

Unit 5

Invasion, Succession, Concentration, Centralization and Segregation

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Learning Objectives

A careful study of this unit will help you understand the five major processes mentioned above. You will be able to:

- describe the theories and major perspectives like, the ecological perspective to the study of urban sociology;
- discuss the processes of invasion and succession;
- outline the processes of concentration and centralization; and
- explain the processes of segregation in urban sociology.

5.1 Introduction

In the previous block, you learnt about the basic concepts of urban sociology, their origin and evolution. It is important to note that urban sociology developed in the same period or time when sociology itself was developing and achieving greater measure of distinction within social sciences during the nineteenth century. This clearly shows similar roots of theories and social processes of both general sociological principles and the branch of sociology which has its focus on the study of the city. Some of the major theoretical approaches to understand urban society and its nature are evolutionary approach, dichotomous approach, ecological approach and symbolic approach. In this unit you will learn more about the major theories and perspectives of urban sociology to familiarise you with the sociological background of the processes of invasion, succession, concentration, centralization and segregation.

5.2 Theories and Major Perspectives of Urban Sociology

The early sociological theories like, the evolutionary theory, the functional and the structure-functional theories (about which you may have learnt in core course, MSO-001 : Sociological Theories and Concepts and MSO-002 :

Research Methodologies and Methods were influenced by biology. In these theories, especially the functional theory the comparison of society with an organism was drawn; that is; organic analogy model was used to study society. It was believed that just as in our body each organ functions for the maintenance and existence of the total body, in society, social institutions function for the maintenance and existence of the total society. This theory is also referred to as equilibrium theory.

Henry Maine's (1885) distinction between status and contract and L. H. Morgan's (1877) concepts of savagery, barbarism and civilisations are clearly based on the organismic theory of social change and development. According to them, the forces of development to civilisational level or to the development of urban features is endogenous and evolutionary in nature. These dichotomies are further followed by Ferdinand Tonnies and Emile Durkhiem.

The classical dichotomous view or typological perspective exercised great influence on the study of the city. It envisaged an ideal typical construct of a city, contrasting it to rural or folk society. It attempted to grasp the nature of the urban social organisation by contrasting it with the non-urban or rural folk which represent distinct social types. European social theorists, such as, Sir Henry Maine, Ferdinand Tonnies, Emile Durkhiem, Simmel and Redfield initially developed the dichotomous approach. They propounded this understanding only because they had witnessed dramatic changes during the late nineteenth and early twentieth century in Western industrial society. In this transitional phase, social thinkers observed how the emerging social order would differ from that of the past. The typological perspective further profoundly influenced the Chicago School of Urban Sociology. You will learn more about this school of thought in unit 13 Development of Urban Sociology.

Tonnies (1887) coined the terms *Gesellschaft* for urban society and *Gemeinschaft* for rural society. According to him, *Gemeinschaft* is dominated by group identity while *Gesellschaft* contrasts with it is characterised by individual identity and self-interest. The dichotomy between *Gemeinschaft* and *Gesellschaft* is not in itself a typology of forms of settlement only but a reflection of the way lives in villages and cities are organised. It refers to the types of social relationship, and more specifically to the contrast between emotional and rational, personal and contractual, communal and individual aspects of human interactions. The two concepts were employed to describe the direction of change in society, rather than differentiate between geographical areas within a society, at any one point of time. Talcott Parsons analysed this dichotomy with greater precision and flexibility. He identified *Gemeinschaft* in terms of particularism, quality, affectivity and diffuseness; while the characteristics of *Gesellschaft* involves universalism, performance, affective neutrality, and specificity.

Emile Durkhiem (1933), one of the founding fathers of sociology also followed the dichotomous view of societies. According to his theory of division of labour, two types of social solidarities exist. These are organic solidarity and mechanical solidarity. Mechanical solidarity refers to simple

segmental societies characterised by only the most rudimentary division of labour, repressive law and a strong 'collective conscience', whereas organic solidarity refers to a more complex society with more population and differentiation of social roles. Thus, for Durkheim the urban complex societies would be marked by organic solidarity. Here the law system will be restitutive law rather than repressive law. Organic solidarity is the feature of the city or a continuous expansion of urban life. He argues that the increasing moral density of a society is expressed through the process of urbanisation. 'Division of labour' and 'collective conscience' are twin concepts for his analysis and understanding of social change. As he explains increasing division of labour in complex societies and erosion of the bonds of collective conscience in these complex societies led to the emergence of organic solidarity. He further explains in his book— **The Division of Labour (1933)** that two factors give rise to an increased division of labour and leading towards urban society i.e., material density (population density) and moral density (density of interaction). In the city the density of population demands occupational specialisation, hence it breaks down the unity formed of common shared experiences and creates in its place an order based on functional interdependence. Like, Tonnies, Durkheim also explains that the moral order of common values gets replaced by an instrumental order in an urban society. Therefore, Durkheim considers urbanisation, including the development of transportation and communication, as the cause of the division of labour.

Max Weber (1905) also followed the ideal typical model of urban life and organisations but differs from Tonnies and Durkheim. He considers city as market places and believed that they did not undermine social solidarity or social cohesion. For him, the city is an elaborate system of exchange; residents naturally acquired a sense of allegiance to that economic arena and at least partially autonomous political units. His ideal type method about which you learnt in the previous Block-1 is clearly evident in his study of the city with particular focus on two aspects — economic and political organizations. With these two factors, he constructed the ideal type of city as a settlement that displays a relative predominance of trade, commercial relations with fortification, a market, a court of its own and at least partially an autonomy and autocephaly. Hence, Weber's ideal-type city is an individual type and cannot therefore be taken as the city at all in any fixed period of time and place. He points out that the conspicuous lack of fortresses in modern cities together with their political subordination to the nation-state is evidence of this fact. Hence the age of medieval city is at an end. However, his methodological writings, not his specific historical descriptions are a guide to understand the modern city as a construct and an ideal type for Weber.

There is one common thread running among F. Tonnies', Emile Durkheim's and Max Weber's theoretical models. They attempt to distinguish between different forms of social relationships through the development of analytical dichotomies. In all their theories, the contrasting relations are drawn to explain different patterns of social interaction, not to different types of human settlements. Hence, the contrast between the way of life in the

country, i.e., the folk society and the city may be used for creating the distinction between the two as an ideal type.

Ecological Perspective

The ecological approach of urban sociology is based on two fundamental premises to understand the effects produced by the urban environment on social organisation and behaviour. It is presumed that a study of social life in urban space is the creation of urban space. Hence human ecology is concerned with how human populations adapt collectively to their environment. Ecology represents a fusion of different disciplines or it is an interdisciplinary study which covers the areas of economics, geography and sociology.

The ecological approach was developed by Robert Ezra Park and his colleagues at Chicago University in 1950s. His basic proposition was based on the correspondence in plant communities and the emergence of natural areas within cities, where similar social constituents of the urban environment congregated. According to Park, human ecology, as the sociologists would like to use the term, is not identical with geography, nor even with human geography. He further explains that it is not the individual but the community, not human being's relation to the earth rather his/her relation with other human beings. Communities are not merely population aggregates but they also display the nature of relationships among social groups. Cities, particularly great cities, are the places where the process of selection and segregation of the population has achieved its height. These cities also display certain morphological characteristics. Therefore, ecological propositions are generic to human space, which give rise to spatial relationships in urban environment in terms of residences, businesses, various institutions, transportation, and communication facilities. Human space follows some basic principles—competition for the best location, overall efficiency of the use of that space, mutual compatibility of the neighbouring use, evolving changes in the population size and composition, patterns of economic expansion and contraction.

Robert Park's assumptions of ecological model was very much influenced by August Comte, Herbert Spencer, and Emile Durkhiem. All of them are inclined towards the evolutionary path of social change. Similarly, Parks' view of ecology were influenced with these ideas and he tried to apply this theory to the study of urban space. Comte and Spencer's assumption of social organism largely influenced Park's conception of community and society. Emile Durkhiem's influence is more explicit in Park's ontological assumptions regarding human nature and the relationship between individual and society. Robert Park writes that 'the fact seems to be that men are brought into the world with all the passions, instincts and appetites uncontrolled and undisciplined'.

For Robert Park, human society involves double aspects. On the one hand it is an expression of human nature, which is revealed in the competition for survival in which relationships with others are entirely utilitarian. On the other, it is an expression of consensus and common purpose. Individual freedom is supreme on the one hand and on the other, individual will is

subordinated to the collective mind of society as a super organism. The first Park called 'community' and the second 'society'. Ecology is concerned with communities rather than society. However, it is not an easy task to distinguish between them. In his understanding community refers to a specific aspect of human organisation that is identified theoretically as the unorganised and unconscious process whereby human population adjusts to their environment through unrestricted competition. Thus, ecological approach to social relations was characterised by an emphasis on the biotic as opposed to the cultural aspects of human interaction. It does not mean that it denies the relevance of culture in the study of social life, rather it includes the unconscious and social aspects as its specific area of interest.

Charles Darwin in his book—*The Origin of Species* (1959)—viewed the notion of a 'web of life' through which all organisms were related to all others in ties of interdependence or symbiosis. This balance of nature was a product of the tooth and claw struggle for survival, which served to regulate the population size of different species and to distribute them among different habitats according to their relative suitability. Competition for the basic resources of life thus resulted in the adaptation of different species to each other and to their environment and hence to the evolution of a relatively balanced ecological system based upon competition and co-operation among differentiated and specialised organisms. This was an entirely natural and spontaneous process.

The ecological concept that explains the congruence between spatial and economic differentiation is the most dominant factor. Following Darwin's theory, Robert Park viewed that in every living community, there are always one or more dominant species. Similarly, in the human community, industry and commerce are dominant, for that they can outbid other competitions for strategic central locations in the city. The pressure for space at the centre, therefore, creates an area of high land values in every other area of the city and thus the pattern of land-use by different functional groups. As Robert Park writes, that the struggle of industries and commercial institutions for a strategic location determines in the long run the principle of dominance which tends to determine the general ecological pattern of the city and the functional relation of each of the different areas of the city to all others.

Reflection and Action 5.1

Prepare a map of your village/town area or a municipal division of the city you live in. Find out how the different sections of the city are being used and by whom. For example, where the factories are located, where the administrative offices are located etc. Write a report of two pages on "My village/town/city and its Social Space".

Compare your report with those of other students at your Study Centre. You may also discuss it with your Academic Counsellor.

R. D. McKenzie, E. W. Burgess, Louis Wirth, Robert Redfield are other prominent contributors of Chicago School whose thoughts are based on the ecological approach. The first two draw the greatest interest among contemporary researchers who employ classical ecological concepts. Burgess's theory of concentric zones continues to be popular in the study of urban changes in different societies. R. D. McKenzie's study of invasion and succession explains the core urban ecological processes. His study describes the dynamic nature of urban space. He further explains the simultaneous process of the centralisation of essential services and the depression of no specialised ones. There were general tendencies towards residential concentration around commercial and industrial districts. However the transportation development has allowed residential de-concentration along major arteries.

Louis Wirth and Robert Redfield followed the ecological approach with their teacher Robert E. Park at Chicago school. L. Wirth in his famous write-up *Urbanism As a Way of Life* (1938) describes human ecology as one of the three significant perspectives of the city, the other two are organizational and social psychology. He argued that all three should complement each other, human ecology is not a substitute for, but a supplement to, the other frames of reference and method of social investigation. He tried to synthesise Park's human ecology and Simmel's analysis of the form of association and the development of urban personality. Redfield however, viewed the city as a vast, complicated and rapidly changing world and contrasted it with folk society. His ideal type of folk society is characterised by small, isolated, non-literate and homogenous groups with a strong sense of group solidarity. The common factors between the two thinkers exhibits that human relationships can be conceptualised in terms of a pair of logically opposite ideal types. Some of these theories will again be explained in Units 13 and 14 of Block 4 for your further understanding.

Critique

There are three major criticisms of the ecological approach. These are as following :

First there is the important limitation about its basic assumption that the growth of the city was the product of automatic forces involving competition and selection. Davie (1950) argues that the patterns of residential location were largely a function of patterns of industrial location and that industry is located near lines of communication, which exhibited no uniform pattern.

The second critique related to the mode of statistical analysis in ecological research. Robinson (1950) made distinctions between ecological correlations (between aggregate phenomena) and individual correlations (between individual units) and pointed to the fallacy of using an ecological correlation as evidence for an individual one. He observed that the ecological correlation over emphasised individual ones. Menzel (1950) also supports Robinson's argument through his research findings.

The third drawback of the ecological approach is pointed out by Firey (1945). He suggests that human ecology explained locational activity purely

in terms of economic maximisation. Against this he argued that space may have a symbolic as well as economic value, therefore, locational activity may reflect sentiment as well as economic rationality.

Despite all these limitations, the ecological approach is the only comprehensive theoretical approach to explain the urban social reality. Howley (1951) reformulated the ecological approach and initiated its present revival within the field of sociology. He (It is) stipulated that the constant social processes of change and adjustment, invasion and succession, concentration and centralisation, infiltration and segregation mark the ecological conditions of a city. These processes are the indicator of the development of any city as well as the nature of social change.

The ecological process in urban sociology is a comprehensive process that explains both aspects of changes in cities—physical space and social organisations. The concepts of Invasion, Succession, Concentration, Centralisation and Segregation are very important to understand the changes in demographic structure, social interaction and organisations in the city as a result of physical restructuring. Hence, these concepts not only reflect the changes in social relations in isolation but they are rather attached with particular space. Let us learn more about these concepts.

5.3 Invasion and Succession

Both these processes are adopted from ecology to describe the neighbourhood change and growth of the city whereby one social group succeeds in establishing itself by pushing out another in the valued urban space. These terms are associated with the Chicago School and particularly Burgess' Zonal Model. According to this model, the growing demand for land of the immigrant population for housing and other activities forces them to move to outward areas. Invasion refers to the inflow of rural population towards the city centre for various purposes—employments, education etc. It is more reflected among low economic status of immigrant groups. They move into adjacent residential areas, having a negative impact on the quality of life of the current occupant. Sometimes, the highest status groups find it more comfortable and convenient to move out of the city and shift to the periphery of the city. The word 'invasion' has a negative connotation which reflects negative sentiment of the resident population for the fresh migrants.

Succession means a process that shows successive movement of people in outward zones as the need arise. This movement is neither abrupt nor uniform, it moves in successive phases called succession. It is also viewed as an attack on the ecological or natural habitat of outer zones. Succession is a complementary process to invasion as it proceeds only after the invasion. These ecological processes of invasion and succession are frequently associated with an ethnic minority group's movement into an area and the following changes that are characteristics of many of the city's natural areas.

A recent study of ethnic invasion and succession in Brooklyn reveals that the frame of analysis for interpreting ecological data has to be expanded to incorporate worldwide social and economic upheavals as well as trends

in economic restructuring at the national and regional level. Understanding of the local housing patterns depends on the understanding of the global inequalities of income and life chances. Hence, global and holistic awareness certainly prescribes a cure for any tendencies towards narrow empiricism. It also raises deeper questions that how local pattern reflects global influences.

5.4 Concentration and Centralization

Concentration is a process of urban society which is very obvious. It occurs due to large rate of the immigration of rural population towards the city. This rural-urban or even urban-urban migration leads to a higher concentration of population in the city with a variable demographic composition. A higher concentration of population further results in higher social interactions but is also characterised by superficial relationship or anonymity, pressure on available infrastructure etc. The fast growing population-density of cities is one significant indicator of the process of concentration.

The tendency is towards localisation of economic activity in and around a relatively small number of urban centres. This condition is also referred to as polarisation or agglomeration about which you learnt in the first Block, Unit 2 as well. It arises from the spatial concentration of the market, sources of information, bases for control and decision-making, interactivity linkages and other external economies. Concentration and centralization increases the disadvantages of peripheral locations and contribute to the economic and social deprivation commonly found with greater distance from the core.

Reflection and Action 5.2

Visit a residential colony in your city/town or village. Find out the composition of population living in this colony in terms of language, culture, caste/class or ethnic background. Write an essay on "Urban Space and Socio-Cultural Roots" of about two pages.

Discuss your essay with your friends or fellow students at your Study Centre.

Ethnic concentration exhibits another significant aspect of urban society. It is viewed both as a general process of residential differentiation among urban populations and as an aggregate effect of socio-economic and cultural differences. A number of studies have shown that ethnic groups vary considerably in the degree of their residential concentration. Residential proximity to persons of the same ethnic origin provides one important means of preserving familial cultural values and preferred modes of behaviour. For instance – Chittarajan Park, in New Delhi has a concentration of Bengali population. The Muslim population in Old Delhi and Punjabi migrants in Lajpat Nagar in New Delhi are a few examples of ethnic concentration of population.

Spatial concentration and centralization are associated with the tendency for economic activity to be organised in units of increasing size and within

a hierarchical organisational structure. The growing concentration of ownership of capitalist business activity was evident during the nineteenth century, decades before the contemporary emergence of the multinational or transactional corporation. The largest capitalist corporation of today may have productive capacity and sales outlets in many different nations, but ownership and control remains vested in the headquarters that are usually located within one of the major financial centres of Europe or North America. Concentration of capital in a non-spatial sense, i.e. in the hands of fewer large owners, is an important feature of advanced capitalism and a source of concentration of political as well as economic power which transcends that of nation-states. The associated geographical concentration of certain kinds of economic activity facilitates the flow of capital between different uses and the pace of circulation and the turnover on which profit depends.

Box 5:1: Physical Growth and Spatial Pattern : Bombay

“The British town of Bombay was built in the South Western part of Bombay Island (Composed of seven separate islands), adjoining the harbour. Its nucleus was Bombay Castle, which was the centre of administration, defence, and supervision of trade. The broad divisions of the Town were the Southern Section occupied by European merchants, and the northern section occupied by Indian merchants. The rest of the island was largely rural, and contained, apart from the town of Mahim in the north, only small hamlets and villages”.

(Rao, M.S.A., Bhat C. and Kadekar, L.N. (ed.) 1991 : pp. 160)

5.5 Segregation

Segregation is also an important ecological process to understand social institutions and social groups in urban society. It refers to a process in which urban population becomes more and more divided into various social groups in terms of income status, social status (ethnicity, class) and other criteria. This division is due to spatial isolation and rearrangement of the residential pattern. Residential segregation is quite an observable phenomenon, which further widens the social distance among various localities. There is ample literature available on residential segregation in cities, the largest cities have commonly appeared among the most segregated areas. Therefore, the greater the degree of differences between the spatial distributions of groups within an urban area, the greater their social distance from each other.

Segregation is taking place also due to increasing acceptance of market based land and basic services. This tends to price out the poor and marginalized from better off localities.

Such unevenness might be primarily tenorial, with differences in the types of accommodation occupied, that is further reflected in spatial manifestations. The chances of direct person to person interaction with different kinds of people giving rise to more/less welcome ‘message exchanges’ and influences on behaviour has been one of the traditional

motives for segregation. De-facto segregation may emerge for quite other reasons, but its interest as a phenomenon lies in the fact that residential proximity creates a range of externalities, both positive and negative which people try to make the best of, in part through decisions about where they live.

Box 5.1: School Drop outs and Residential Locality

“The suggestion of the National Commission for Minority Educational Institutions (NCMEI) to make mathematics and English optional so that they do not count for promotion in secondary school would be music to many an ear. The recommendation is not baseless.

It is based on the survey by the elementary education department of the HRD ministry. Student dropouts suddenly increase after class V when clearing all exams becomes a condition for promotion. The survey gives a break-up of sections of society who drop out. The leading dropouts are educationally weaker sections like Muslims, STs, SCs, and OBCs in descending order. Upper castes constitute only about 4 per cent. The figures challenge the stereotype that low scores are obtained by those born with low IQ.

Why do weaker sections account for most of the poor scores in English and Mathematics? A domestic help from a resettlement colony in East Delhi—illiterate, SC and mother of four children—once said, “It all depends on where you live. My brother-in-law lives in Chanakyapuri and his son has a permanent job in the Supreme Court, earning Rs. 6,000 a month. His job is simply to inform lawyers about the list of cases coming up the next day. But none of my children could study and find a permanent job, because we’ve been living in Trilokpuri”. Locality could play a major role in low examination scores.”

(Quotation from Prof. Tulsi Patels. “Do Aur Do Panch” in The Times of India, New Delhi, Tuesday 11 July, 2006.)

This has been observed through various studies on residential segregation in cities, particularly in the US and much of it is focused on the issue of race. It is also reported that the largest cities have commonly appeared among the list of most segregated areas (Massey and Denton, -1993). In other words segregation implies the uneven distribution of different population groups within a local or regional housing system. Such unevenness might be primarily tenurial, with differences in the types of accommodation occupied as a result of spatial segregation. However, there is spectrum of spatial association varying from complete similarity at the one end, to complete differences at the other end.

Robert Park viewed that social relations are inevitably correlated with spatial relations. The degree of residential segregation is directly correlated to social distance. Human ecologists attribute to the spatial distributions of human populations and social institutions is not only widely known but also often misunderstood by many social scientists.

The features of segregation were also observable in pre-industrial cities. Gideon Sjoberg traces the rigid social segregation from Fez, Morocco, Aleppo, Syria, which typically had led to formation of quarters or wards. The quarters reflect sharp local social divisions. The ethnic groups live in special sections. The occupational groupings, some being at the same time ethnic in character, typically reside apart from one another. Often a special street or sector is occupied almost exclusively by members of a particular trade. Sjoberg also cites examples from medieval Europe and modern Afghanistan, which contained streets with names like street of the goldsmiths and outcastes group live on cities' periphery.

Segregation represents a set of processes constraining individuals' location decisions, whatever their cause. Urban society has been segregated in terms of language, culture and ethnicity.

All the ecological processes explained above depict general urban social structure and dynamics. These patterns invariably turn out to be a constellation of typical urban areas. The process of 'succession and invasion' is the core concern of Burgess' concentric zone model whereas 'concentration and centralization' describes differential growth pattern as a result of economic activity. Above all, segregation is the most significant concept in sociological analysis of urban space. It existed worldwide and perpetuated social inequality in terms of caste, class, occupation etc. Thus, the growth of the cities is not only an addition of numbers but also the incidental changes and movements that are invariably associated with differential social groupings in terms of socio-cultural factors.

5.7 Conclusion

The development of urban sociological theory has played a significant role to understand urban social structure, its morphology and changes with time and space. The study of the city and its social relationships in a social setting has passed through different stages—the evolutionary approach, dichotomous approach (ideal typical perspective), and the ecological approach. The development of the ecological proposition is one of the first comprehensive analysis of the urban community. However, it has evolved very much with modifications of earlier theories on the subject. Human ecological theory has been thus characterised above all approaches by its emphasis on equilibrium and evolutionary nature of change. The contribution of Robert Park is a turning point in this direction as he has focused on the study of social life in urban space. He viewed settled human space and its spatial relationship with particular focus on residence, businesses, various other institutions, transportation and communication facilities. Further this approach developed by the empirical studies of E. W. Burgess, R. D. McKenzie, Louis Wirth, Robert Redfield and several others.

Like other theories, the ecological approach too has its limitations. It has been criticized for its belief that urban growth moves by automatic force or that it has organismic bias. Secondly, it has been criticised for its statistical use of ecological correlation and individual correlation. Despite these limitations, it is an important reference. Chicago School remained a

great laboratory to understand urban phenomenon. Particularly in post-world war period the work of Duncan (1959) and Howley (1950) proved its significance. Howley has constructed a dynamic model of ecosystem theory. His analysis of adaptation is developed around the four ecological principles of interdependence, key functions, differentiations and dominance. He argues that these principles are themselves derived and justified from certain 'cardinal assumptions' concerning the invariant conditions in which human populations are situated. Hence the human ecological model is still an influential paradigm in contemporary urban sociology.

5.7 Further Reading

Wirth, Louis (1938). Urbanism is a way of life, American journal of sociology, volume-44 pp. 1-24.

McKenzie, R. (1967). The Ecological Approach to the Study of the Human Community, in Robert Park and E. Burgess *The City*, London, University of Chicago Press.

Unit 6

Models of Urban Growth : Concentric Zones, Sectors, Multiple Nuclei, Exploitative, Symbolic

Contents

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- 6.2 Structure of Cities
- 6.3 Concentric Zone Model
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- 6.5 Multiple Nuclei Model
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- 6.9 Further Reading

Learning Objectives

After studying this unit you should be able to:

- discuss the structure of cities;
- describe the concentric zone model of studying the structure of cities;
- explain the sectors model;
- describe the multiple nuclei model;
- discuss the exploitative model; and
- explain the symbolic approach to the study of city.

6.1 Introduction

Under the rubric of urban ecological process and theories, you have already learnt about the processes of invasion, succession, concentration, centralisation and segregation which characterise different kinds and dimensions of cities. Here in this unit you will learn further about the different aspects of cities and their formations.

As you already know, urban society is defined as a relatively larger, dense, permanent, heterogeneous settlements whose majority of inhabitants are engaged in non-agricultural occupation. The development of such urban society is very much determined by socio - cultural organisation, climate, topography and economic development. The earliest cities of the world originated near river valleys such as early civilization of Indus (Mohenjodaro, Harrappa), Tigris - Eupharates (Lagas Ur, Uruk), Nile (Memphis, Thebes)

and Hwang Ho (Chen-Chan An Yang). These early development of urban settlements evolved with changing technology and human needs. Trade and commercial activities and settled agriculture were major facilitators; even today these factors are very much relevant in the growth of a city. As cities are viewed as the places where markets, governments, religious and cultural centres exists.

6.2 Structure of Cities

The distinct features and characteristics of cities have evolved over time and vary significantly in time and space. The concept of city in ancient society was different from medieval and modern city. The growth was irregular in form, sensitive to changes in the habits of people, and dynamic in character. They began as free cities, which were settled voluntarily. Geometrical form often emerged. It was introduced according to the structure of the land and nature of society. Early development of city structure is discernible in two basic urban forms: the walled town and open city. Within these basic forms a wide variety of patterns can be observed in different shapes and designs. Different cities are shaped by the different character of their society. More than the structures, it is the dwellings of the people that mark the different cultures of cities.

For Max Weber the city is a market place as mentioned in the previous unit. Market has always been the focal point of the city, a centre for the exchange of goods in pre-industrial cities about which you will learn more in the next Block. The development of transportation and money systems transformed this barter system to a form of retail enterprise. Thereafter, cities were known as modern business centres. Weber also observed changes in demographic features that the more dense sections are, in general, losing population and the areas on the outer zones of cities are gaining population. In between the area is predominantly either static or shows moderate growth.

Each city has certain degree of internal organisation and regularities in its growth. This internal organisation of cities includes both physical as well as human aspects—the land use pattern and residential settlements. The city constitutes all the people who inhabit it, the entire collection of houses the people live in, the shops in which they work, the streets they traverse and the places in which they trade. The industrial revolution was a significant turning point where urban development is concerned. Industries have attracted labour force and also created a market for their produce. Charles Colby 'analysed' these forces and explained the movements of people in the form of centripetal and centrifugal forces. Centripetal forces are the results of a number of attractive qualities of the central portion of the city. Centrifugal forces on the other hand are not only opposite forces, but are made of merging influences — a desire to live in one part of the city or an urge to move to another part of the city, such as, suburbs.

The 'internal structure of city' refers to the location, arrangement and interrelationships between social and physical elements in the city. Hence, the purpose of this unit is to explain the spatial distributions and the interactions between these distributions. The spatial distribution of a

particular city also depicts social organisations and cultural relationship with structure of that period. The form and structure of the modern city is the result of numerous economic, social and cultural factors operating through many decades since their evolution. Some of the most significant factors of modern urbanization are rapid and massive growth, a heterogeneous population, changing forms of urban transportation, growing spatial and social mobility. The classical studies of modern American cities are some examples.

The major theories of the internal structure of urban settlements has been given after the study of western urban society, as the proposition is based on empirical studies of North America and Europe. Hence, the growth pattern of cities is part and parcel of American society that accounts for the increasing importance and dominance of American culture, society, and economy.

6.3 Concentric Zone Model

Ernest Burgess propounded the concentric zone theory in order to explain the structure and growth of city. The hypothesis of this theory is that cities grow and develop outwardly in concentric zones. In other words, the essence of the model is that as a city grows, it expands radically from its centre to different concentric circles or zones. Burgess offers a descriptive framework in which both aspects of human ecology – physical land use pattern and human relationships are implicit. Using Chicago as an example, Burgess viewed that as cities expand outwards, the interaction among people and their economic, social and political organisations also create radical expansion outward and form a series of concentric zones.

The concentric model is based upon a process of invasion and succession about which you learnt in the previous unit. Invasion is a process which necessitates continual expansion of inner zones into outer zones, due to the natural 'aggression' of the migrant into the city. While succession occurs when an area becomes dominated by the activity invading that zone. There is competition in city among people for limited space. Only those can succeed who can afford best to pay and get the desirable location for their business and homes. Therefore, concentric zone theory reflects on going conflict between city dwellers and periphery villages. It also describes the process of concentration and segregation of social groups with the growth of city structure.

According to this theoretical model there are five major concentric zones. These are as following:

1. Commercial centre
2. Zone of transition
3. Working class residence
4. Middle/ higher class residence
5. Commuter zone

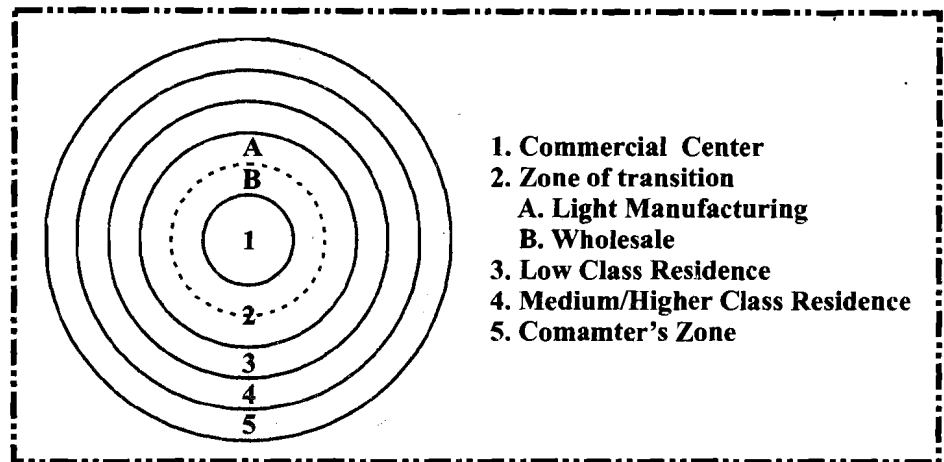


Figure 6.1

First, the inner most ring zone or nucleus of the city is a **commercial centre** also called Central Business District (CBD) in North America and western countries. This zone is characterized by high intensity of commercial, social and civic amenities. It is the heart of the city which includes department stores, office buildings, shops, banks, clubs, hotels, theatres and many other civic buildings. Being the centre of commercial activities and location, it is accessible from all directions and attracts a large number of people. Therefore, it is a zone of the highest intensity land use and social interaction. High intensity of land use further indicates the high value of land and rents. As a result, the residential population in this zone is very small. People are always in search of cheaper, spacious and pollution free accommodation away from the core of the city. This is one of the reasons that the congested city area is deserted at weekends or on non-working days.

Burgess further describes that the morphological structure of CBD is changing rapidly with our changing needs. Morphological structure of city includes buildings, roads and infrastructure. These rearrangements occur, in part, through demolition and new building construction. This is a continuous process of rebuilding since city began. Hence, it is obvious that older parts of the city are rebuilt and old land uses replaced. Study reveals that these changes in rebuilding are from lower to higher density, higher uses and higher rents.

Zone of transition: Light Industries and slums mainly occupy this zone, may be seen in as many American cities. This zone was the home of numerous first generation immigrants. It has low income households, retrogressing neighbourhoods, one room houses and homeless men. It is a breeding place of crime, gambling, sexual vice and other social deviances. The physical deterioration and social disorganisation leads to concentration of poor housing, poverty, juvenile delinquency, family disintegration, physical and mental diseases. Burgess studied Chicago city and the found second concentric zone to be transitory in nature, comprising an area of residential deterioration due to congestion and encroachment. The zone surrounds

the CBD area and fulfils their needs, like light industrial production and business extension houses. He also predicts that CBD will expand in this zone, as it will grow.

Models of Urban Growth:
Concentric Zones,
Sectors, Multiple Nuclei,
Exploitative, Symbolic

Working class residence : Basically it is planned residential area, close to places of economic activity which often shift and moved to the outward rings. Being close to transition zone it is influenced by that zone, in terms of quality of life. It reflects the negative impact of industrial pollution and the cultural impact of slums. The working class residences subsequent outward ring/ rings are occupied by middle or higher-class residences. These may be separated in different rings in terms of class character and corresponding facilities. This is a residential area with all modern amenities of civic society. People who reside in these areas are native born Americans in single-family houses or apartments. The houses are spacious in a pollution-free zone. Sanitation, health facilities and all other requirements of a good quality life are found here. Proper transportation, communication and parking facilities are an added feature of this residential zone. The above features of this concentric zone clearly indicate a particular class character.

Commuter zone: it is located in the outermost concentric zone, beyond the area of higher class residence. This is a ring of encircling small cities, towns, and hamlets which taken together constitute the commuter zone. People from these areas commute on a daily basis towards the CBD or commercial centre for employment and business purposes but live in their small cities, towns and hamlets. Commuter zone is characterized by low density. It is relatively isolated and located in suburbs and satellite towns. Later on Burgess writes that there was no circle of towns or cities in the outer concentric zone of Chicago but a pattern of settlement existed along the railroads radiating out from CBD like - spokes of a wheel.

Burgess made a first brilliant and comprehensive analysis of pattern of city structure. In the 1920s, there was a tremendous growth of urban population throughout the world, particularly in the United States and European Countries. This growth has changed the form and social structure of urban communities. At this time, Burgess' Concentric Zone model is the earliest effort to explain the internal structure of city within the framework of the ecological theory. The application of this theory to American cities was widely accepted and considered a significant contribution and a guide to understand other subsequent studies of city patterns.

The theory has also limitations as it is based on Chicago city or North American cities. It is unable to explain the structural pattern and growth of cities in developing countries. It is not applicable to all developing countries. Homer Hoyt 'refutes' this concentric model and argues that the growth of city didn't always form a circle completely. It is often rather distorted by major transport and topographical features. In this theory, Burgess assumed that succession and invasion are determinant processes in structural growth of city. He ignored the significant role of endogenous forces.

Reflection and Action 6.1

You have just read about the Concentric Zone model given by Burgess in his study of the city of Chicago, U.S.A. As you know India belongs to the developing countries, do you think any city structure in India can be explained using this model? Try to apply it to your own city/town/village and write a report of two pages on "The structure of My City and the Concentric Zone model".

Discuss your report with your Academic Counsellor and other students at your Study Centre.

6.4 Sectors Model

Following Burgess, Homer Hoyt, an economist, propounded an alternative proposition of urban structure and its growth pattern in 1939. Through sectors model, Hoyt tried to overcome the weaknesses of the earlier theory. It was mainly based on residential rent pattern and impacts of transportation development. This theory is the result of an empirical study of 34 American cities, in which he observed that high rent areas are located in one or more sectors of the city. He prepared a map showing how rent changed by sectors irrespective of concentric circle. Generating from the maps of housing features and land uses pattern of cities, he analysed the impact of transportation the recreational areas and other changes.

Hoyt further provided factual evidence through his survey of Washington DC metropolitan area in 1954. Apart from North American cities the evidence from Latin American cities showed that the finest single family homes and apartments were located on one side of the city only, such as Guatemala city, Bogota, Lima La Paz, Quito, Santiago, Buenos Aires, Montevideo, Rio de Janeiro, Sao Paulo, and Caracas. Further the main concentration of high-income group families was found in the form of scattered clusters. He also illustrated similar observations from New York metropolitan area and Latin American cities as well.

Sectors Model

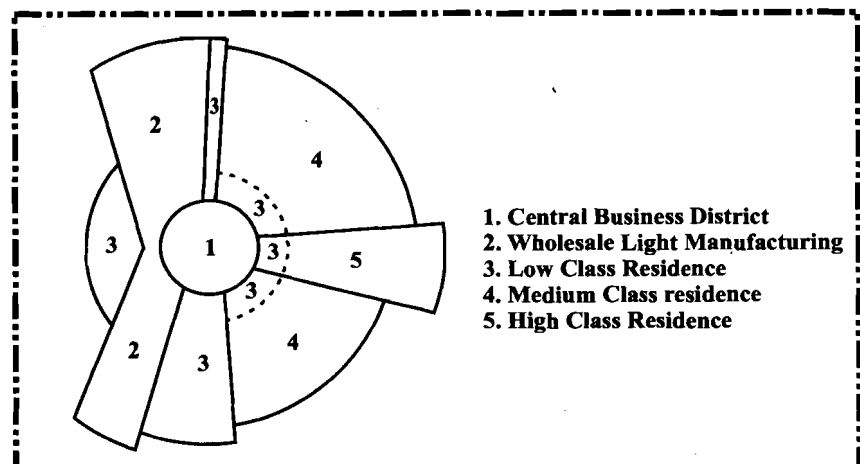


Figure 6.2

Both propositions, sectors model and concentric zone, have the common concept of CBD i.e., the Central Business District and outward expansion. Where former differs in terms of differential radial growth from CBD or centre. He explained that sectors develop because of the difference in accessibility from outlying portions to the core region. Thus, it also includes the development of concentric patterns within the zone (see Figure-6.2).

Contrary to Burgess' Concentric Zone theory, the sectors theory assumes that land rents changes from Sector to Sector not in the form of successive concentric ring area. The development of a Sector is determined by various factors, such as, planning, transportation, class character of residents and other facilities available to that particular Sector. Within the residential sector it has been observed through study that the inner portions are found to be having older houses and newer constructions are found on the outer fringes.

6.5 Multiple Nuclei Model

The third classical theory of internal structure of city is multiple nuclei model developed by Chauncy Harris and Edward L. Ullaman in 1954. The basic assumption of this theory is that "cities are not homocentric" but they rather have many minicentres which play a significant role in the development of a city. These minicentres originally developed independently with the specialised advantages that they offered or similar activities clustering in these areas.

Multiple nuclei theory differs from the earlier theories, like sectors and concentric zone theories. It believes that city has not developed around a single centre or CBD but it has a group of many minicentres. However, the phases of development may be simultaneous or in different periods. The multiple nuclei type is further divided into ten major areas—central business, wholesale or light manufacturing, low income residential, medium income residential, high income residential, heavy industry, outlying business, residential suburb, industrial suburb, commuters area. While these various parts of city are fairly clear when analyses of the social organisation of the city is made. It has developed through a natural process rather than a planned process.

Multiple Nuclei Model

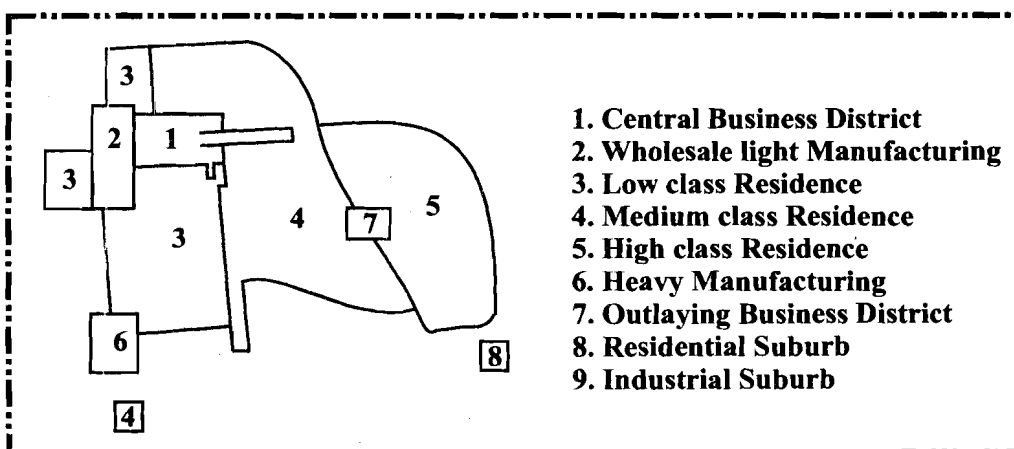


Figure 6.3

6.6 Exploitative Model

The exploitative model divides the city into three semi-circular concentric zones on the basis of ownership of resources and ability to pay. It clearly shows how money flows from inner-city to outward zones towards affluent urban sections. He formulated three semi-circular concentric zones as follows:

- 1) The city of death
- 2) The city of need
- 3) The city of superfluity.

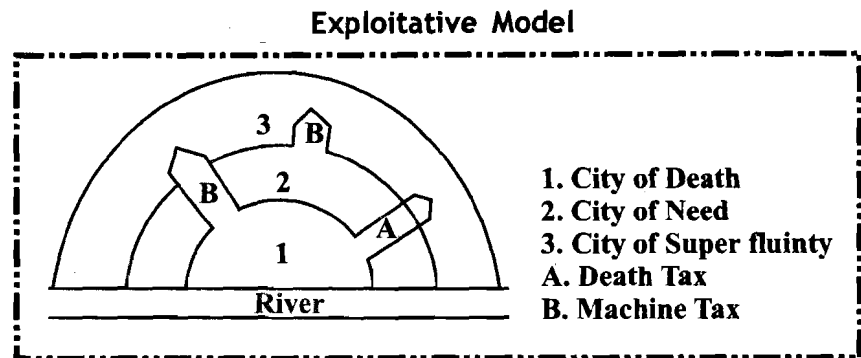


Figure 6.4

The city of death is the inner-city characterized by a centre of exploitation by the rest of the two areas. People living in this zone are poor who are exploited through paying two different taxes—Machine tax and Death tax (Figure-6.4). Machine tax is paid through wage payments below the workers worth. Hence, if workers are paid less than their work output surplus exaction is viewed as machine tax. The poor residents in this area also pay a death tax in terms of paying higher price of food, housing, other consumer items and services. Not only this, this area suffers additionally from a lack of city services and civic amenities due to congestion and encroachment and has status of a slum.

The city of need occupies an intermediate location between the city of death and the city of superfluity. Like working class zone in Burgess' concentric model, the blue-collar working class inhabits 'the city of need'. William Bungee characterised these inhabitants as the hard hats, the solid union members of middle class America. This area is also exploited by the suburban based business interests and politicians. Like inner city residents, they also pay the 'machine tax' but are relieved from the 'death tax'.

The third and the outermost ring is called 'the city of superfluity'. This area is a home of the elite entrepreneurs, managers and higher-class people, who live a leisured life and indulge in mass consumption at the cost of the other two cities. According to this model, the population of this outer zone city is small in number but the very affluent group which reside here controls the allocation of resources and this play a decisive role in governance.

Therefore, the exploitative model provides the picture of exploitation and problems of inner-city dynamics. The poor people of inner-city have less

opportunity of jobs, enhancement through skill development and training due to perpetual system of exploitation. They pay more tax in various forms that reduces their chances of growth or development.

Models of Urban Growth:
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Exploitative, Symbolic

Other Models

The above described models of city's spatial structure of economic activities and residential areas are some of the major studies of internal structure of city. One such study made by Mann (1965), who tried to apply Burgess' concentric zone and Hoyt's sector model to three industrial towns in England-Huddersfield, Nottingham and Sheffield. He assumed that because the prevailing wind direction from the southwest, the higher-class housing would be in the southwestern part of the city, while industries would be located in the north east of the CBD. Some significant conclusion of his study are as follows:

- The higher-class residences are not concentric of CBD but are located on one side of a few pockets of the city.
- Like Sector model, he observed that industries are found in sectors along main lines of communication.
- Further he called the lower class housings area 'the zone of older housing' whereas area of higher-class housings are relatively modern houses and situated away from industries and smoke.
- Unlike Burgess and Hoyt, he also describes the role of local governance in slum clearance and gentrification. As a result of this the emergence of large council estates protect the interest of working class/ low income group in the city.

Mann's study is different from the existing models, as his observation is based on European city which has its own historicity and social structure which is different from American cities. Secondly, he suggests that even through a small sample we can generalize the fact. His model shows that a variety of approaches are possible to the study of urban structures.

6.7 Symbolic Approach

Another model to study urban structures is the symbolic approach. It developed as a corrective to the ecological and functional approach to the study of the internal structure of cities. Walter Firey (1945) first contributed to this approach and analysed the land uses in Central Boston. He has highlighted the importance of symbolism as an ecological variable which emphasized the independent role of social symbolism as a major force in shaping the internal structure of cities, particularly with respect to historically meaningful public buildings and open spaces. Later on, major developments in this approach occurred with Wheatley's two studies of Asian cities - the Chinese Cities (1971) and the Japanese Cities (1978).

According to him, ancient cities developed in terms of their religious or cosmological meanings. The site of the city or particular structure has its own symbolic meanings and is regarded as the centre of the world. The alignment of the walls, gates, roads and other designs often reflects its context. The structure consists of temples,

power. Similarly, modern skyscrapers have become as much a symbol of corporate activities as a place of work in modern cities.

6.8 Conclusion

All the above four theories of city structure and growth pattern developed during the early twentieth century and is based on the study of the American urban society. The major factor of changes in city structure and organisation due to population growth, changing technology, growing economic activities, transportation etc. All these models assume that as cities grow, the residential areas move outwardly and the concentration of population in suburbs increases invariably. Both Concentric and Sectors model are similar in this assumption. However, vary in spatial distribution. Harris and Ullaman in Multiple Nuclei theory also explain this proposition through the concept of 'minicentre', which also changes with time. They reject the over emphasis on one commercial centre.

They also agreed on differential residential patterns based on their class. The first three theories explicitly locate lower, middle and higher classes residential areas. Similarly, exploitative model describes three different cities in semicircular pattern representing three different classes and levels of exploitation. The residential pattern is based on land value or rent but depicts the kind of social hierarchy and mutual relationship of city. Hence, all these cities structure and growth explains the rigid social segregation found in different cities.

Recent changes and transformations in urban structure in the above theories have altered the basic assumptions and expected outcomes of these classical models. These changes include the impact of the automobile, population growth after the Second World War, housing construction, shopping facilities, social and industrial mobility. Hoyt in his review also observed that the apparent rigidity of older patterns in the city has been substantially reduced by increases in city size, personal income, and mobility. Brian Berry synthesizes the transformation in three aspects of research to understand the internal structure of the city. These are urban population densities, the socio-economic pattern of neighbourhood, and the changing pattern of retail and service business.

6.9 Further Reading

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Unit 7

Social Area Analysis and Recent Advances

Contents

- 7.1 Introduction
- 7.2 Historical Review
- 7.3 Concept and Technique of Social Area Analysis
- 7.4 Factorial Ecology
- 7.5 Recent use of Social Area Analysis in Different Fields
- 7.6 Critique of Social Area Analysis as a technique
- 7.7 Conclusion
- 7.9 Further Reading

Learning Objectives

After studying this unit, you should be able to:

- explain the technique of social area analysis;
- analyse diverse populations by using this technique; and
- explain more recent techniques like Factorial Ecology and GIS (Geographical Information System).

7.1 Introduction

In the contemporary world, societies have become diversified and heterogeneous. From the second half of the 20th Century, internal, regional and international migration increased manifold due to expansion of capitalism, new power equations, and decolonisation. The outcome was ethnic diversity in most parts of the world. Urban Sociologists attempted to understand and assess diversity of various kinds in the population especially of large cities. Social area analysis was one of the techniques evolved to study diversity in income, status and ethnicity and mobility in urban population. This technique was a part of the methodological developments under the rubric of ecological school. Social area analysis is used more by urban geographers than sociologists.

7.2 Historical Review

The Ecological Approach was the most dominant and popular approach in urban sociology from the 1920s to the 1950s. Also known as the Chicago School, scholars belonging to this school studied urban populations by using biological principles like succession, competition, expansion and so on. You will learn more about the Chicago School, in Block 4 of this course. Robert Ezra Park, the most well known scholar of the school believed that the principles in the human world are similar to those in the biological one. (Spates and Macionis, 1982:110,111).

While the scholars belonging to this School used assumptions from biology, like 'survival of the fittest', they also were the pioneers in empirical study

of city life. Park argued that migration, that is, movement of the population in search of better jobs was one of the important reasons for changing the composition of large American cities like Chicago. Their detailed studies of big cities set the standards of 'how to do urban sociology?' in the early 20th century. They extensively used census data produced by governments on the one hand and processed it for various purposes and on the other, pioneered what is today known as 'urban ethnography'. Observation of daily routines of migrants, ethnic communities, labouring classes, delinquents and thieves, and what sociologists today would call 'the marginalized communities' was one of the main ways to study urban reality for the Chicago School practitioners and their followers. For this participant observation, life history and survey were the preferred techniques. (Spates and Macionis, 1982:46,47).

Park, Burgess, and others thus contributed to the theoretical and methodological aspects of the new field of sociology called urban sociology. America witnessed the emergence and expansion of many large cities in the beginning of the 20th century, and therefore, a manifold study of the urban subject-matter was the need of the hour. Also, it was believed that the American way of life was based on industrialization and the human spirit of achievement and this modern urban world was expected to create a new identity of 'modern human being'. In reality, however, ethnic enclaves emerged in all big cities of the world and social networks played a very important role alongside wealth and power. Burgess, in the analysis of his famous 'concentric zone theory', pointed this out. (Burgess, 1967: 50). The famous diagram illustrating the land use and distribution of population in Chicago city states that manufacturing activities determined the nature of city life in America in the early 20th century. Migrant labourers, who were attracted to these large centres of western capitalism, usually settled in working class neighbourhoods. With low skills and educational levels and no economic resources to bank upon, these immigrants were concentrated in the inner city area and took up jobs in factories in the central areas of the city. (Spates and Macionis, 1982:110,111).

Though very influential in the early decades of the 20th century, the Chicago School theorized a typical American city – a centre and symbol of Western capitalism with a high degree of industrialization. The ecological theory proved to be ineffective in assessing the changes in other settings.

In contemporary urban theory, therefore, other theories and models have assumed importance as scholars across the world attempted to analyse the urban scenario in different settings. Within urban ecology, along with the Concentric Zone theory of Burgess, other urban land use theories were employed widely in the second half of the 20th century. These are: the Sector theory by Hoyt, the Multiple Nuclei theory by Harris and Ullman, and the Social Area Analysis by Shevky and Williams and later by Shevky and Bell. Later Factorial ecology, a similar technique using computers, came into vogue.

Studying high rent districts of 142 cities in the US developed the Sector theory. Hoyt used a comparative approach since he simultaneously analysed

such a large number of cities. Also, the study examined cities in three different time periods – 1900, 1915 and 1936. As you had learnt earlier in Unit 6, in the Concentric Zone theory, Hyot argued that Sectors looked like a pie. New rings were added to the existing areas as the city grew due to competition and population movement. Other important observations were that fashionable districts increased to two or three over time and industry moved out of the city.

In 1945 Harris and Ullman developed Multiple Nuclei theory. This theory forwarded the principle of diversification as an important component of city growth. Attempting to engage with the concentric zone theory, these scholars argued that over time multiple nuclei of business, residence and middle class locations evolve as the city grows.

Contrary to these urban land use theories about which you have learnt in the previous unit, Unit 6, Social area analysis suggested that social factors like prestige, status, ethnicity are very important in determining the location of various communities. Around the late 1940s Social Area Analysis was developed and employed as a technique to analyse diverse urban populations mainly in the U.S.A.

In recent years related techniques like Factorial Ecology are used to analyse spatial differentiation of diverse groups and communities across the world.

7.3 Concept and Technique of Social Area Analysis

Since the Concentric Zone theory could not be applied to many American and non-American cities, other theories of land use developed as stated earlier. Due to their limited applicability, urbanists tried to offer new explanations of patterns of city expansion and growth.

Eshref Shevky and Marilyn Williams (1949) pioneered ‘Social Area Analysis’—the identification and description of areas according to their social characteristics. They argued that urban land use could be explained in terms of social characteristics alone. They examined social rank, family status and ethnicity. This technique was based on using a statistical procedure to identify selected important variables from a very large database of economic and social variables. Using census tract information prepared by the American government, they argued that the variance in all the census information could be explained in terms of two or three chosen variables which were arrived at after combining several other variables. First, Shevky and Williams applied it to Los Angeles and later to studying San Francisco city data.

Social Area Analysis thus signifies a statistical procedure of analysing available large-scale data of diverse populations. It became popular as statistical processing of large databases was commonly attempted during the 1950s. Some scholars have noted that this approach was very popular in the 1970s. From then on it is referred to and used from time to time, but there seems to be very little theoretical development in this direction. Social area analysis and factorial ecology have also been quite important in marketing research.

Residential differentiation has been explained at the zonal level in this method. To do so, indicators of socio-economic, demographic and housing data for small intra-urban districts is analysed, to test general hypothesis that the pattern of residential differentiation can be reduced to a small number of general constructs (Johnston, 2000).

Reflection and Action 7.1

As you already know, Indian society is largely agrarian even till date. More than 70% of the population lives in villages. However, cities have existed in the ancient past, in the medieval period and in the contemporary period which are entirely different from the Western cities.

Do you think the technique of Social Area Analysis will be useful to study the cities in India? Write your opinion with valid arguments in about two pages. Compare your answer with those of other students at your Study Centre.

Following Shevky and Williams a score of studies on large American cities emerged from the 1950s to the 1980s, basing the analysis of census tract information on social characteristics like family status, and ethnicity. Studies in North American (Murdie, 1969; Davies and Barrow, 1973; Rees, 1979) cities have shown that three components of urban space have exhibited significant regularities in a number of cities, that is, socio-economic status, family status/life-cycle characteristics and ethnic component.

For example, see the maps of Toronto city marked with census characteristics. Here the types of differentiation are shown with the income and social status that tends to produce sartorial patterns.

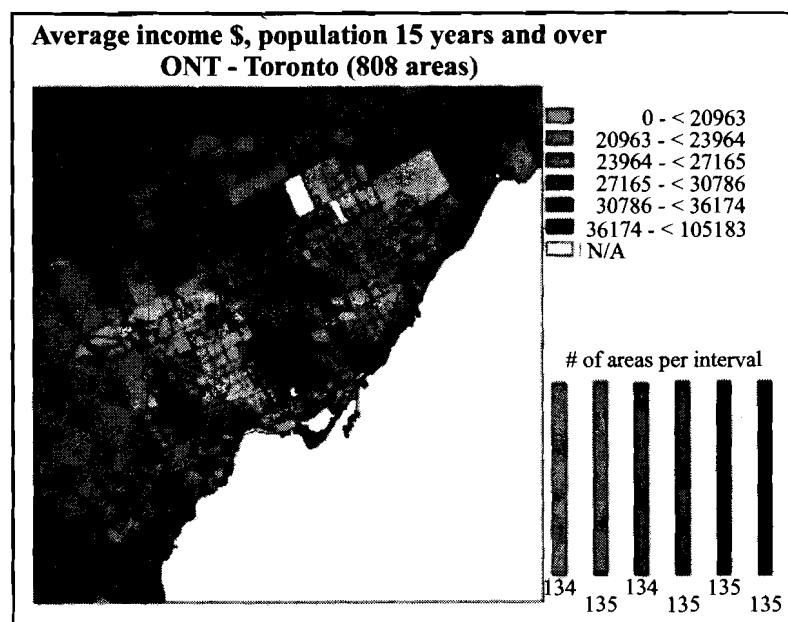


Figure 7.1

The second type of differentiation is shown in the map (Figure. 7.2) with the ethnic differences that tends to produce clusters in a city.

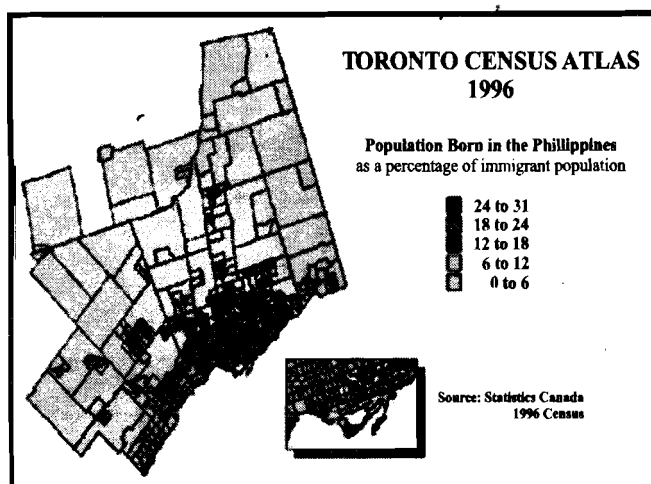


Figure 7.2

As seen in one of the recent research papers, some scholars are analysing the applicability of Social Area Analysis in urban planning research. The authors argue that they 'appraise the potential of social area analysis — for planning and policy-related research'. on multivariate statistical techniques, notably principal components analysis and cluster analysis important uses for a wide variety of planning research exercises. (Brindley T.S., Raine J.W., 1979, pp. 273-289(17)).

More recently, some scholars look at 'social space' from a sociological rather than geographical perspective using social area analysis. (see Heye C, Heiri Leuthold, 2005). The authors argue that the existing social area analysis was not based on sound theoretical principles, and hence argue that use of sociological concepts like 'social space' would help the understanding of cities by social characteristics.

7.4 Factorial Ecology

Factorial ecology is used to find the social characteristics used by an urban population with computer technology. There is a difference between social area analysis and factorial ecology, because, instead of starting with the reselected social characteristics (such as social rank) all characteristics considered to be potentially important in a city are analysed. The comparison takes place at the computer front. Computer compares all these characteristics with one another to see the linkages between these characteristics. The linked characteristics are called factors and are given descriptive names. Once the analysis is completed, the city's land use pattern as a whole can be described. (See Spates J., Macionis J., 1982).

For example, R.J. Johnston (1976: 193-235) used factorial ecology to examine Whangarei, a city in New Zealand. He took eight social characteristics, which he thought were important, and instructed the computer to use them in an analysis of each of Whangarei's twenty-two census-tract areas. His results indicated that some areas of the city had high concentrations of male workers who were in professional or managerial occupations, who earned over \$ 6,000 a year, and who also held a university degree. As these characteristics were strongly linked to one another, Johnston combined them into a single factor called 'socio-economic status'.

Another finding was about the people over 16 who were unmarried and lived in rented households in other residential areas of the city. Once again, the association among these variables was so high that Johnston designed 'family status' as a second important factor. Although the correlation was weaker, there was also some evidence that ethnic factors were of some importance in determining residence in Whangarei. Interestingly, when taken together, these three factors- socio-economic status, family status and ethnicity could account for over 86 % of the residential patterning of Whangarei. Johnston's findings are important especially because they have been simulated by other scholars using factorial ecology in other cities. (See Spates J., Macionis J., 1982).

Application of factor analysis to identify correlated indicators/attributes, combining the correlated aspects such as the indicators mentioned above into an index and then identifying, homogenous areas based on such composite indices is a method to study the urban societies.

Critique of Factorial Ecology

The main critique of the factorial ecology states that cities in different areas, with different cultures, have been concerned with different values. In some of them technology is hardly concerned whereas in some cities religious values play an important and influential role. The cultural and social settings, socio-economic status, family status or even the ethnicity may have different or no role to play in certain cities.

Different cities may have different land-use patterns, or cultural influences. Sometimes the social status related with caste plays an important role and makes a difference. The cities in Europe, Asia, America would definitely mark a difference since the whole social and cultural set up is different.

Reflection and Action 7.2

Do you think the study of city in terms of its social characteristics is important? In what ways will it help us? Write an essay on "Role and Significance of Sociological Study of cities?" In about two pages.

Discuss your essay with other students at your Study Centre.

7.5 Recent use of Social Area Analysis in Different Fields

In recent days factorial ecology with its emphasis on computer techniques has been revived through other sophisticated techniques. Advancements in satellite based communications and computer based technologies have helped the field of urban policy and planning.

GIS (Geographical Information System) is called as 'smart maps' (Hanna and Culpepper, 1998:7). These are prepared by using computerized databases. Though other maps are representations of flattened earth —

a two-dimensional image of the earth – GIS gives better results as computers can show curvatures of the earth in a very accurate, graphic and clear way. Recently GIS is also used for identifying social characteristics of cities. For example, a GIS based analysis of a locality can reveal how many houses are permanent structures, how many water sources are available, and so on. Accordingly, using the indices like permanency of housing structure, poverty levels of the population can be discerned.

7.6 Critique of Social Area Analysis as a Technique

Scholars have pointed out that Social Area Analysis was in a way a part of the rubric of urban ecology. It was also associated with industrial manufacturing under Fordism. In the 1940s, urban populations were arranged along zonal and sectoral lines on the basis of social differences. (Burgess, in Park et al., 1925/1967; Bunting, 1991; Harris and Ullman, 1945; Hoyt, 1933, 1939, 1966; Murdie, 1969; Shevky and Bell, 1955).

As times changed, sectoral or zonal segregation did not always happen in big cities. Earlier also, in cities like Chicago, ethnic enclaves like Little Sicily were observed by Chicago School theorists. With the passage of time and changing housing policies of governments, etc., the technique of Social Area Analysis proved less useful.

Social Area Analysis cannot fully explain urban land use. So the need to explore more sophisticated techniques based on the Social Area Analysis was felt.

The approach of social area analysis was also criticized for the lack of theory. Though it was successful in examining the major social characteristics of different residential groups in a city, it was unable to explain why those people lived there.

Some scholars have criticized that factorial ecological analysis fails to provide a satisfactory explanation of the process of residential differentiation, the way in which different areas of the city come to be associated with different types of people (Timms, 1978). Alternatively, they argue that to do so, it is necessary to adopt a micro social approach focused on the relationship between residential location and patterns of individual decisions and behaviour, generally at the household level. Households may be seen as decision-making units whose aggregate response to housing opportunities is central to ecological change (Knox and Pinch, 2000).

7.7 Conclusion

The technique of Social Area Analysis has proved to be very useful in the decades of the 1940s to the 1970s. This technique made a case for the use of social characteristics using census data to analyse large populations.

In contemporary times, some scholars have attempted to use this technique again in other parts of the world also. Increasingly, however, scholars argue that a satisfactory explanation of residential differentiation can be offered by combining various methods like Social Area Analysis, factorial ecology and so on.

7.8 Further Reading

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