in the country shall have been covered. So far, I have not heard of a country that has adopted the scheme. However, to my mind, this may be the answer to the main problem of census taking in the country — lack of funds.

It is now very seldom that a census is taken on a 100 per cent level. Even small countries like Western Samoa and those in the Pacific use the combination of complete enumeration and sampling especially in population and housing censuses.

The use of sampling in the Philippines started with the 1960 Census of Agriculture under the direction of foreign experts. The sampling frame was constructed from the Housing Schedule which was administered earlier together with the population census. Since then, sampling has been extensively used in the conduct of censuses except in the 1975 Census of Population where complete enumeration was done.

The scope of the censuses remained more or less the same through the years. The population and housing censuses, for example, still gather the same items although the most recent one had limited the items gathered on 100 per cent basis to only four, namely: relationship to head, sex, age, and marital status.

#### 3.2 Construction of Sampling Frames

The present procedure in constructing the sampling frame for a census is the conduct of a listing operation to list all the units of enumeration including some basic characteristics to be used for stratifying the population several months before the actual enumeration.

The population census which undertakes simultaneously a listing of buildings and households used to be the vehicle by which questions in agriculture and fisheries were asked as basis for constructing the sampling frame. But the experience in 1970 proved to be almost disastrous in the conduct of the 1971 Census of Agriculture and Fisheries due to big non-response and in some instances the samples could not be located which required a relisting operation in many areas.

What happened was that the agriculture census operation was not conducted as scheduled due to lack of funds. It was conducted almost one year after the listing was done which made the frame obsolete. There were many cases of samples shifting in stratum so that there was also difficulty in the estimation process. Learning from this, listing operation for these censuses was conducted independently in 1981.

In the case of the Census of Establishments, the previous scheme of constructing the frame was through a listing operation few months before the census year. It was observed that many big establishments were missed during the listing so that the estimates for a particular kind of business were affected. An alternative plan is now being implemented, which is the continuous updating of the frame by NCSO personnel through personal visits to commercial places and/or update through available records from the Treasurer's Office or from associations and directories. Hopefully, this updated frame will be used in the 1983 Census of Establishments.

#### 4.0 Operational Problems and Difficulties

##### 4.1 Constraints in Taking a Census –

Taking a Census is a big task which requires huge amount of budgetary outlay to complete the whole cycle of census taking from the planning to the implementation of plans in order to realize desired goals and objectives. The census cycle starts from the time a decision to conduct a census was made up to the time the results are published. The duration of the cycle ranges from 3 to 7 years or more, depending upon how efficient the major phases of work had been implemented.

The major constraint in census taking is the budget approved for the implementation of plans. Since I joined the NCSO in 1967,

I have observed that getting adequate funding to carry out plans painstakingly prepared for 2 to 3 years was always a problem. Because of this, alternative plans drawn in a hurry were implemented. As a result, many problems were encountered during the field operations.

In order to appreciate the predicament which NCSO is faced during census periods, I would like to present the case of the 1980 Census of Population and Housing.

Because of previous experiences in obtaining a budget for a census undertaking, the technical staff who were assigned to prepare the plans had to prepare an ideal plan following all recommendations to improve the quality of data. The plan called for the listing of buildings and households one week before enumeration to insure that there would be no bias in the selection of sample households and that the sampling fraction had to be increased to 20 per cent in order to have better estimates for smaller administrative units such as the barangay or small size city/municipalities. The ratio of supervisor to enumerators would be 1.5 so that there would be close supervision, again to control the quality of census data. This plan yielded a cost of ₱90 million. Since we already knew that such a big amount had no chance to be approved, we started revising our plans, giving up some of the innovations but stuck to the 20 per cent scheme because of the need of planners for accurate data at the local level. Finally the budget which was submitted one year prior to the field operations was ₱36.2 million. This amount covered the cost of hiring personnel, travel allowances and per diem of personnel, printing costs, supplies and the importation charges for a new computer to upgrade the existing one. Six months later, which was also six months before the operation started, we were informed that only ₱15.456 million was approved. We had to change the operational plan which was already finalized and conveyed to the field offices the disapproval of the budget. The only alternative plan that could be done without sacrificing the quality of results was to reduce the number of field workers and increase their workload which resulted in a prolonged duration from the original 10 to 15 days to 20 to 30 days. Because of this change, recomputation of all allocations had to be done hurriedly so that there would be enough time to send the revised plan to the field offices. Even with a reduced number of field per-

sonnel, still the money available was not enough to implement the revised plan. As a last resort, we sought the help of the Ministry of Education and Culture to use classroom teachers as enumerators and the district supervisors as municipal/city census supervisors especially in areas where there were no regular NCSO personnel.

While negotiation for the services of teachers was going on, we were also busy "lobbying" for an additional funding at the Batasan. Fortunately at that time the Census Bill was being deliberated upon. Finally, after so much anxiety and hardship, the Ministry of Budget acceded to release an additional ₱15 million for the field operations. This approval came barely three weeks before the start of operation. There was not much we could do to improve procedures but we utilized funds to increase the honoraria of teachers, their fixed travel expenses and was able to give honoraria to the barangay captains.

As a result of the change in plans at a short notice, the following problems were encountered:

1. Faulty allocation of census forms and materials resulting in the shortage of supplies in some areas while other areas had oversupply.
2. The printing of forms and their shipment to the field offices were also delayed. In fact, printing some of the forms were still going on even during the enumeration phase.
3. The allocation of enumerators and supervisors was erroneous in many areas resulting in the shortage of census enumerators. Additional enumerators who were non-teachers were recruited to fill up the shortage.
4. The long duration of enumeration resulted in the resignation of some teacher-enumerators while several of them got sick of influenza due to their long exposure to the summer heat.
5. The calculators purchased for the use of the supervisors to verify total population count enumerated were not utilized because these were purchased too late.

Another big drawback in census taking is the lack of transportation facilities readily available to enumerators and supervisors alike. This problem contributed much in the delay of operations. If transportation facilities were available, the rates were exorbitant.

This was experienced in islands and depressed provinces all over the country.

Another constraint in the conduct of a census is the availability of an efficient tele-communications network to relay urgent messages especially when there are changes in instruction or on the part of the field personnel, they want an immediate decision to a request or a problem they referred for resolution.

Three weeks after the start of enumeration in 1980, the Central Office was not able to receive a single progress report on the enumeration although it was part of the procedure to send progress reports every end of the week. This is how inefficient the present communication facilities are, which is contributory to the inefficient implementation of instructions during a census operation.

Another constraint in census taking is the availability of accurate maps of cities/municipalities and barangays and the lack of official list of barangays.

Regarding the problem on maps, the NCSO attempted to prepare barangay maps before the 1980 census operations by employing the traverse method. However, the work was not completed because of the big cost involved. This problem is still with us.

On the absence of official list of barangays, this contributed greatly in the delay to finalize the population count at the barangay level. It took us more than one year to prepare a satisfactory list but since it was not an official list, the NCSO had to request the Office of the President to issue an LOI for us to use it. The new census law requires the proclamation of the population count at the barangay level to be considered official. Incidentally, Proclamation No. 2170 dated March 12, 1982 has declared the results of the 1980 Census of Population official for all purposes.

#### **4.2 Problems in Processing and Publications**

Processing has always been a problem during census years not because of its complexity but more on the circumstances surrounding it. The publication of census results hinges on how fast the processing is completed.

As mentioned earlier, the census cycle ranges from 3 to 7 years

or more. This range was established on the basis of my observation from the censuses so far conducted since I joined the NCSO.

For example:

The 1975 Census of Population and Its Economic Activities (ICPEA, Phase I) came out with the national summary before the end of 1977, which was less than two years after it was conducted. It took about more than a year to prepare the plans, or a total of about 3 years. It may be mentioned in passing that this census did not use sampling.

On the other hand, the Phase II of this same census which took the economic activities of the population with a sample size of about 450,000 in December, 1975 started to come out with its provincial volume only in 1981 and up to now not all the provinces are fully published. The national summary is still being prepared. Also up to now certain items are not yet ready for processing thus some tables in the tabulation plans could not be produced.

The 1978 Census of Establishments was taken in early 1979 and up to now I have not received a copy of the published results.

The 1980 Census of Population and Housing came out with its final population count only in December 1981 and its first provincial volume is the only result which is in the printing press.

The delay is not so much in the manual processing, like editing and/or coding but more in the machine processing and analysis of data. It is a pity that whatever results that the NCSO releases from these censuses were prepared manually considering that the present computer is, I understand four times more powerful than the previous one.

When I first came to the NCSO, I was assigned a job to evaluate the causes of delays in the machine processing of survey and census returns and other documents. My findings were the following: The workload if plotted from month to month is like a normal curve with the peak at the last month of each quarter. The capability of the machine and people to accomplish the workload was only half the peak period which resulted in the accumulation of backlogs.

This situation has not changed even today. In fact it even worsened due to the change of the computer at the time when we



needed immediate results. The change had contributed to the increased backlog because the programs which used to be operational with the old computer had to be revised to suit the requirements of the new one.

The longest part of the census cycle is the cleaning of records. All the censuses mentioned earlier which are still being processed are still in the cleaning process. The more complicated the application, the longer is the cleaning process.

From my point of view, the delay in the processing is contributed by the interplay of many factors, some which are beyond control. Some of the major problems plaguing the processing at the NCSO may be attributed to the following:

1. The demand for more data at the lower level of administrative units resulted in the designing of questionnaires which are complex to include as many items as possible that the size of the paper could accommodate. The overcrowding of the questionnaires is primarily dictated by available funds to generate the statistics desired. If funds are available, a smaller questionnaire with few items could be administered to a sample size which is large enough that could provide reliable estimates at a lower level of administrative unit. A simple questionnaire is easier to process and therefore the results will come out faster.

2. The use of sampling in a census has a way of delaying the machine processing especially if the sampling design is complicated. While it may be true that the volume of documents to deal with is much less from a sample, the completeness checking of the samples and the generation of the raising factors to prepare the estimates contribute to the 'turn around' of computer printouts from the subject matter to the EDP, contributing to the delay in tabulation. This comment was based on actual observation in the 1975 Census of Population, ICPEA Phase I. The results were out within one and one half year from the time the census was taken. This census was a complete enumeration of all households and persons in the country. Approximately six million questionnaires were processed.

3. Fast turnover of personnel involved in the processing of census returns. This problem is common to both the subject matter personnel and the EDP staff. Census processing is a long process

and whenever a trained or experienced personnel leaves it may take sometime to recruit a replacement. If ever replaced, the new employee has to study the work for several months before he could be productive.

Take the case of the ICPEA II. Key personnel from the subject matter divisions either resigned, sent abroad or promoted to another division. The same held true for the EDP staff so much so that if I am not mistaken there were already 7 systems analysts who handled the systems preparation of this census not to mention the change-over which occurred among the programmers assigned to it. That is why up to now the results are not yet out.

#### 4. Lack of experienced technical personnel.

Aside from the rapid turnover of personnel, there is a dearth of technical personnel with experience to fill the vacancies. Even if the vacancies are filled up, the present personnel complement is inadequate to cope with the volume of work, especially during the evaluation stage of preliminary tabulations. According to the findings of the World Bank in 1979, the EDP requires 72 manyears to remove its backlog at the time. With four additional censuses, the backlog may have increased to 100 manyears by now.

### 5.0 Concluding Remarks

The present problems being faced by the NCSO is beyond its control to solve without outside help. Basically the problem is money to implement a reorganized set up to cope with the problems. The salaries of employees are too low to offer to qualified personnel. The volume of work is too big which requires more technical personnel trained specifically in census taking. The U.P. Statistical Center should include in its curricular offering census methodologies and procedures so that new graduates of that institution need not undergo a special training to be immediately useful.

In order to insure the availability of technical personnel, there should be a continuous training program on census taking from planning up to implementation of plans.

*References:*

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4. 1960 Enumeration Manual

