

## CHAPTER V

### STEPS PRELIMINARY TO PROCESSING

In processing a large-scale statistical survey, specialization and mechanical devices are used wherever possible to expedite handling and reduce costs. This type of operation requires an assembly-line procedure thoroughly planned in advance so that all the material moves from step to step at a fairly constant rate. Before entering the assembly line, the material is inspected and major faults are corrected, so that the flow of work will not be interrupted at any step by problems which might have been foreseen.

Thus, the questionnaires filled in by the enumerators did not go immediately to the main assembly line of editing, coding, and tabulating. In the preparatory operations, some of the questionnaires were found to be defective and had to be rechecked. Some were drawn aside for special projects and restored before the material entered the later operations. All questionnaires for an area had to be complete before the mass production operations could begin.

The first preliminary operation took place in the field where the completed portfolios were examined both by the Crew Leaders and by the editors in the District Office. The portfolios were then shipped to Washington or Philadelphia where they were checked to be sure the contents were complete. The forms were separated and sent to appropriate working groups. The Agriculture Questionnaires, for example, were all sent to one location; the Individual Census Reports and Infant Cards to another, and so forth. The Population and Housing Schedules were kept in the portfolios which were routed along one of the main assembly lines. Some of the portfolios were needed for the selection of the Post-Enumeration Survey information, for the Current Population Survey match of Census data, for Urban Redevelopment Transcription, or for Preliminary Sample Transcription. In addition to these preliminary operations, persons enumerated away from home were added to the Population and Housing Schedules for their home communities. As an important step in this processing, the population count was prepared by States and reported to the President.

#### Field Review and Checking

Work was reviewed in appropriate detail at each stage to insure that the preceding group had properly completed its assignment. Checks were planned so that errors would be detected at the level where action could best be taken. For example, checks for coverage and completeness were made in the field offices, where deficient portfolios could be most easily corrected.

During enumeration, the Crew Leader met the enumerator in the field, reviewed a sample of his work, and answered his questions. When the enumerator completed his enumeration district, he turned the portfolio over to his Crew Leader, who reviewed the contents and applied specified checks. These checks included an examination of the map to be sure that in urban areas the enumerator had checked all blocks, and in rural areas he had entered the serial numbers of dwelling units. The Crew Leader examined the Population and Housing Schedules to see that all sheets were accounted for and that all cross references requiring callbacks had been completed. The Agriculture Questionnaires were reviewed for completeness and for proper handling of the sample. The Crew Leader checked the addresses he had entered on his ED Spot Check Report to see if the enumerator had listed all of them on the Population and Housing Schedules. Finally, he reviewed the enumerator's Callback Record to see that all required callbacks had been made.

If an enumeration district was not complete, the Crew Leader returned the portfolio to the enumerator and told him what to do to complete it. If the district was complete and the work appeared to be properly done, the Crew Leader sent the portfolio to the District Office.

In the District Office, editors (who had usually been enumerators or Crew Leaders) reviewed each portfolio before the enumerator was paid for his work. They examined all forms,

but they made no changes in the Agriculture Questionnaires except for identification items. They checked particularly to see if the enumerator had completely covered his district and had made all necessary entries on the Population and Housing Schedules. An enumerator was not paid for enumerating any person unless at least two personal characteristics (relationship, race, sex, and age) could be given for that person. If these characteristics could not be provided, the person's name was canceled. These cancellations were relatively rare, because, even if the enumerator did not find a person at home, the neighbors could usually provide more than the minimum amount of information. Moreover, race could often be inferred from the entries for other family members and sex from the given name.

The editors recorded the errors they found and referred them to the District Supervisor. When the errors in a portfolio



*Checking portfolios prior to shipping. Photo by Council Bluffs (Iowa) Nonpareil.*

justified action, the District Supervisor returned the entire portfolio to the original enumerator for re canvassing, or he assigned it to a special enumerator who worked on an hourly basis. If there were no errors or if the errors were few or could be properly corrected, the portfolios were approved for shipment to Washington.

#### Shipping the Portfolios

After the District Office had edited the portfolios, it made a preliminary count of population, dwelling units, and farms in the area. This count was telegraphed to Washington and also released locally. If the Washington Office did not reply to the telegram within 5 days telling the District Office to hold the portfolios, the District Office prepared them for shipment. Instructions to hold the portfolios were based on inconsistencies uncovered by internal checks or other information which indicated the possible need for further field checking.

The District Office shipped the portfolios with the completed schedules in the same wooden boxes that had carried the portfolios with the blank schedules to the field. The completed forms were arranged within the portfolios in a prescribed sequence; and the transmittal listing gave the number of each type of schedule as well as the numbers of the enumeration districts. An additional form gave the preliminary count of the population, dwelling units, and farms for each minor civil division.

The first shipment for an entire county arrived in Washington on April 19, 1950, and by September, all schedules had been received. Enumeration was virtually completed by the end of June, but unfavorable weather had delayed the work in a few sections of the country.

District Offices in 30 States, covering three-fourths of the population, shipped their completed portfolios to the Philadelphia Decennial Tabulation Office; the other District Offices shipped their work to Washington. The Philadelphia Office kept the Population and Housing Schedules for editing, coding and preparation of punch cards, but it sent the Agriculture Questionnaires and certain other forms to Washington for processing.

#### Receiving the Portfolios

All forms filled in by the enumerator were accounted for when the portfolios were received. Forms were sorted into appropriate groups and routed rapidly to the units organized to carry out various parts of the job.

As boxes were opened, the enumeration district numbers and the contents of the portfolios were checked against an advance copy of the transmittal listing prepared in the field. Every form in the 230,000 portfolios had to be accounted for in this operation.

Sorting the materials into appropriate groups was the next step. The number of schedules listed on the enumerator's record of production was matched to the number on the Portfolio Control Label before the production records were sent to another unit for summarization. Agriculture forms were placed in labeled wooden boxes for transmission to the Agriculture Consolidation Unit. Supplemental population enumeration forms, such as Individual Census Reports, Infant Cards, and Indian Reservation schedules, were forwarded to the Population Supplemental Forms Units. Supplies and unused materials were then removed and returned to the stock room. After these operations, only the Population and Housing Schedules were left in the portfolios. These schedules were counted and reinserted in the portfolios where they were kept when not in use.

The population and housing questionnaires for certain enumeration districts had to be used immediately for special projects. Lists of these districts had been prepared in advance so the portfolios could be diverted and processed as soon as they arrived. Eventually, they were restored to the usual processing channels.

In the regular processing, priority was to be given to portfolios for the 57 large standard metropolitan areas. A red label marked "METRO AREA ADVANCE SAMPLE" was placed on these portfolios so they could be quickly identified.

#### Special Projects

A number of projects were considered of sufficient urgency to justify identifying portfolios and handling them before the regular processing started. Portfolios were used for these special projects without unduly delaying the regular flow of work. This was done by making microfilm copies, by timing the operations precisely, by concentrating a large clerical force on the special jobs, and by taking advantage of the fact that, in any event, a large percentage of schedules would normally be held in storage bins awaiting regular processing. Microfilm units were established both in Washington and Philadelphia so that schedules could be microfilmed quickly.

Portfolios as received were labeled and given a code which indicated the order of subsequent operations, as follows:

Special project	Code	Color of label
Post-Enumeration Survey Transcription	1	Light blue
CPS-Census Match .....	2	Pink
Urban Redevelopment Transcription .....	3	Light green
Preliminary Sample Transcription .....	4	White

A portfolio which was selected both for Post-Enumeration Survey Transcription and for CPS-Census Match would have both a light blue and a pink label, but it would go first to the unit working on Post-Enumeration Survey Transcription.

#### Post-Enumeration Survey Transcription

The portfolios selected for the Post-Enumeration Survey were checked in and sent to a special unit. About 8,000 enumeration districts were involved. Transcription sheets were prepared from Population and Housing Schedules and Agriculture Questionnaires. These sheets were used in the field to determine the quality of the original enumeration. Approximately four months and about 8,000 clerk days were spent in preparing the needed transcription.

#### CPS-Census Match

A matching project was planned to determine the differences, if any, between the information obtained in the regular monthly survey (Current Population Survey) and that obtained in the Census. The Census Population and Housing Schedules selected for this project were microfilmed, and the microfilm copy of the schedule was matched with the CPS schedule. About 5,000 enumeration districts were selected for this comparison. Approximately 450 clerk days were spent in the matching operation, which lasted about 4 months.

#### Urban Redevelopment Transcription

Some cities and other political units wanted to request assistance from the Housing and Home Finance Agency for slum clearance and urban redevelopment. They were confronted with the immediate problem of defining slum and blighted areas which might be eligible for assistance under Title I of the Housing Act of 1949.

The Bureau of the Census adopted a procedure whereby cities could obtain, at cost, tabulations of certain areas by city blocks, before the Census results were published. Specified Population and Housing Schedules were microfilmed for this project. The color of the head of the household was transcribed from the population side of the schedules to the housing side, and only the housing side was microfilmed.

#### Preliminary Sample Transcription

To provide preliminary statistics for population and housing, a sample of the Census results was selected and tabulated before the final results were available. A sample of 14,000 enumeration districts was drawn. Within these 14,000 enumeration districts, a subsample of 150,000 persons enumerated on sample lines and of 45,000 dwelling units was chosen. Data for these persons and dwelling units were entered on transcription sheets in the form of codes, and cards were punched from those sheets. Preliminary data on population and housing characteristics were prepared for the United States, its four regions, and the 10 largest States. These data were adjusted to the total population of each area and published in series of preliminary releases (PC-6, PC-7, HC-4, and HC-5), which appeared from 6 to 18 months before the final data became available.

#### Organizing Work Units

Individual handling of 230,000 portfolios would require a vast amount of recordkeeping. By grouping them, this paper work could be simplified. Accordingly, the portfolios (now containing only the Population and Housing Schedules) were organized into work units, each of which contained all the portfolios for a county or a large city. If a county or city were very large, however, one work unit might contain only a part of its portfolios. Most records were kept in terms of work units rather than portfolios.

Portfolios were put either into a Regular Work Unit or into a Metro Area Advance Sample Unit. The Metro Area Advance Sample Units were set up to get preliminary population and housing data for the 57 standard metropolitan areas with a 1940 population of 250,000 or more. Portfolios for these areas were labeled in the receiving operation and were given top priority in editing, coding, and punching.

The work units were placed in specially constructed, portable steel bins. They were moved from one place to another in these bins, which were identified by File Bin Identification Cards. A Work Unit Routing Slip was used to record the movement of a work unit from one operation to another.

Agriculture Questionnaires were also combined into county work units. The forms were placed in special portfolios, each of which contained about 400 questionnaires. Generally, about five portfolios were needed for a county.

At first, all the agriculture forms were arranged by enumeration district, but before cards were punched, the different types of questionnaires were separated. The Agriculture Questionnaires (A1) for each county were then divided into three groups: large farms, sample farms, and other farms. Sheets were inserted to separate the questionnaires for minor civil divisions.

The portfolios were kept in a central file when not in use, and records were maintained of the location and stage of processing for the forms of each county.

### Follow-up Problems in the Field

After the regular enumeration was completed, some follow-up work was required to complete the canvass and to clear up major discrepancies. Follow-up information was obtained both through the mail and through field checks.

Mail follow-up was used mainly to get needed additional sample information for persons and farms. Sample data for the farms were obtained by sending the farm operator a form letter with the sample agriculture questions printed on the back. Sample data for persons were obtained on Individual Census Reports. These were mailed to the persons selected with a request that the sample questions be answered.

Field checks were made when discrepancies could not be cleared up by correspondence. Generally, these checks involved coverage problems. Where people or dwelling units in an area appeared to have been missed by the enumerator, or farm acreage reported failed to equal the acreage expected, the households were revisited to see whether the enumeration had been properly done.

Pilot studies were made in a few areas to determine the cost or difficulty of checking block counts. These studies were conducted in cities where dwelling units were not enumerated in some blocks although the maps showed that dwelling units were located in those blocks. In January 1951, field checks were undertaken in selected enumeration districts in 36 locations. These checks were of three types: (1) checks in areas where people but not dwelling units were enumerated, and it appeared that the dwelling units in which they lived were missed; (2) checks in areas where housing information had not been properly entered; and (3) checks in areas where entire blocks appeared to have been missed by the enumerator. These checks of population and dwelling units were in addition to those made when a community protested the Census count of its population and submitted a list of missed persons.

Technicians analyzed the Agriculture Questionnaires as soon as they were received in Washington to see if the farm acreage for an area agreed with acreage reported in other sources. They also sought explanations for underenumeration. For example, some New England areas were classified primarily as summer resorts, and acreage from which hay had been cut was evidently not reported. Field checks were needed in 133 counties in 30 States to explain discrepancies. Members of the Washington staff made the checks after being trained to detect underenumeration of certain types of farm operations.

### Handling Supplemental Population Forms

Supplemental enumeration forms were used where, for various reasons, it was not possible to put the information directly on a Population and Housing Schedule, or where detailed additional information was needed for a specific group, such as infants. To facilitate processing and to complete the Census records, the information on most of these forms was transcribed to Population and Housing Schedules.

### Military Individual Census Reports

Persons living on military installations in barracks, bachelor-type quarters, station hospitals, or any other nonfamily quarters were enumerated on Individual Census Reports. In this use, this form was called the Military ICR. Military installations were defined as land-based establishments within the continental United States operated by the Air Force, Army, Coast Guard, Navy, or Marine Corps. They included posts, camps, stations, air fields, factories, hospitals, prisons, disciplinary barracks, Navy Yards, testing ranges, or any other type of establishment operated by the armed forces.

Military ICR's were transcribed to Population and Housing Schedules for the district in which the post was located. A count was made by State, county or city, and district, and was added to the regular enumeration count for that district.

### Crews of Vessels Reports

The Crews of Vessels Report (P4) was an individual enumeration form filled by officers and crew members of the Navy, Coast Guard, and the American merchant marine who were living aboard ship on April 1, 1950. The completed reports for a vessel were mailed directly to Washington where they were placed in one of two groups: (1) vessels berthed in United States ports on April 1, 1950, and (2) vessels at sea or berthed in foreign ports on April 1, 1950. Crews of vessels not in United States ports were added to the overseas population. Reports for

vessels in United States ports were assigned the enumeration district number of the dock where the vessel was berthed. Forms for civilian and military personnel were separated and then transcribed to Population and Housing Schedules for the enumeration districts indicated. A total of 211,800 Crews of Vessels Reports were received, of which 132,700 were for persons on vessels in United States ports. These persons were included in the population of the continental United States.

### Confidential Reports on Income, Individual Census Reports, and Missed Persons Forms

The Confidential Report of Income (P6) was used when a person did not wish to divulge his income to the enumerator; or, in some cases, it was used when a person was not at home when the enumerator called and someone else in the household could report everything but his income. The enumerator entered on the form the State, enumeration district number, and the sheet and line numbers of the Population and Housing Schedule on which the other information for that person was listed. The individual then completed the form and mailed it directly to Washington.

Individual Census Reports were filled by persons who were away from their usual place of residence at the time the census was taken. These reports were used to supply or complete information for those persons in the enumeration district where they usually lived.

Persons who believed they had been missed in the enumeration filled Missed Persons Forms and mailed them to the District Office. Most of these were investigated by the District Office, but if the portfolios had already been sent to Washington, the Missed Persons Forms were also sent to Washington for processing. In addition, lists of missed persons had been submitted by some communities (see page 24).

To avoid duplication, the names on the Individual Census Reports, the Missed Persons Forms, and the lists of missed persons were compared with those on the Population and Housing Schedules which were filled where the person should have been enumerated--his usual place of residence. Before this comparison could be made, however, it was necessary to determine the enumeration districts for their usual places of residence. This procedure involved tracing the home address given on the Individual Census Report, the Missed Persons Form, or the list of missed persons. References to maps and to city and telephone directories were needed to supplement the information on the forms. Of the 1,200,000 Individual Census Reports received, 92 percent were successfully allocated to specific enumeration districts.

The three types of forms--the Confidential Report on Income, the Individual Census Report, and the Missed Persons Form (including lists of missed persons)--were first sorted by enumeration district and then by name and address to be sure that groups of related persons were kept together. All the forms for one enumeration district were placed in an envelope.

The Population and Housing Schedules of the enumeration districts were then checked to see if the persons had been enumerated at their home addresses. If the person had not been enumerated, the information on the Individual Census Report was transcribed to the Population and Housing Schedule. About 344,000 of the Individual Census Reports were eliminated when names were found on the Population and Housing Schedules, and 773,400 names were added.

If the name on the Missed Persons Form or on the list of missed persons was unmatched, an Individual Census Report was mailed to that person, or an interviewer from the Area Office called on him to complete an Individual Census Report. The Bureau received the names of 104,500 persons who presumably were missed in the regular census enumeration. Of that number, 40,700 (39 percent) had been enumerated either on the Population and Housing Schedule, on an Individual Census Report, or, in some cases, on both.

Information from the Confidential Reports on Income was inserted on the proper Population and Housing Schedule when the other forms for that enumeration district were checked. About 300,000 income slips were transcribed.

The entire matching and transcription operation took about 8 months and required 46,600 man days.

### Infant Cards

Infant Cards were required for infants born in January, February, or March 1950. They were to be matched by the National Office of Vital Statistics to birth registrations for the same period to see how many infants registered at birth were not enumerated in the census and how many enumerated infants were not registered at birth.

