

2.1.3 Census Methodology

Census activities are time bound; delay in any activity is likely to disturb the whole operation, therefore, adherence to time schedule is extremely essential in census taking or census operations. Census activities can be divided into three broad groups:

- 1 • Pre-enumeration activities or census planning
- 2 • Enumeration and
- 3 • Post enumeration

1) Pre-enumeration Activities/ Census Planning

Census planning in fact starts from the date of approval of census taking by the cabinet. This normally accorded almost 2/3 years prior the census date. Pre-census activities include approval of census date, ^{data which returned} users consultation, questionnaire development and designing, assessment of logistic requirement and procurement, pre-testing of questionnaires and pilot census, preparation and printing of manuals and other census documents, delineation and delimitation of census areas, preparation and reproduction of census area maps, raising of field staff, data processing and plans relating to tabulation, edit/imputation, publicity, distribution and retrieval of documents and publication.

① Delimitation and mapping work

Two activities take place or initiate simultaneously viz updating of geographic work on one side and development of census questionnaire on the other. Geographic work comprises delimitation and delineation of census areas by making physical visit in the entire country, preparation of maps, reproduction of maps and cartographic work. For the fifth census the delimitation was carried out by the low paid revenue staff of respective provincial governments. In urban areas the task was done by the staff of the local bodies like municipalities, town committees and in cantonments by the staff of the local bodies and Directorate of Military Lands Record.

The entire country was divided into urban rural domains. In rural domain rural areas of an administrative district, including town committees, were declared as rural census district while cantonments, howsoever small, as independent census district. Rural census districts were further divided into *tehsil* or subdivision known as census charges which were divided into *Qanoongo Helqa* called as census circle, further divided into *Petwar* Circles called as census circles which were finally divided into small areas generally comprising 200-250 households or 1000-1500 persons known as census blocks. In urban domain urban census districts were divided into small areas of 200-250 households or 1000-1500 persons also known as census blocks. About 5-7 contiguous blocks merged together to form census circle, 5-7 census circles to form census charge and census charges combine together known as census district, Town committees and

together districts make province ↓
together provinces make country

other small urban areas were considered as census charges which were further divided into census blocks of comparable size with other larger urban areas. *District coordination*
Maps of Census district were prepared with the assistance of DC staff in case of rural census district, by staff of municipality in case of local government and by staff of Cantonment Boards in case of cantonments showing boundaries of census charges and therein boundaries of census circles. Separate maps were prepared for each census circle showing boundaries of census blocks. On delineation of boundaries of census areas detail description of block boundaries, circle boundaries, charge boundaries were also prepared.

Apart from delimitation sketch maps of census blocks and census circles were prepared while actual separate maps of census district were either procured or prepared with the assistance of the respective office showing scale and direction of census charges. Similar activities for delimitation and preparation of maps were also concurrently carried out by the staff of municipalities, town committees and cantonment boards in case of urban areas.

On finalization of delimitation each census block, census circle, census charge, census district were assigned independent codes. Generally, a census block comprises three digit code, census circle, census charge and census district each are assigned two digit codes making a nine digit unique code for each census block.

② Development and designing of census questionnaires

All census users comprising federal ministries/divisions, provincial government, research organizations, important universities dealing with the population or demography and NGOs are generally consulted through correspondent to know and appreciate their expectation from census taking. Then on receipt and examination of user's demand they are provided an opportunity to discuss their expectation with the experts of the census organization. Their genuine demands are normally accepted while for demand not relating to population they are just guided to consult the concern ministry dealing with the subject. Then user's demands are converted and given the shape of questions. After converting their demand into questionnaire then sorting of questions is done by the census experts. The most common and core questions are given preference to place in the beginning of questionnaires while sensitive, difficult and questions demanding detailed probing are usually placed at the end of the questionnaire normally such questions are asked through a sampling inquiry to supplement the main census information. (Census questionnaires- both complete count and sample count are appended at the end of this book). While designing questionnaire language of the individual questions is given top priority as ambiguous, unclear and incomplete questions are likely to provide deficient/ inaccurate information. Also to assign importance to the respondent utmost care is taken to skipping patterns so that no irrelevant question should be incurred from any respondent.

② Pre-testing and Pilot Census

Three pretests are carried out: The first by the census people who developed and designed the questionnaires and pretest is confined to in and around twin city of Islamabad and Rawalpindi. The objective of this pretest was to see the adequacy with respect to questions' language, and clarity in concepts/definitions. The second pretest was carried out concurrently by the census staff and field staff. Both teams are given required training before sending them into the field. The field work is done in and around twin city of Islamabad and Rawalpindi and four provincial capitals on random sample basis. The objective of this pretest was to see the difference in

*Four provinces (Balochistan, Khyber Pakhtunkhwa, Punjab & Sindh)
Two autonomous territories (Azad Jammu & Kashmir, Gilgit-Baltistan)
one federal territory (Islamabad Capital)
each province → divisions → districts → tehsils → Union Councils*

performance of these two teams and underlying causes. The third pretest was carried out by the field staff alone under actual field conditions on a small sample basis randomly selected representing the whole country. The objective of this pretest was to finalize the questionnaires. In these entire pretests interview is recorded on cassettes along with observations of interviewers that helped a lot in reviewing the questionnaires.

Pilot census, aiming at to examine the adequacy of all census activities to be performed till the release of last publication, is carried out on nationally representative sample and all steps are re-examined for ensuring adequacy of the proposed planning of census.

Pilot census -> mapping, interviewing, data capture, process and evaluation.

④ Raising of field staff

The third important pre-census activity is raising of field staff like enumerators, circle supervisors, charge superintendents and census district officers. The quality of census fieldwork largely depends upon the skill, experience, qualification, caliber, sense of responsibility, etc. of staff engaged for collection of information from households. At federal level the organization responsible of census taking generally comprises skeleton staff for planning, monitoring and overall supervision. The field staffs are deputed with the assistance of the respective provincial government and Directorate of Military Lands Record, General Headquarters, Rawalpindi. To be on safe side 10% additional field staff is raised as reserved force for meeting any emergent need. The enumerators were mostly the primary school teachers, junior *patwaris* and office clerks having at least matriculation qualification. Their supervisors were senior school teachers, senior *patwaris* and other revenue officials and staff of the respective cantonments. For sample inquiry, preference was given to those having past experience in conducting census fieldwork and conforms to the quiz test given to them. At each block generally one enumerator is required for door to door enumeration during the census field operation. However their immediate supervisors are authorized to depute additional enumerators depending upon the size of the block or in case of any emergency he can replace the enumerator on job with the consultation of his respective supervisor.

⑤ Logistic requirement

Based on the last census information and other current population surveys expected population is estimated to formulate a base for logistic requirement. After working out all logistic requirements like number of questionnaires required for census operation, supporting items for filling up the questionnaire, transportation, dispatching and retrieval of documents 15% are kept as reserved stock. Then the census field use material is procured/ purchased or printed at least 2 months ahead of the census operation.

list
~~_____~~ 1/1/3

II. Enumeration

Enumeration stage covers training of field staff, distribution and retrieval of census documents, door to door canvassing, supervision, monitoring and establishment of control rooms.

⑥ Training of Field Staff

Training of field staff, comprising enumerators, circle supervisors and charge superintendents, is imparted in batches of approximately thirty trainees each. For complete count three days training is given to each batch and for sample count six days training. At the end of each session trainees are required to make field visit for filling in the forms themselves. These filled in forms are discussed in the class for rectification of errors committed by them. The entire training

programme lasted for one month. Left over trainees is provided an opportunity in the next week to get training. In this way 100 percent, including reserve, field staff got training just before the census operation.

Respondents are educated for eliciting their cooperation by passing on census messages through various publicity media like TV, radio, newspapers etc. The publicity campaign, is restricted to the limited funds available for the purpose thus it was not so effective as to motivate respondents to provide updated and accurate information about individuals living together in any housing unit.

For training purpose four master trainers are trained at Population Census Organization (PCO) headquarters, Islamabad. They trained approximately 260 trainers, including armed forces personnel, at four provincial capital cities. Then those trainers imparted training to their respective field staff at different venues mostly located at district headquarters but in some cases at sub-divisional headquarters or in cantonments depending upon the concentration of population in any area. There are more than 1000 venues where training of field staff is given. The training included class room work as well as field work. At the end of the field work their field performance is examined and deficiencies if any, explained to them by their respective trainers for rectification of errors committed by them in the field while filling in the questionnaires and further clarified the different concepts un-cleared to them. Face to face training is imparted. However one day is reserved for field work and one day for examination of their field performance, general discussion and question/answer. For maintaining uniformity in giving census messages concepts/definitions are also displayed on television at all training venues during every session followed by question/ answer. The training materials included some filled in and some blank questionnaires, carbonated lead pencil, eraser, sharpener, water proof a tyvic envelope, a note pad and a rexine bag.

Training was closely supervised by the senior staff of PCO, other qualified statisticians available in the country at the time of census operation and army officers in case of soldiers. Because of five times postponement of census date training was imparted five times to the entire field staff and supervisory staff. Due to either retirement, or transfer or death of members of civilian field staff each time their replacement rate was around 5 percent. So at least 75 percent of them received training five times, another 5 percent got training four times and so on and hardly 5 percent got only one time training. Thus, preponderance of civilian trainees was well acquainted with definitions with quite clear concepts and well aware what to do in field for collection of information as per census questionnaires. Since armed forces personnel are associated in last attempt thus they received training one time only.

Despite the above training inputs the quality of census return can be further improved if interview proceedings are recorded on some display media for reviewing the training methods on the basis of deficiencies detected from such record. Besides, there is a need of realizing to the field staff, through training, the importance of collection of correct information in socio-economic planning at various levels and their own welfare being members of the beneficiary society. Recording of correct age may be given high priority in training of field staff. Art of recording age with the help of historical events, ages of other family members, personal particulars such as educational level achieved, years of schooling, age of entry into school etc should be emphasis in the training.

The experience has shown that generally the enumerators, who were invariably males, felt shy in seeking detailed information from respondents who were predominantly females as during interview hours most of the male members remain away from the household for earning their

livelihood. Their shyness might have affected the response information especially relating to fertility, disability and economic characteristics of individuals. Besides, in most of the cases since one respondent was answering the questions asked by the enumerator/interviewer, therefore, the reliability of the information provided by him/her to a greater extent depended upon the knowledge of that person about the members of the household. In the first four attempts trainees participation rate was never exceeded 98 percent but in last attempt the rate approached almost to 100 percent mainly due to assistance of armed forces. This subsequently ensured full coverage of the country's area in census operation.

2) **Distribution and Retrieval of Documents**

Field use material is dispatch to the concern district officers in form of kits according to their actual requirement plus 10% surplus while 5% surplus is kept at census headquarters and in its provincial offices. The census district officers are given clear-cut instructions to distribute the material in the form of kits to census charge superintendents according to their requirement with 7% surplus. The charge superintendents are required to distribute the census material to circle supervisors again in the form of kits according to their requirement plus 5% reserve. While the circle supervisors are directed to distribute census material further to the enumerators according to the actual day to day requirement and to keep the remaining in reserve with them for meeting any emergent need.

During retrieval process census filled in documents are sealed at each step from an enumerator to census district officer and then these documents are taken to the census headquarters accompanying by special escort of armed forces. On receiving at the headquarters these documents are arranged according to census districts, sorted out by census areas and are given preparatory treatment for feeding into the OMR machines.

*optical mark recognition
optical mark reading*

3) **Field Work and Its Supervision**

In census operation the most important activity is enumeration. There could be two alternative approaches for collection of information from individual persons. One method is mailing inquiry and second is door to door canvassing. Each method has its own advantages and disadvantages. The former is less expensive, requires no manpower for field work and hence no training and no supervision of such people but it demands achievement of 100 percent literacy in the census area and insertion of detailed instructions on the questionnaire about recording of the requisite information. Canvassing method does not require 100 percent literacy attainment and carrying of detailed instructions on the questionnaire but it can not be implemented without engaging field staff and giving them adequate training so that they could fill in the information on questionnaire provided by the respondents, interrogate and probe where necessary for collection of desired information. This method also requires supervision of the field staff. Therefore as compare to the former method the latter is relatively for more expensive. Nevertheless a society having low literacy level has limited choice and is bound to depend upon door to door canvassing for census taking. For this very reason Pakistan up till now is depending upon the latter method.

In the 1998 Census, each supervisor on an average had to check 6/7 households per day. Though the volume of work per supervisor was greater in this census when compared with the previous one yet he was assisted by a vigilance team and armed forces personnel. Further more for his mobility, transport was provided with the assistance of armed forces personnel. Above all,

full cooperation was generally extended by the respondents in the presence of armed forces personnel.

Supervision, inter-alia, can play a considerable role in improving the quality out-put besides uplifting degree of completeness of any statistical activity. Field operation of the 1998 Census is supervised by four different groups of people i) technical staff of Population Census Organization and Federal Bureau of Statistics, ii) Armed forces personnel iii) Judiciary and iv) Monitoring teams of provincial governments. An element of objectivity is introduced in the supervision in such a way that each supervisor filled up some specially designed forms by making field visit and then he matched those with the performance of the concerned enumerators. In case of any discrepancies these are explained to the enumerators for rectification. Monitoring cells established at provincial capitals were keeping an eye watch on day to day progress of census work in their respective provinces and informing and suggesting the Population Census Organization for remedial measures in order to ensure timely completion and full coverage of census work.

In large operation like census where services of field staff are borrowed from respective provincial governments some lapses like shortage of field use material and field workers, political disturbances etc are not beyond expectation. Therefore establishment and functioning of control room becomes imperative. The role of control room is to attend complaints, suggest action for rectification and controlling the situation. Control Rooms were established at Islamabad, four provincial capitals and in the offices of census district officers. These control rooms were connected with Islamabad control room. Islamabad control room was also connected with field workers through powerful communication system of Armed Forces. Because of Armed Forces involvement in the 1998 Census control room was very effective in disposing of the public complaints in the shortest possible time that was the reason that this time there was no major complaint lodged from any corner.

III) Post Enumeration

Post enumeration activities cover mainly data processing, tabulation, analysis of data and report writing.

① Data Processing and Tabulation

On retrieval of census filled in questionnaires these are matched with the inventory list of census blocks to ensure that no record is missing in the process of retrieval. Then documents are sorted out and rearranged according to census districts, administrative districts within each administrative division and province. A minimum editing of documents was done manually to check the block identification and its code, household code and serial number and name of individual persons. Then edited documents were given necessary treatment for removal of dust and moisture. Treated documents, block wise with identification sheet, are fed into OMR machine for scanning of census information. There after imputation of inconsistent, invalid and blank entries are carried out through computer using hot deck CONCOR software for which initial values are inserted by computer personnel in consultation with census experts. Therefore what ever data are available as hard copy are imputed data which might not reflect the true pattern or frequency distribution of un-imputed data. Data processing is carried out district by district. It took almost two years in processing the entire data at national level including Azad Jammu and Kashmir and Northern Areas.

After imputation census data are rearranged in tabular format representing the most important information in individual cells, column and row headings, box and spanner headings and least important variables as caption headings' on both side of each table. For each topic the variable information is cross classified with other core variables like sex, age etc with rural urban break up at district, provincial and national levels. Tabulation work is implemented district by district permitting release of census publications district by district followed by provincial reports and finally national report. This whole process of release of publication took two and a half years. Side by Side 17 bulletins are also released in order to meet emergent need of data users especially those associated with planning at any level.

For completion of each report some analysis of census data is done and presented in the form of census findings along with summary tables and main tables. Whereas detailed analysis of the data is carried out independently by Pakistan Institute of Development Economics and their findings are available in the form of proceedings of conference held in Islamabad in December 2003. Apart from these publications five hand books for four provinces and one for the nation as a whole are also released.

IV) Some Other Factors Influencing Census Results

There are some other factors which do affect the census operation and ultimately the census results. Some important factors are discussed here:

Political Influence

The determinations of legislature bodies' (Senate, National Assembly, Provincial Assemblies and District Assemblies) seats, allocation to various areas (constituencies) and their delineation depend upon census results published officially the last time (Clause 51 of the amended Constitution of Pakistan, 1973). These are protected by the constitution of Pakistan. These constitutional protections persuade the interested people, particularly the politicians to exploit the local people, from whom such a class of people could get votes during election, to exaggerate their number.

The fifth census, which was due in March 1991, had a listing operation six months preceding the enumeration. That listing operation gave extremely unexpected trend in some pockets located mostly in Hyderabad, Sanghar, Larkana, Dadu, Khairpur districts of Sindh province, Balochistan province as a whole and FATA areas. For evaluation two independent exercises are carried out in Sindh in such areas, which confirmed the highly distortion in data from expected trend. In Balochistan complete listing work is rechecked by a special team dispatched from Islamabad under the direct supervision of a senior officer from Population Census Organization, Islamabad who shifted his office temporarily from Islamabad to Quetta Camp Office. Similarly rural area is also rechecked. However, checking process in the area is confined to some selective pockets, having very high distortion rate in the listing operation, on sample basis.

One of major cause of delay of fifth census was the ethnic rift between various population groups to show their dominance over each other. During the 1990 house listing operation such rift existed between Sindhi versus Urdu speaking in Sindh, and Pashto versus Balochi speaking in Balochistan. In that race of domination the house listing operation of the census got serious set back (Chaudhry M. Aslam 2003).

For the 1991 Census, house listing operation was carried out from 22nd November to 16th December 1990. On analysis of the results of the listing operation some serious distortions were observed in some districts especially in Sindh, Balochistan and FATA, resulting 9.93 per cent average annual growth rate in Sindh, 7.81 per cent in Balochistan and 6.31 per cent in FATA. While the growth rate of 2.81 percent per annum was observed in Punjab and 3.61 per cent in NWFP. Against these, the growth rate observed from 1972 to 1981 in Sindh was 3.6 per cent., in Balochistan 7.1, in FATA 1.5, in NWFP 3.3 and in Punjab 2.7 per cent per year. During the last one decade (1981-1991) the fertility rate remained around 43 per thousand persons while death rate nearly 12 per thousand persons, yielding an average growth rate of 3.1 per cent per year. Whereas the overall growth rate emerged from the 1991 listing operation was 5.28 per cent (Chaudhry M. Aslam 2003) per annum at national level (ranging from 2.81 percent in Punjab to 9.93 percent in Sindh) as against 3.06 observed during 1972 to 1981.

If we assume no death occurring during the last one-decade and population is closed against any international migration then the optimum level of growth would have remained 4.3 (estimated fertility level, in percentage terms, in November-December 1990) per cent per annum. However, in large cities the growth rate could possibly range between 4.5 to 7 per cent per annum depending upon their level and pace of industrialization and extension in their areas. Any deviation beyond the above said limits would be doubtful, unless explainable by social, economic and cultural determinants of components of population growth such as fertility, mortality and migration. Keeping above criteria, 18 out of 31 census districts in Sindh, 18 out of 24 in Balochistan, 5 out of 7 in FATA, 4 out of 28 in NWFP and one out of 56 in Punjab experienced abnormal growth rate i.e. a rate that could not be explained by any demographic change.

If the census has to be undertaken after a few years then in order to reduce the effect of political influence the government may detach the census results officially published from three incentives, which are, determination and allocation of legislative seats, national financial award and allocation of civil servant quota to different provinces on the pattern India has done after suffering similar problems now we are facing in Pakistan.

FATA → Federally Administered Tribal Areas.

② Seasonal Migrants

Seasonal migrants here mean people who shifted their normal residence for short duration, may be for less than one year prior to the 1998 Census, for reasons other than acquiring education, marriage, movement with the head of household, business, service, transfer, return home and health.

It is generally believed that most of the people living in snow-bound areas climb down the mountains just before the fall of snow and continue to live in the areas where they find some job for themselves and fodder for their animals. Such people usually go back to their place of origin when the snow melts and grass/shrubs again get green leaves. For census purpose usually the month of March is the most suitable time for enumeration of people when their movement is minimal and weather is pleasant throughout the country. Exception is snow-bound areas. While migrating down the hills usually one or two members of the family remain in the house. Such families are got enumerated at both places, at place of their origin as members temporarily absent and at place of destination as members actually present there. In Pakistan, the census data is tabulated as de-jure count only, therefore, though such people are enumerated twice but they are counted once. Another problem of head counting, associated with seasonal migrants, is difficulty in capturing them at place of origin when a family as a whole moved out and there is

none to report on their behalf. Such people are counted only once and that is at their place of present residence. Nevertheless, for counting once they are assigned code as member present there. The third problem associated with enumeration of seasonal migrants is the demand of local people especially politicians and local administration who want that census data of their area should include such people. Because of these three problems a class of people prevails upon the census enumerators, who generally belong to the local areas, for inclusion of migrated people in their record. The gravity of the problem partly has been assessed in the ensuing paragraph through the study of inter-district seasonal migration.

At national level there were 41,998 estimated seasonal migrants representing three persons per 10 thousand. The data dispelled the notion developed that seasonal migrants belong to snow bound areas only. Support that such migrants are concentrated around districts generally having large cities and also support that such migration is least affecting the proportionate shares of both district of origin and destination at provincial and national levels.

FATA → Federally Administered Tribal Area
NWFP → North-West Frontier Province (Khyber Pakhtunkhwa)

3) Snow Bound Areas

One of the main features of census taking is simultaneous operation through out the country. However, in the month of March when census operation takes place, some areas of Balochistan, FATA and NWFP are still inaccessible due to heavy snowfall. Therefore, inaccessibility forces to delay the census until melting of snow, more specifically the clearance of various approaches to such areas, which takes several weeks. During this period many changes in demographic profile of the areas take place, which cause errors in head counting and recording of particulars of the individuals. No doubt some demographic changes take place, nevertheless the purpose of the census i.e. head counting on de-jure basis can be achieved if the events are reported correctly with reference to the census period but memory lapses and lack of interest do come into the way of data collection.

4) Difficult Terrain

Simultaneity problem was also arisen in some areas due to difficult terrain where enumerators failed to complete their work within stipulated period. Such areas are generally located in mountainous region of NWFP, FATA, Balochistan and desert areas of Punjab, Sindh and Balochistan where there is no adequate infrastructure for traveling, communication and staying.

5) Geo-Political Area

Yet simultaneity problem was arisen in some areas, especially in the largest city of Karachi, due to geo-political reasons. Most of the streets in such areas are narrow with serpentine layout, which generally impose coverage and security problems in enumeration. The 1998 Census operation was extended there for a month.

6) Short versus Long Form

The 1998 Census canvassing was based on 91.5 percent on short or sample count form and 8.5 percent on long or sample count form not overlapping of census areas. That permitted

tabulation of complete count information of all the provinces on 100 percent basis because of repetition of all questions of complete count on sample count form but it did not allow to counter check common information contained on both forms. Incidentally the common questions carry four important gender sensitive types of information. For the next census it is proposed that complete count information may be collected on 100 percent basis with overlapping of common information with sample count. It will certainly increase the operational cost but return will be far beneficial as it will counter-check likely correction of data due to this in-built mechanism and for study of gender statistics.

⑦ Management

Census planning was initiated in 1987 and census last publication was released towards the end of 2001. During this period of 14 years 9 heads of PCO and 12 Secretaries of Statistics Division were transferred. Their average tenure was 16.5 and 14 months respectively. However some spent just three/four months as head of either of these two organizations. Census is a highly technical as well as political subject especially in Pakistan where it is constitutionally linked with political gains. Most of the heads therefore could not contribute effectively for improvement in census work which was fully politically charged after it was delayed from its scheduled time.

⑧ Administration

Up to 1984 PCO was a part and parcel of Ministry of Interior working as Directorate of Registration and Census. The Registration Department had their field offices at district level and some offices at sub-divisional or tehsil level. More over entire administrative hierarchy was working under the overall control of Ministry of Interior. Therefore for census operation PCO never faced any problem in getting support or assistance of these two administrative set up. There after for census operation PCO has to approach respective provincial governments and Ministry of Interior for seeking help of the administrative hierarchy and PCO has no alternative to it. Some times they pay little attention to census work because of over burdening due to multi-nature assignments entrusted upon them resulting delay in time bound nature of census activities.

⑨ Coverage

Federally Administered Tribal Areas.
There is continuous improvement in census coverage and contents quality over time. In the 1951 Census some areas of NWFP, FATA, Balochistan Sindh and Punjab are left out from enumeration. In the 1998 Census all areas except Allai area of Batagram were left from enumeration. The population is estimated by applying population density of Allai Sub-Division to the uncovered Allai area spread over about 350 square kilometers. The estimated population of left over area was 3500 persons in 1951, 9550 in 1961, 24430 in 1972, 33950 in 1981 and 52960 in 1998. Some areas (part of Quetta Cantonment, Pishin, Loralai, Qilla Saifulla and Qilla Abdullah) of Balochistan are also left out from enumeration due to strong political resistance in these areas. However their populations are estimated on the basis of house listing, which is the pre-requisite for census taking, and other statistics available from other sources which represented just 0.73 percent in national population.

Coverage errors means under and/or over counting of individuals. Post evaluation survey of any census is the main source of its evaluation, which highlights misreporting, that is, over counting under counting of individual persons and households and variation in content reporting from the actual. Here we are concerned with counting of individual persons through the census. In the

absence of post evaluation survey our assessment of misreporting depends upon an indirect methods of evaluation based on information collected on the question 'Residential Status'. The question contained three response categories, that is, household member present in the housing unit on census date, household member temporarily absent and guests/visitors present there on census date. The first two categories provide 'De-jure count' and first and third categories 'De-facto count of the population. In the 1998 Census 129.18 million persons (excluding FATA) were enumerated under de-jure count while 126.54 million persons were counted under de-facto count. The difference of 2.63 million persons or 2.04 percent between the two counts thus can be attributed to misreporting. This misreporting can either be due to misconception about reporting of household members temporarily absent or non-reporting in case of temporarily absence of all members of the household, or counting of guests/visitors, both at their normal residence and present place of enumeration etc. In Pakistani context, where there is strong tendency of reporting members permanently absent from the household, there is relatively far less chances of omission of members temporarily absent. Therefore, de-jure count can be taken as close proxy of the actual population. Contrary to this, people do not bother to report guests/visitors staying with them. Thus, where slackness, negligence or lack of interest have been shown on the part of any enumerator, the respondent generally does not inform about guests/visitors present there on census date. So, the guests/visitors are most likely to be omitted from the count. In other words de-facto count is under counted. This supported by the fact that the de-facto count is less than the de-jure count as emerged from the 1998 Census. Also there is a general tendency of under reporting of children particularly under one year and females. However, such under reporting probably affect equitably both the counts. To sum up misreporting has been found in the 1998 Census data but de-jure count is more reliable than de-facto count. Moreover the formal count provides comparable data with earlier censuses than the latter count.

2.1.4 Advantages and Disadvantages

- *Census is a single source of population and housing data permitting cross classification of several variables at all geographic and administrative levels which permit comparison of population and housing data between various levels from a single source.*
- *Census is a snap shot at one point of time, therefore, it provide inventory of population and housing data at a specific time. Whereas population is a continuous process which is changing every moment. Thus census can not provide updated data.*
- *Census occurs after a fixed interval say after every 5 or 10 years. Census thus can not provide data during the inter-censal period.*
- *Census is a nation-wide activity therefore it is affected, both in coverage and contents, by several external forces which are beyond the control of the agency responsible for conducting census.*
- *Among the major limitations of censuses they are expensive, which along with the long lead time needed to plan them and the time required to process and disseminate data after collection limit their frequency. The more usual inter-censal interval is of the order of decade, which means that the timeliness of census data is frequently less than ideal. Some countries attempt to changes at the national and regional levels they tend not to meet the needs of local area planners and those interested in small minority groups within the population. The expense of population censuses contributes as well to their characteristically limited contents. The huge number of respondents means that the number of questions must be kept in check so as to curtail cost of stationery, printing, coding and, if the census is not self enumerated, interviewing. If the census is based on self-enumeration, the questionnaire is dropped off, the respondent answers the questions, and a field worker collects the completed questionnaire. This system of census will limit the respondent burden so as not to give unacceptable responses or give inaccurate responses. An important element of respondent burden is the length and complexity of questionnaire; if it is perceived to be too time-consuming respondents may avoid answering it altogether hence compromising the quality and the coverage of data. The illiteracy in developing country is not permitting such type of self-enumeration system. Thus the demographer and other users have to accept that census is not a vehicle through which to ask questions of complexity and depth one can ask in sample survey. Nor is it a vehicle through which to ask sensitive questions. As result of consideration just discussed, population censuses typically ask a limited range of core questions,*