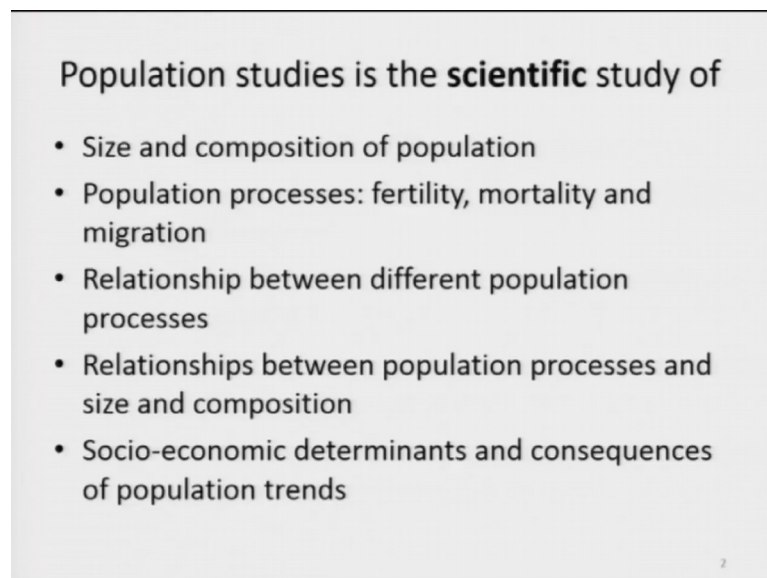


Population Studies
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Lecture - 01
Introduction to Population Studies

So, first of all I welcome you all to this course on Introduction to Population Studies. The first lecture will tell you what is population studies and what is scope of it and in which universities formal courses of population studies are available and what do they cover.

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Population studies is the **scientific** study of

- Size and composition of population
- Population processes: fertility, mortality and migration
- Relationship between different population processes
- Relationships between population processes and size and composition
- Socio-economic determinants and consequences of population trends

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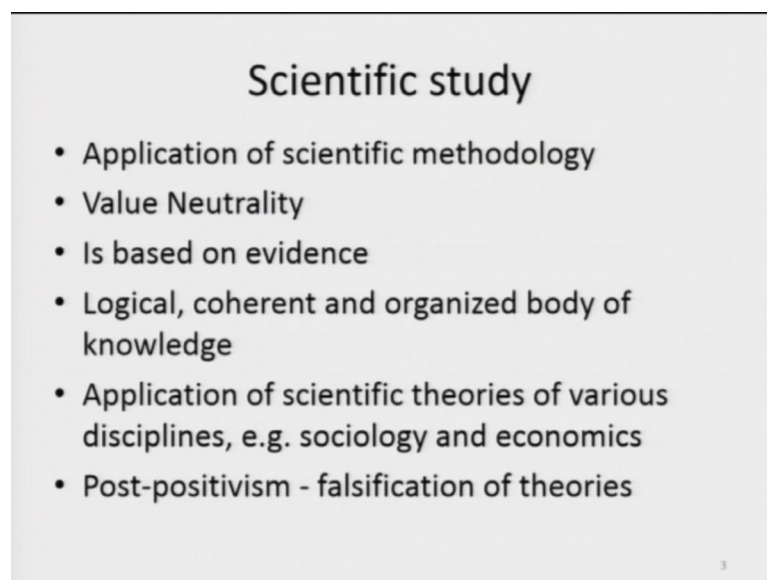
Population studies is considered to be a scientific study of size and composition of population. Means how many numbers and how many of them belong to one category or the other. It covers population processes which are 5 and the most important them are fertility, mortality and migration, others are nuptiality or marriage and social mobility.

Social mobility is relatively less studied in population studies. Population studies also deals with relationship between different population processes; means the relationship between fertility and mortality, fertility and migration, mortality and migration and say social mobility and fertility. The subject also deals with relationships between population processes and size and composition of population. As this course unfolds, we will see

that size and composition of population. For example, age distribution of population also affect birth rates and death rates, which are part of population processes.

And population studies also covers socioeconomic determinants and consequences of population trends which means a fertility rising or falling; what are the kind of socioeconomic factors which are responsible for that which factors are conducive to population rise, which factors lead to population decline. And what are the consequences of rise and fall in population in terms of quality of life, per capita income and distribution of population or standards of living and culture, integration of society, disintegration of society and so on.

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Scientific study

- Application of scientific methodology
- Value Neutrality
- Is based on evidence
- Logical, coherent and organized body of knowledge
- Application of scientific theories of various disciplines, e.g. sociology and economics
- Post-positivism - falsification of theories

3

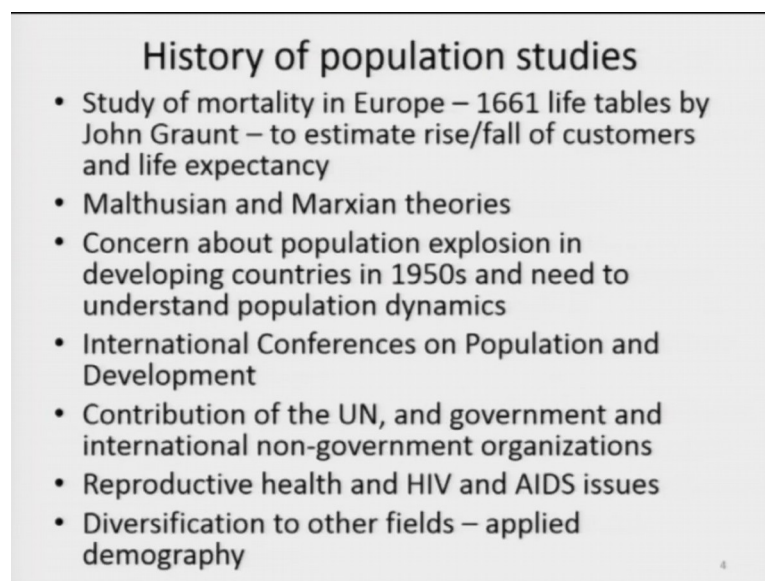
When I say scientific study, what does it mean? It means that it is not history; it means that it is not a kind of theological statement on population; it is not part of theocratic discussions; it is an application of scientific methodology. In studying various aspects of population, we apply scientific methodology. And scientific methodology consists of value neutrality, arriving a truth for truth sake is the only aim of a scientific study. It does not contain political bias; it does not contain cultural bias; it does not include anthropocentrism or value judgment of any kind.

Moreover, scientific studies are based on data hard facts, observations, experiments or evidence. They are logical, coherent and organized body of knowledge. Scientific study

also means application of scientific theories in different domains such as sociology and economics to study issues pertaining to population.

Now, recently in sociology, in theoretical discussion there is a term post positivism. Positivism means studying something or arriving at truth on the basis of hard facts. But Karl Popper suggested that we can never ascertain truth, but the purpose of testing a theory is to falsify a theory. A theory works, a theory continues till it is falsified and the aim of scientific enquiry is to propose hypothesis and then, attempting to falsify them.

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History of population studies

- Study of mortality in Europe – 1661 life tables by John Graunt – to estimate rise/fall of customers and life expectancy
- Malthusian and Marxian theories
- Concern about population explosion in developing countries in 1950s and need to understand population dynamics
- International Conferences on Population and Development
- Contribution of the UN, and government and international non-government organizations
- Reproductive health and HIV and AIDS issues
- Diversification to other fields – applied demography

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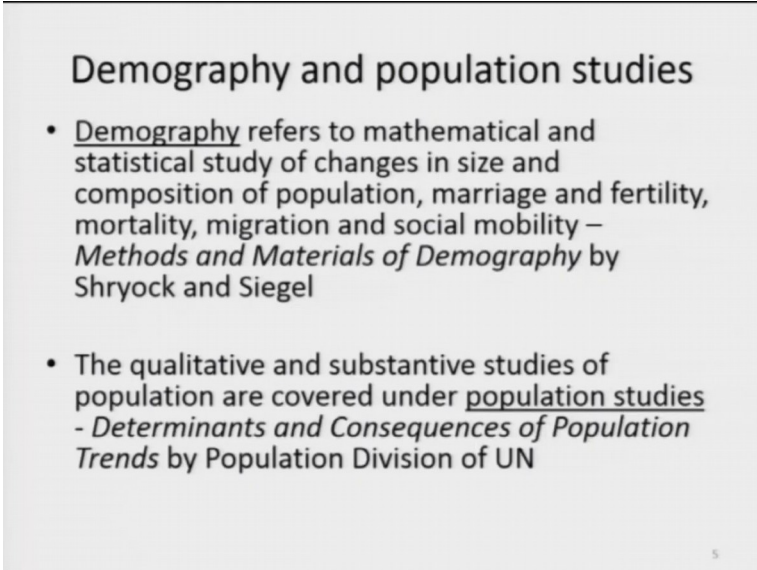
History of population studies. The study of population studies is basically the study of mortality in Europe. In 1661, life table was made by John Graunt on the basis of data on deaths and the purpose was to estimate rise and fall of customers for the purpose of the trading community and calculate life expectancy. On the average for how many years a new born baby is expected to live. A further impetus to population studies came from the principle of population written by Malthus and then Marxist critique of that.

I can say that the maximum concern about population issues came in 1950s, when the world population started growing at a very high rate for which a phrase population explosion is often used. That population of the world started exploding and social scientists, sociologists, economists, psychologists, political scientists, policymakers and many others, they started worrying about determinants and consequences of population. Then, there have been several international conferences on population and development,

United Nations and governments of different countries and many international nongovernment organizations such as population council, have also contributed to the study of population.

Now, in the recent times the interest of population scientists has shifted towards health and HIV and AIDS. Actually, the interest in HIV and AIDA is also less during last 4-5 years. It is more of health, gender, literacy, equality, environmental issues and so on which are occupying greater interest today as compared to fertility or mortality for the reasons, I will state in my lectures later. So, population studies has diversified to other fields of applied demography and studies are becoming more interdisciplinary multicentric and it is difficult to distinguish between population studies and say social psychology and sociology at times.

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Demography and population studies

- Demography refers to mathematical and statistical study of changes in size and composition of population, marriage and fertility, mortality, migration and social mobility – *Methods and Materials of Demography* by Shryock and Siegel
- The qualitative and substantive studies of population are covered under population studies - *Determinants and Consequences of Population Trends* by Population Division of UN

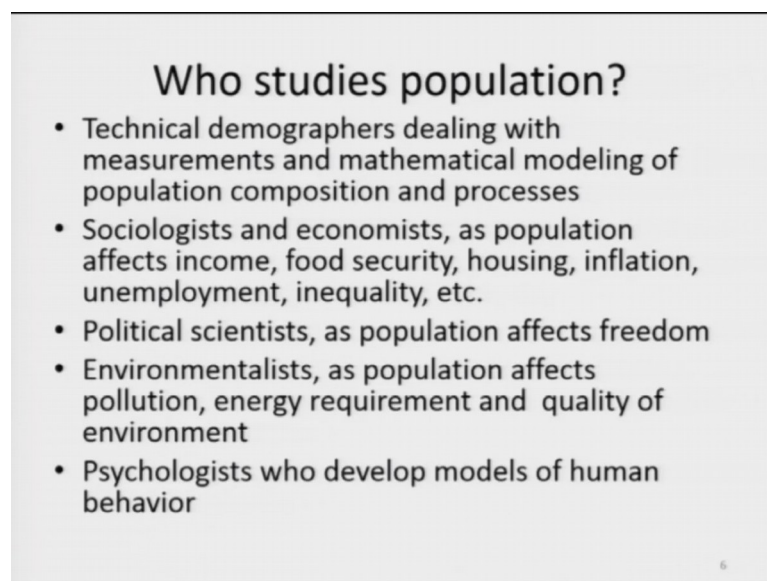
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Often a distinction is made between demography and population studies. Some of your books, you must have seen some books of population studies, some of them have a title Demography. Something before something later, but there is the term Demography in the titles of the books, some books have Population Studies. Although, there is no hard and fast rule, but demography usually refers to mathematical and statistical study of changes in size and composition of population, marriage and fertility, mortality, migration and social mobility which means 5 demographic processes.

And a typical book when I was a student of population studies in IIPS Mumbai between 75 and 77, we studied from two books. For demographic purposes, we called it technical; some subjects were technical and for technical subjects, we prepared from Shryock and Siegel's Methods and Materials of Demography. And there is another part of population study which is called qualitative or substantive concerned with theories of demographic processes. For this qualitative part, we prepared from population studies and determinants; the title of the book was Determinants and Consequences of Population and keeping in view the interest of world community in population United Nations themselves had made an effort to prepare this book. Almost all issues of population, trends, composition, distribution, projections everything was covered.

So, population studies is often divided into these two groups; technical subject demography and a qualitative subject or substantive subject of population studies.

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Who studies population?

- Technical demographers dealing with measurements and mathematical modeling of population composition and processes
- Sociologists and economists, as population affects income, food security, housing, inflation, unemployment, inequality, etc.
- Political scientists, as population affects freedom
- Environmentalists, as population affects pollution, energy requirement and quality of environment
- Psychologists who develop models of human behavior

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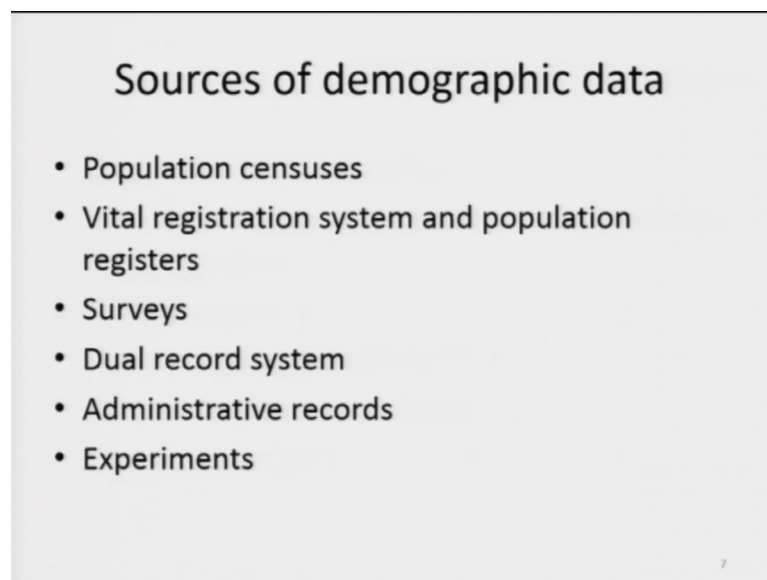
Who studies population? Friends, population studies is studied by technical demographers, who usually come from mathematics and statistics background and what they do they contribute to measurements and mathematical modelling of population composition and processes. I uttered the term fertility several times, but although among common men Layman, I can explain this as birth performance. But for comparative purposes for historical purposes when it comes to measurement of fertility, then there are several challenges.

Now, these mathematical and statistical demographers deal with measurements and mathematical modelling of population, composition and processes. Sociologists, economists, psychologists, anthropologists; in short social scientists, study population as it affects income, food security, housing, inflation, unemployment, inequality etcetera.

Political scientists study population as it affects freedom; it affects war; it affects conflicts as communal riots; maybe it affects communal riots, civil wars and wars between countries and advantages of having high or low population to different countries in the condition of conflicts and wars. Environmentalists also take interest in population studies. They study overall impact of population pollution, environmental degradation, noise, noise pollution, air pollution, water pollution, energy requirement and quality of environment.

Then, psychologists study population and they develop models of human behaviour. A psychologist will study a subject like what are the psychological costs and benefits of children in terms of which they can predict whether in the years to come fertility is going to fall or rise.

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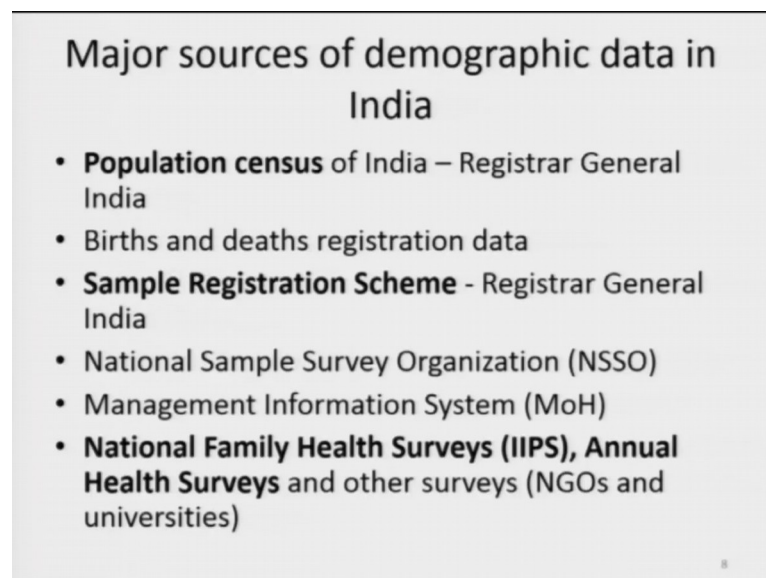


The sources of demographic data; where do the demographic data come from? Population censuses; population censuses are conducted by almost all the countries of the world today and in population censuses, we count first purpose of population census is to count how many people are living in the country. And population censuses also

count their characteristics, such as age, sex, marital status, language depends on the needs of the planners academicians NGOs and so on.

Then, vital registration system, surveys, I will talk about vital registration system and surveys and other sources of data. Dual record system administrative records and there is some scope of, I am aware of some experiments at least though experimental method is not used so much, the logic of experimental method is used to draw causal inference from non experimental data by using appropriate statistical design such as ANOVA, ANCOVA, Structural Equation Model etcetera.

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Now, in our own country because students of population would like to know first about their own country. So, in our own country the sources are population census of India which is conducted by Registrar General India and it was started in 1871, some people say 72, some people say that the first synchronous census all over the country was conducted in 1881 and since then, every decade, at intervals of 10 years, we conduct census.

And in census there are a large number of questions now. It is not only age, sex, marital status; but it is also about disability, it is about mother tongue, it is about second language known, it is about migration, it is about fertility, it is about child survival, occupation and industry. Then, we have registration of births and deaths, Sample

Registration Scheme, National Sample Survey Organization conducts surveys repeatedly throughout the year, they keep on conducting data of some or other kind.

Management Information System or MIS, developed by ministry of health and then there are National Family Health Surveys and Annual Health Surveys conducted by the Ministry in National Family Health Survey, the chief PI, principal investigator is International Institute of Population Studies, Bombay.

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Census

- **Content:** Village and household data; and size, age, sex, marital status, urban-rural residence, literacy, religion, caste, disability, education, work, fertility, mortality and migration
- **Strengths:** National and sub-national details, reliability, availability of time series data, base for calculation of demographic rates and ratios
- **Limitations:** Ten year interval, limited in depth, huge cost

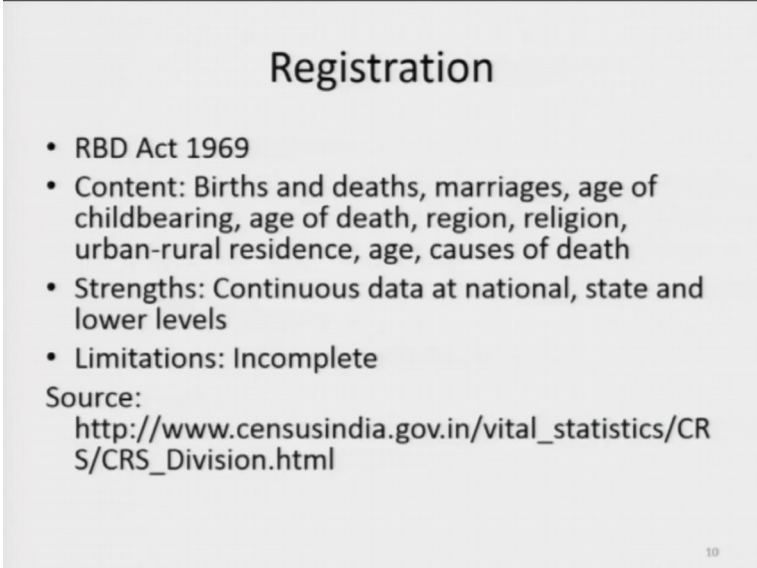
Source: <http://censusindia.gov.in/>

Census; as I said census contains information on village and household data, size, age, sex, marital status, urban-rural residence, literacy, religion, caste, disability, education, work, fertility, mortality and migration, The strengths of census data are that we can get national details. We can get sub national details means we can get size, growth rate, composition or population and as some tentative estimates of fertility, mortality, migration etcetera etcetera at a state level, district level and nowadays in village directory, you also have data at the village level.

The data are quite reliable post enumeration checks are conducted and it has been found that there is hardly maximum of 1.5 to 2 percent error in the census count. So, we have availability of time series data, which is used as the basis for calculation of other demographic rates and ratios, but there is also a limitation. 10 year interval is too long and censuses cannot be very in depth. Even 22 questions which we have in the latest census is a large figure. Censuses are meant for counting people and for age, sex, marital

status basically; but now due to requirements of planning many other questions are included.

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Registration

- RBD Act 1969
- Content: Births and deaths, marriages, age of childbearing, age of death, region, religion, urban-rural residence, age, causes of death
- Strengths: Continuous data at national, state and lower levels
- Limitations: Incomplete

Source:
http://www.censusindia.gov.in/vital_statistics/CRS/CRS_Division.html

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Registration of data started in 1969 and this includes registration of births and deaths, whenever any birth or death take place in the family we are supposed to report it to local registrar in municipal office or in panchayat office, with the village headman. There are also some secretaries appointed to assist village headman and secretaries do the record keeping. So, we have to report to secretary, fill up some form and report to secretary panchayat secretary. It contains data about marriages, childbearing, death, region, religion, urban-rural residence, age and causes of death.

So, for example, we can know that in this year 2012 how many people are dying; of which age, by what cause; cause of death is also reported and to belonging to which religion and for different states of India, for different districts of India. Strength of the system is that we have continuous data at the national, state and lower levels; at all the levels from national level to a village level, we will have these data. But the limitation is that in our country it is not a complete system, coverage of the registration system is far from being 100 percent.

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SRS, since 1970

- Content: Vital rates, fertility and mortality indicators, life tables, infant mortality, maternal mortality rate, causes of death
- Strengths: The most reliable source of data, demographic details
- Limitations: Provides national level data, data for selected states and U/R areas only

Source:

http://www.censusindia.gov.in/vital_statistics/Compendium/Srs_data.html

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Then, sample registration scheme which was launched in 1970 and due to deficiency in registration data, what we do? On a sample basis, we collect data on fertility and mortality for certain sample areas and we also make periodic checks about completeness of the numbers teams are independent, teams are sent from Delhi from registrar general's office to check for the accuracy of data and by combining data from sample survey and from registration.

Then, all samples the registration is done, combining that data with checks by independent teams of investigators, we arrive at more accurate figures of birth and death rates and in India SRS is considered to be the best source of demographic data. So, if somebody asks you to report figures from some source on the trends of population in India, you should look at SRS figures. SRS publishes a bulletin and a large number of bulletins for previous years are available on net. One good thing about population studies is that most of the information and most of the important theories are discussed on net. Google is a complete scholar for you to study subject of population studies.

Now, this SRS also has some limitations. It provides estimates basically at the national level. It was meant to provide estimates at the national level. Now, state level estimates for large states are also available and urban and rural areas. SRS does not give below, below the state, it cannot give you district level estimates and it does not give you estimate according to other characteristics of population.

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National Sample Survey Organization

- Content: Socio-economic data, in-depth data on health, poverty, consumption, migration, empowerment of women, diseases and disabilities
- Strengths: Quick estimates, very sound sample design, quality assurance, standard errors of estimates
- Limitations: More reliable at national and state levels; not available at lower levels, e.g. district and blocks

Source: <http://www.mospi.gov.in/national-sample-survey-office-nssso>

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Then, National Sample Survey basically designed for collection of data on employment, consumption, migration diseases. This also gives lot of data on factors pertaining to population. Socio-economic data, in-depth data on health, poverty, consumption, migration, empowerment of women, diseases and disabilities, a very good source of data in the country is National Sample Survey. It has strength; quick estimate, our sample design our whole sampling procedure and estimation procedures are very well designed, they are widely appreciated in the world and they give very quick estimates, very sound sample design. Even for understanding what sampling is, you should always look at some of the sampling designs of national sample survey conducted for estimation of consumption employment migration and so on.

It has a good quality assurance and it also gives standard errors of estimates for multistage stratified kind of design that it uses, it gives weights and it gives standard errors. The limitation is that although NSS estimates are considered to be reliable at national and state levels. They cannot be provided at lower levels like districts and blocks

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Management Information System (MIS)

- Content: Health infrastructure, birth rate, death rate, quality of health facilities, abortions, functioning of ASHAs, Rogi Kalyan Samitis, staffing, sanitation, vaccinations, sterilizations, major causes of deaths, health care data like ANC's
- Strengths: Continuous data, useful for policy making and monitoring
- Limitations: Quality concerns

Source: <http://nhm.gov.in/mis-reports.html>

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Then, there is Management Information System. Management information system by ministry of health contains health infrastructure, birth rate, death rate, quality of health facilities, abortions. For abortion this is one of the major source of data, functioning of ASHAs, Rogi Kalyan Samitis, staffing, sanitation, vaccinations, sterilizations, major causes of deaths, healthcare data like antenatal cares. It has certain strengths; it provides continuous data which is very useful for policymaking and for monitoring and evaluation of health programs.

The limitation is quality concerns. There have been in the recent times there have been lot of papers on the quality of abortion data because abortion data are not easily available from other sources. So, abortion data by developing mathematical models and by comparing number of abortions reported in MIS and what the model suggests. Models are based on relationship of abortion with birth rate, family planning views and so on.

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National Family Health Survey, since 1992-93

- Content: Socio-economic data, in-depth data on health, migration, empowerment of women, HIV and AIDS, prevalence of selected diseases and disabilities
- Strengths: Quick estimates, quality assurance, standard errors of estimates
- Limitations: More reliable at national and state levels; not available at lower levels, e.g. district and blocks

Source: <http://rchiips.org/nfhs/>

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When National Family Health Survey was started in 1992 and 93, it was thought that initially it would be repeated at a gap of 7 years, but now we have lesser period between 2 NFHS data. Content: socio-economic data, in-depth data on health, migration, empowerment of women, domestic violence, decision making; yeah, this is a very good source of data on empowerment of women, not much analysed, not much used. But sociologists, psychologists, economists can write lot of research papers based on data on decision making and domestic violence, physical abuse, sexual abuse, emotional abuse of women, very good measurements of these things are used in NFHS and there are also data on selected diseases and disabilities.

Strengths: quick estimates, quality assurance. Now it will become a permanent feature and NFHS initially gave estimates at the national level, now it is expected to provide estimates at state level and even district level. So, constantly the sample size of NFHS is expanding so that estimates at lower levels can also be given. The limitations recently some people have raised questions about quality of data from certain agencies working in certain states and it is more reliable at the national level and state levels. But at lower levels, we are yet to see how reliable figures obtained from NFHS are.

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Uses of demography

- Demographic profile
- National and sub-national planning
- Population prediction
- Population policy
- City planners
- Inputs to construction of human development index
- Health administration
- Research organizations
- NGOs/ CSR

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Use, you may wonder who uses demography; demography is used in preparing demographic profile of a population for national and subnational planning. Now, we are not preparing 5 year plans, but when 5 year plans were prepared most of the figures of targets, expenditure required and methodologies would be based on the figure of population. Suppose you want to know how many houses are to be constructed in next 10 years or in next 5 years, you need size of population, additional to population, age distribution, marriages, how many new households will be formed; what will be their requirement; what is housing shortage and likewise you can give estimates of housing requirements.

Similarly, how much money will be required for schooling for primary school, secondary school, tertiary level education. So, all these things depend on population, then for making population policy; policy regarding fertility, mortality, migration. City planners for morphological purposes, planning purposes, for expansion of cities, for housing policy, for slum policies, for waterworks, for electricity consumption, they would require estimates of population. So, city planners are a big user of this.

Then, inputs to construction of human development index, infant mortality one of the measures of mortality is required for construction of human development index. Health administration required data on causes of death, then research organizations and NGOs and those working in corporate social responsibility.

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Tools

- Very few tools like life tables are specific to demography
- Statistical analysis of census and survey data
- Mathematical modelling
- Qualitative research techniques

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What are the tools? Tools of population studies are life tables, statistical analysis of census and survey data, mathematical modelling and qualitative research techniques; all social science tools are used.

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Major centres of Population Studies

- International Institute of Population Sciences, Mumbai
- Centre for the Study of Regional Development, Jawaharlal Nehru University, New Delhi
- Institute of Economic Growth
- Population Research Centres located in universities covering all states of the country
- Some universities

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Major centres of population. Our fresh students should also know where is population taught? IIPS, Mumbai. I was taught in population in IIPS Mumbai. Centre for the study of Regional Development, Jawaharlal Nehru University, New Delhi. Institute of Economic growth and Population Research Centres located in different universities in all states of the country and some universities.

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- However, few universities provide degrees and diplomas in population research, e.g. Annamalai University, Maharshi Dayanand Saraswati University Ajmer, University of Rajasthan, Bharthiar University, Kerala University, Sri Venkateswara University, Fakir Mohan University
- Other universities including IITs have special paper on population at various levels in different disciplines and provide facilities for doctoral research

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These universities include Annamalai University, Maharshi Dayanand Saraswathi University Ajmer, University of Rajasthan, Bharthiar University, Kerala University, Venkateshwara University and Fakir Mohan University in Balasore.

Other universities including IITs, where I am teaching have a special paper on population at various levels in different disciplines and provide facilities for doctoral research. So, population in most of the university's population is a subject of doctoral research; although, they do not give undergraduate and graduate degrees in population studies.

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Scope

- Demographic trends
- Socio-economic trends and population growth
- Operations research: monitoring and evaluation of programmes
- Getting diversified to education, nutrition, gender, empowerment of women, urban situation, sanitation, sustainable development

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Then, scope; scope of population studies includes demographic trends, socio-economic trends and population growth; operation research monitoring and evaluation of programmes. I will explain all these things as this course develops and getting diversified to education, nutrition, gender, empowerment of women, urban situation, sanitation and sustainable development.

Thank you friends, this is just the beginning and I am aware that you may not have understood all the terms that I use all the phrases I have used, but this is what course is about. And the purpose of this course is to provide you elementary level understanding of population studies. If you get interest in the subject you can join other formal courses in universities later, but this will equip you to work for market research organizations or research organizations in the capacity of technical assistance, research officer's etcetera.

Thank you.