

ownership pattern, coupled with the influence of recent socio-economic changes in the country, has led to the emergence of individual ownership of land contrary to the collective ownership, is based on the inheritance and is associated with urban land fragmentation among individuals and families. In some cases, large parcels of land in the cities of Nigeria are not developed because groups of families owning them have not agreed on how to share it among the individual members. In cases where the land has been allocated to individuals, it may be left undeveloped for many years because the owner has not got the money to develop his plot and he is usually not willing to sell or lease the land to those who want to use it immediately. This factor reduces the total amount of urban land available in the open market of these cities. The present pattern of land ownership and land transfer in Nigeria's major cities are grossly unsuitable for proper urban development and land use control. This is where the 1978 Land Use Decree could have provided a solution if it has worked as stipulated.

The final major category of limitations associated with Nigeria's urban planning strategy is related to the existing institutional framework for urban development planning. In the first place, although there is now a federal department involved in urban development planning in Nigeria, its overall impact is still negligible. Thus, federal involvement in the coordination of urban planning at the national level is still not vigorous in the country (Onokerhoraye, 1984).

A second limitation of the existing administrative framework for urban planning in Nigeria relates to the fragmented nature of the structure at the state level in most parts of the country. The nature of these fragmented, functionally-specialized bodies dealing directly with the national or state government department severely tend to impend the possibility of developing an effectively centralized and coordinated system-the keystone to a unified and effective urban planning. In Ibadan city, for example, the Ibadan Metropolitan Planning Authority, the Ibadan Waste Disposal Board and the Oyo State Property Development Corporation, carry out urban development planning and management. The result of this pattern has been the lack of coordination in urban development planning within the city. In

many cases, it has led to the neglect of some aspects of urban planning and services because no particular authority has been specified to deal with them.

The lack of co-ordination in urban planning in Nigerian cities is further intensified in urban centres where, as already pointed out, two or more specific authorities are responsible for its administration. In such situations, any local government policy aimed at the development of a particular urban area is generally restricted to the sections of the town, which are under the control of that local authority. Thus, while the roads of some sections of an urban area may be properly maintained, those of the other parts may not be taken care of. Similarly, there may be a well-organized system of refuse collection in one sector of some cities while no similar arrangement is made for the other parts. For example, before 1972, land-use control in the Lagos metropolitan area was carried out by two separate authorities the Lagos Executive Development Board (for the municipality) and the Ikeja Town Planning Authority (for the rest of the built-up areas of Lagos). Often, their areas of jurisdiction were not well-defined so that land use development in the marginal areas has not been controlled by any authority. This is demonstrated by the fact that virtually all the sub-urban slums in the metropolitan area concentrated in such marginal area. However, in certain large urban areas, such as Jos, Kaduna and Kano, Development Boards have been established as an attempt to centralize some responsibility on a special basis. In Kano, for example, the Greater Kano Planning Board, which was created in 1962, has been replaced by the Metropolitan Planning and Development Board in an attempt to rationalize local development in the metropolitan area (Onokerhoraye, 1984:283).

The third major weakness of the present administrative framework is the lack of qualified personnel to carry out urban development programmes in the country. This is due mainly to two factors. Firstly, no effort has been made by the federal and state governments to retain specialists in various aspects of urban life since there has been no comprehensive policy on urban development. Secondly, local authorities which have played some roles in urban management, have not been able to recruit and retain the few qualified specialists in urban affairs because the

conditions of service in the local councils are not attractive when compared with the federal or state governments. This is because, until recently when a unified local service system was established in most states in the country, local government workers were not regarded as civil servants.

Finally, another limitation of the existing urban administration system in Nigeria is the inability of the local authorities to generate sufficient funds for urban development. The local government councils obtain their revenue from income tax, rates, rents, fees of various sorts, trade and industry, and grants from the state government. Often, the grants from the government are insufficient for the councils to maintain urban services while the lack of adequate staff makes it impossible to explore other sources of revenue, for instance, property rating is not as presently used as a means of raising revenue in most urban areas in Nigeria.

10.2 LAND USE PROBLEMS IN NIGERIAN CITIES

There are a number of consequences associated with the existing structure of land use regulation in the major cities of Nigeria. One major type of environmental degradation associated with land-use development in Nigerian cities, is the uncontrolled intensification of land-use within the built-up areas of pre-colonial cities. Generally, the land-use development in these areas took place without any attempt at regulating it. Thus, all the available spaces which exist in the pre-colonial cities before the establishment of colonial rule were covered with residential buildings without any effort to ensure the allocation of space for other essential activities such as community services, transportation, recreation and commercial facilities. Land-use development in the central part of Ibadan illustrates the environmental problems created by uncontrolled land use development in pre-colonial Nigerian cities (Onokerhoraye, 1977). When Ibadan was founded in the 19th century, little land use planning took place as blocks of land were arbitrarily demarcated by families who moved to the city and many houses or compounds were built without reference to any type of systematic layout. After the establishment of colonial rule, the social changes, which accompanied this development, were felt on the traditional extended family system, which had been the basic residential unit in the city. The traditional

compound houses were broken up and replaced in city by multiple housing units and more buildings were infused into the already densely crowded area. Thus, a complex, chaotic and highly disarray of compound houses became the dominant feature of the physical landscape of the central area of Ibadan. This area has been referred to as the traditional 'core sector' of Ibadan.

Another type of environmental problem associated with the land use in Nigerian urban areas is the uncontrolled land use development in the suburbs of the rapidly growing cities. This development is the product of the difference between the popular demand for housing and that supplied by the urban society. The inhabitants of these unplanned residential units are mainly migrants from rural areas or other towns and they regard their stay in the area as temporary. Consequently, the search for good housing environments is not high on their list of priorities in the urban area. The unplanned rural-urban fringe areas of Lagos illustrate this type of environmental problem. In Lagos, the unplanned land use suburbs comprises places such as Ajeromi, Ajegunle, Bariga, Idioro, Agege and Mushin, and they are on the whole characterized by poor street lay-out (Sada, 1970). Generally, there is hardly any space between the individual buildings and inter-street vehicular traffic is therefore virtually impossible. Closely associated with the problem of physical layout in these districts are other environmental problems such as waste disposal, drainage and general sanitation as well as shortage of facilities.

A further source of land use problem in Nigerian cities is the defective allocation of urban land among various land use activities. This problem applies to both the planned and the unplanned parts of the urban areas. In other words, Nigerian planners have not taken adequate recognition of the need to allocate adequate land to various activities. As a result, the relative proportion of urban land use allocation, which will ensure the emergence of a tolerable urban environment, has not taken place in many Nigerian cities. In a study of the overall land use allocation in Ibadan, Olayemi (1976) noted that over 60 per cent of the developed land was allocated to residential use, which is excessive compared with less than 50 per cent

in the cities of the developed countries such as those of North America. The study also reported that transportation accounted for only 14 per cent while recreation took 0.3 percent of the developed urban land. These figures show that transportation land is totally inadequate while recreation land is rather insignificant. On the whole, the land use budget of Ibadan indicates too much allocation to residential areas at the expense of other essential activities such as community services, transportation networks, and commercial facilities and above all, recreational centers, which constitute important components of a decent urban environment. Similarly, studies of land use allocation to various activities in other Nigerian cities such as Ilorin (Onokerhoraye, 1982), Benin (Onokerhoraye, 1984) and Ogbomosho, indicates largely identical patterns with the Ibadan situation.

10.3 PLANNING IMPLICATIONS

The discussion of the problems associated with contemporary land-use planning in Nigerian cities indicates that overcrowding, congestion, deterioration of the urban physical environment, inadequate circulation systems and absence of community facilities are the most eloquent manifestations of the improper use of land and irrational land-use patterns in the major urban centers of Nigeria. This is due to the fact that planning authorities have been unable to control land use in such areas because of social, cultural and political constraints.

Two major policy implications for the future land use development planning of Nigerian cities can be derived from the above findings. The first concerns the problem of redeveloping the existing slums in the major cities of the country. Since wholesale slum clearance has been shown to be impossible, there is need for the public authority to devise strategies, which can contribute to the amelioration of some of the land use problems in such areas. The need here is for a conservative approach retaining the best of existing development and part-by-part, exercising the worst property in blocks of sufficient size to provide recreational and school facilities, drainage and more adequate vehicular and traffic access. This will assist in lowering gross population densities. Much could also be done by minor improvements to roads, footpaths and the few available open spaces. The people

affected by such selective redevelopment effort should be adequately resettled in another part of the city concerned. If possible, the group of people moved from one block of land should be resettled together in one place so that social interaction will not be seriously disrupted.

As regards the improvement of the existing houses in these areas, aided self-help can be of great value in mobilizing and directing human investment in urban housing. Good quality housing can be aided by government's subsidy of the production of essential house parts, which could be made available through loan schemes or local building societies. Property rehabilitation programmes in the slums of Nigerian cities can have a useful function since a fairly large proportion of housing in these areas can be improved by re-roofing, enlarging windows, painting and sanitary improvements (Onokerhoraye, 1977).

The second series of policy implications, which can be identified, relates to the need for public authorities to prevent the emergence of the existing problems in the future land-use development in the major cities of the country. This suggests that adequate and effective measures to ensure land-use development control should be introduced. However, measures for the control of land-use development in the urban centers can only be effective if public authorities have full control over urban land. Thus, public land ownership is the only obvious solution to the land-use problems of Nigeria's urban centers. The limits of all existing urban centers should be defined. Public authorities should then acquire compulsorily, all land within specified distances from such limits for all the major urban centers in Nigeria. The acquired land should be laid out, planned, zoned, improved and allocated equitably on a lease-hold basis. Priorities in the allocation of land should reflect a preference for planned unit development over scattered development, and the allocation itself should be based on need, ability and readiness to develop within a specific period of time. This could be a period varying from two to five years, depending on the distances of the area to existing built-up areas. Public authorities should pay the present use value of the land so acquired in the urban areas. It would, therefore be necessary to set up land tribunals as well as to make

provision for the use of independent land values. There should also be prompt payment of adequate compensation to owners of land, which is compulsorily acquired by the state.

The public ownership and effective control of urban land suggested above would bring about a number of advantages to urban land-use development in Nigeria. First, land prices, which have escalated dramatically in the major cities in recent years, will be controlled. Thus, many people who desire to build their own houses but at present hampered by their inability to get land at reasonable cost, will be encouraged to build houses. Secondly, it would be easier for public needs and for authorities to plan in advance, the provision of basic social and community needs before houses are built in specific parts of the urban areas. Finally, it will facilitate the redevelopment process of the slum areas in the major cities of the country. This is what the 1978 Land-Use Decree was supposed to achieve but up till now, this has not been possible because of the non-implementation of the provisions of the Decree.

10.4 TECHNIQUES AND PROCEDURES OF DEVELOPMENT CONTROL

In Town and Country Planning practice, the pre-occupation of the planner is the formulation of development plans to achieve desired goals of social harmony, as well as sustainable environmental quality and the control of development activities to ensure that developers comply with approved standards.

Physical planners control land uses, building types, heights, visual aesthetics, ribbon development, agricultural land, employment locations, transportation routes and traffic flow, including linear projects such as pipelines, power transmission lines and roads.

A fundamental responsibility of Urban Planning is control, irrespective of what is controlled. Physical entities and systems are however, more amenable to discussion in achieving the objective of control, the means of control and in the demonstration of the efficacy of control.

The essence of physical planning as a distinct profession was its intervention to make right manifest evils or distortions and to root out disorders of housing, health, crime, education and urban congestion. Public authority interventions are usually necessary to counteract various evils that rear their heads to distort laid down attitude, which still rears its ugly head even in current planning practice.

The British Town and Country Planning Act of 1947 definition of 'Development' in Section 12, Subsection 2, as the carrying out of building, engineering, mining or other operations in, on, or under land, or the making of any material change in the use of buildings or other lands, is crucial in urban planning practice. The scope of this definition comprises physical development operations, changes of use and changes in the intensity of use of land and buildings.

Development control, therefore acts as a brake on unlimited development and it confers substantial powers on planning authorities to affect the pattern of development. In physical planning offices, there are usually the planning and design department and the development control department. The "languages" of development control and detailed physical planning are compatible and therefore, we found out that there is a considerable interaction and support between their respective staff.

Obviously, there can be no direct relationship between control and strategic policy-oriented plans such as structure plans. For example, a single application for a petrol filling station or a house extension or a change of use from cotton mill to automobile parts warehouse, has of itself, no direct implications for the generation of review of policy. But in aggregate development control work, it has considerable relevance to strategic policy from several view points.

In Britain, many planning authorities have found that over a period, the granting and refusal of filling station applications not only pointed to the need for a policy (if none existed) but also could serve as a check on the relevance, feasibility and effectiveness of current policy. A concentration in a part of a town of a considerable number of applications for extensions to existing distribution, may be a check, say, on population distribution, as well as being an early warning of

further changes, which might be needed in policies for water supply, sewage, primary schools and for electricity and other utility services/

In Nigeria, the 1992 Urban and Regional Planning Law (Decree No. 88) devoted its parts 2 and 3 to development control.

CHAPTER ELEVEN

URBAN GROWTH AND CHANGE

11.1 URBAN GROWTH

So far, attention has been concentrated upon the principles, which explain the location pattern of uses within an urban area at a particular time, rather than the factors which cause changes in that pattern and the growth of urban areas. There were certain underlying conditions of demand and supply, e.g., transport methods and routes, size of urban area, level of technological knowledge, which were taken as given and the competitive allocation of sites depended upon an activity's ability to benefit from accessibility and complementarity within that framework. This framework is not unchanging. In this chapter the task is to examine the causes of urban growth and change and to note how the urban land market brings about necessary adjustments.

11.2 REASONS FOR URBAN GROWTH

Distinction must be made between factors bringing about a general growth in urban population and urban -areas throughout a nation and those which cause the growth of a particular urban area. In both cases economic and non-economic factors may be causes.

The nature of existing economic opportunities in a nation are a guide to the size and character of the future urban population, level of income, consumption needs, land use, etc. In this respect the stage development of that nation is important, since the less industrialized countries have a greater potential rate of urban growth than advanced industrialized countries, since, in the latter; a high proportion of the population is already urbanized. The rate of industrial growth and the rate of urban growth are closely correlated. The seeds of urban growth are probably contained in the process of urbanization itself, for it has been shown that urbanization offers increased opportunities for specialization, the outcome of

which is increased production of goods and services. This represents an increase in real national income for there has been a rise in the amount of goods and services available per head of population, i.e. a higher standard of living. With an increase in real income there will be a larger demand for goods and services, so giving firms larger markets and enabling them to carry specialization even further and again raising real income. Economic opportunities will have been improved in urban areas which would serve to attract additional labour front. Non-urban areas and cities would have greater surpluses of manufactured goods to trade with agricultural communities to call for an increased supply of foodstuffs to support a higher percentage of population in urban areas. The process is thus cumulative. Moreover the increased size of urban areas in general, in terms of persons and activities, will call for changes in patterns and intensities of land use within those areas. The improved living standards not only allow persons to purchase more goods and services but also lead them to change their preferences. For example, they switch from a diet based on carbohydrate foods to one rich in proteins and vitamins as income rises. This change in preference may be reflected; likewise, in the demand for residential premises for, with increasing incomes, persons want and are willing to pay for higher standards of accommodation, amenity and open space.

Non-economic factors reinforce the economic ones and certainly they will have important economic repercussions for the interaction of these factors must always be taking place and the changes in noneconomic factors may have been inspired or influenced by the economic changes just outlined. Amongst the more important noneconomic factors are population changes, advances in technology, and public policy.

Population changes are exceedingly complex and cannot be discussed here in detail. It is sufficient to indicate the major changes which affect the size of the urban population. Where an increasing proportion of static or increasing total population is being supported in cities the increased urban population usually results from the better economic opportunities in the towns. However, the situation can arise in less developed nations where agricultural earnings are so

low and rural employment opportunities so few that the surplus rural proportion is pushed towards urban areas, even before adequate jobs exist there. Where an urban birth exceeds urban death a natural increase in the size of the urban population would occur. With improvement in medicine bringing urban infant and maternal mortality rates to their present low levels and economic conditions allowing marriages at earlier ages than before, then, in spite of the fact that urban populations have a higher percentage of single persons in marriable age groups than non-urban areas, urban populations today show an excess of births over deaths. Immigrants to a country, whether responding to economic opportunity or moving because of some form of prejudice, may gravitate to cities so swelling the urban population. General increases in urban population provide larger markets for firms and so enable, not only increased specialization within an urban area, but also increased specialization between urban areas.

Technological change works towards the production of more goods and services from a given input of resources and this may come about by substituting new for old methods of production or one factor of production for another. Technological change will result in higher real incomes and so influence urban growth in the way outlined above. Such changes in means and methods of production have important consequences for the internal structure of urban areas and will lead to the emergence of new patterns. For example, improvements in building techniques may allow taller buildings to be constructed and thus more users to benefit from locations in or near the area position of greatest accessibility, or sites which had been by-passed because of unstable subsoil conditions can be developed as new foundation methods become available. Technological change in manufacturing industry has often called for larger plants with straight-line production runs of several hundred feet. It is common practice to design the production process and wrap a building around it and in some cases, e.g. oil refineries, much of the equipment is not enclosed. The result is that firms need an increasing amount of land per worker and the size of site available near to city centers is of little use to manufacturing concerns. Industries with growing employment and large plant have adjusted themselves to such conditions by seeking peripheral sites. Larger

markets and the accompanying greater specialization may lead to the vertical disintegration of an industry whereby certain components and specialized activities become the responsibility of separate plants. In other industries these same forces may lead to vertical integration. Such plants may or may not need to be juxtapositioned. Transport improvements can have equally significant effects, for, by speeding up movement between urban areas further opportunities for specialization may be opened up. Within an urban area new methods or routes of transport could well influence the optimum location of the various activities.

So far it has been suggested that the innumerable decision of individual persons and firms, acting on principles already outlined will bring about a rational pattern of land use and adjust that pattern as necessary in the light of changing conditions. It has been assumed that the role of government has been minimal, but, even where the widest scope is left within the price mechanism, e.g., the provision of collective services such as water, refuse collection mechanism, health and education. Therefore, public policy decisions are likely to have important bearings for urban growth in general and the changes which take place within an urban area in particular. Decisions on new road and rail facilities, the locations of political capitals, education centers, regional plans, availability of power, and non-profit uses rest with government bodies. It must be pointed out that these represents instrumental variables, i.e., variables which can be controlled by persons in charge of public policy. This point will, however, be developed in the following section.

The rate of urban growth does not affect all cities equally. In a nation showing a high rate of urban growth (in terms of both population and output of goods and services) some urban areas could be declining, e.g., where the area's economic base had been a mineral resource which was now exhausted. The factors which explain the growth of one urban area rather than another are very much the factors discussed as causes of general urban growth. It remains to be seen why one town can benefit more than another when there is general growth potential. But first it must be emphasized that no urban area is capable of limitless expansion. Expansion will depend upon the demand for the goods and services produced in that area. The growth of a particular urban area will be the result of an increased

demand for its products. Even where there is such an increased demand the additional production capacity will have a choice as to location. New investment decisions are determined at the margin, i.e., small increments rather than by average relationships, and the decision to undertake new investment in one urban area would depend upon investment opportunities at the margin in that area relative to those in other urban areas. The growth of an urban area thus depends upon the relative advantages of that area over other areas and this may be influenced by the location of the area in the country's transport network. An urban area which is already an established centre for an industry will have a relative advantage over other areas due to the existence of complementary facilities which offer external economies to potential entrants into that industry. In the case of industry different to that found in an urban area, whether or not such new industry is attracted to the urban area depends upon the facilities and services available and this most usually is a function of the size of the urban area. Once there has been a change in the type and amount of economic activity located in an urban area the kind of growth, (or decline) that follows depends on the extent to which that new activity is closely tied to or independent of, any complementary process which precedes with it.

Again non-economic factors play an important part in promoting or initiating urban growth or change. Once more political decisions are especially significant. The decision to make one urban area a national, regional, or local political capital will give that area a growth potential not possessed by other urban areas, for activities requiring frequent face-to-face contact with government bodies may be attracted to locations in that urban area. Similarly government control over the location of new industry and the relocation of existing industry can redistribute growth potential amongst urban areas to produce a different pattern of growth to that which would result were individual location decisions not the subject of control.

It should also be noted that changes in the pattern and intensity of land use would occur even in urban areas with no growth prospects. This is due to the fact that,

sooner or later, existing buildings, etc., have to be replaced and at this point alternative locations for the present user would be considered.

Urban growth will alter the pattern of land use and land values within an urban area as well as the intensity of site use. It is the function of the urban land market to note these various changes and, working through the mechanism of supply and demand, to bring about the necessary adjustments. For example, assume that as a result of urban growth there is an increased demand for residential accommodation. In the short run this will bring a change in the intensity of land use. As the supply of residential accommodation is fixed in the short run the increased demand will be reflected in a decrease in or disappearance of the number of vacant dwellings, an increase in sub-tenancies, a doubling up of families, and an increase in the number of persons per room, i.e., a more intensive use of existing accommodation. If the increase in demand is permanent and of sufficient magnitude the prices and/or rents of existing residential accommodation will rise to a level which, in the long run, makes it profitable for producers and investors to enter the market and provide in the face of competition from alternative land uses, new residential accommodation and convert other buildings to residential use so giving an increase in supply. New patterns of location, intensity and values would then be evident for residential accommodation within the urban area and this would have repercussions for other land users. The changes which accompany urban growth can best be studied by examining the adjustments within a single urban area.

11.3 THE PROCESS OF GROWTH:

The growth of an urban area involves the antagonistic yet complementary processes of concentration and decentralization. Growth brings more activities and persons into the urban area in search of sites, concentrating more workers, machines, and buildings in that area. This necessarily requires some readjustments to existing uses of land and those lower order uses find that they become sub-marginal occupiers of near central sites and, in time, will relocate to sites more distant from the position of greatest accessibility where they will also be joined by

new lower order uses attracted to that town. Urban growth thus involves the twin processes of internal reorganization and outward expansion.

INTERNAL REORGANIZATION

In the physical sense the road patterns, buildings, and so on in an urban area represent a relatively static framework whereas the activities and persons are very much a dynamic element. When the number of activities and persons in an urban area shows a tendency to increase so the physical, static framework needs adjusting. The physical structures are often slow to adjust to changing demands and in such cases the dynamic activities must try and adapt themselves, in the meantime, to the existing physical layout of the urban area and make the best they can out of it.

In certain cases the increased demand for sites arising from urban growth will make it profitable to demolish existing buildings and redevelop in a new, higher order use. Redevelopment occurs in or near the position of greatest accessibility and takes the form of replacing lower structures by higher ones. Vertical expansion is thus one characteristic effect of urban growth in, the central business district of an urban area. Skyscrapers are the economic way to produce an increased supply of usable space in the position of greatest accessibility. Thus for those economic activities which can make use of upper floors the shortage of land in the central business district is not a problem. There are, of course, limits to the height of buildings erected at any particular time: it could be that given the state of building technology certain subsoil conditions are unsuitable for tall buildings, or the progressive rise in building costs for additional storey makes the provision of further storey unprofitable beyond a certain point, or the higher the building the greater the proportion of space which must be devoted to the service and maintenance of the building e.g. lifts, corridors, heating, and consequently will not be income producing. Those activities which cannot perform their functions by using upper floors and are unable to pay the higher prices for central sites following the increased demand will be displaced from the central business district. The displacements of these lower order uses, such as residences and light industries, by higher order uses, especially offices, produces at the centre a "dead

heart", in the sense that activity is confined to the working day and the absence of resident population means that the buildings are deserted in evenings and week-ends.

Where a site is redeveloped this may bring about a change in use, say from residential to offices, or it may represent rebuilding in the same use but to a more intensive level, as when single-family two- or three-storey houses are replaced by multi-family dwellings. Such redevelopment necessitates considerable changes in the physical framework of an urban area and may only come about after the pressure of demand has been increasing for long periods of time. However, changes in the intensity of use and of the type of use can, and do, take place without having to demolish existing buildings. Because of the durability of investment in buildings the physical structures are slow to change and the increased number of activities seeking urban locations has to make do with existing buildings. Thus residences near the central business district may be taken over by office users or subdivided into a number of flats to accommodate more persons. In analyzing these changes it is necessary to understand the economic life of a building.

11.4 ECONOMIC LIFE OF A BUILDING

A site or building will change hands when a prospective buyer can pay a higher price for its use than the existing occupant. The transfer of ownership may well occur by purchasing the freehold whilst, in other cases, the opportunities for such transfer may be less frequent, as at the end of a lease. Where a prospective purchaser buys an existing building with the intention of using it as at present and there is no prospect of redeveloping to a more profitable use the price he pays represents the present capital value of the future stream of net benefits he expects to enjoy from the use of that building. However, if accessibility, for example, has been improved since the time the building was constructed there may be the opportunity of redeveloping to a higher and better use and, in these circumstances, the price paid for the site and building reflects this potential use of the site, i.e., it is the value of the site rather than the remaining value of the existing building which is important. Thus, the capital value or price of the cleared site depends upon the

use to which that site can be put in the future. The value of the cleared site to any developer will be the sum of money available to purchase the existing interest in the property minus the cost of clearing the site. Therefore, the economic life of a building may be defined as the period over which the building commands a capital value (price) greater than the capital value (price) of the cleared site.

The economic life of something as durable as a building can vary widely, and in practice ends not because the structure is physically worn out but because of changes in demand, in response to alterations in an environment's merits; in economic, social and technological standards: in the materials used and services expected in modern buildings. These changes are continually taking place and a building can only be in line with current standards in the earliest years of its life, becoming less well adapted to the highest performance of its functions as time passes. All buildings become progressively obsolete. Eventually the decision must be taken to end a building's life and redevelop in the most profitable use and it has been shown that this will be when the capital value of the cleared site is greater than the capital value of the existing building in its present use. The economic life of a building is thus determined primarily by the earning power of that building and only secondarily by its structural durability.

Redevelopment is forever taking place as each site and area is tested and retested for its most efficient economic use. However, even where economically justified, redevelopment may be delayed by the poor judgment of landowners who overvalue the prospects of their property and hold out for unwarranted prices, or in other cases it may be thwarted by diffused ownership where it is proposed to redevelop to a larger site area than existing ones. Moreover, it is easier to replace individual buildings because the financial requirements are lower, the problem of relocating any existing occupiers will be smaller, and by accepting the current pattern of land ownership complex legal problems may be avoided. This replacement of individual buildings is referred to as piecemeal redevelopment.

Piecemeal redevelopment will only improve the efficiency of an urban area in carrying out its function in so far as one building is demolished and replaced by a

more modern one. But the layout of urban areas in terms of road patterns, etc., can, just as easily as buildings and for similar reasons, become obsolescent. In any urban area there comes; a time when wider or new roads are needed, when underground utilities services need expanding or realigning and such changes in the urban infrastructure require the contemporaneous redevelopment of private property. Here, the advantage lies with comprehensive redevelopment, whereby a large area is redeveloped as a unit. Comprehensive redevelopment may be beyond the scope of private firms and require initiation by public bodies, acting either independently or in partnership with private firms.

Prior to the demolition of a building for redevelopment changes in the ownership and use of that building could have occurred when alternative users were willing to pay higher prices/rent for the accommodation than existing occupiers'. Of special interest is the situation where there is a change in the use of an existing building, as from residential to office. Thus the building may not be specifically designed for the new user and adjustments are made by means of internal alterations, leaving the shell of the building intact. Such changes in use reflect the changes in demand for various types of accommodation which accompany urban growth and also show that supply, in terms of number and types of buildings, is slow to adjust.

11.5 THE ZONE OF TRANSITION

It was shown in previous chapters that there was a mixture of land uses in the transition zone which has resulted from the growth of the urban area. Surrounding the central business district or position of greatest accessibility sites in the transition zone were originally developed for residential purposes but with the growth of activities demanding central locations there will be some lateral expansion of the central business district into the residential area. As explained above existing buildings may not be immediately redeveloped in the face of increased demand but instead diverted to a new use. Transitional zones are, therefore, characteristic of growing Cities but also bear witness to the fact that supply is slow to adjust to changing demands.

In the process of deterioration the original residences have been subject to functional change. They are converted to office use, small industrial premises, or adapted to provide living space for the lowest-income groups. The persons for whom they were built have long since departed this world and their descendants, able to afford better accommodation elsewhere, have moved out. The vacated premises provide attractive, cheap, accommodation for small business users and first generation migrants to the city. The change in use may affect a large proportion of the building in an area. Increased demand for sites in the transition zone may either delay or speed up redevelopment of existing buildings. Whether it delays or speeds up redevelopment will depend on whether it is possible to adapt, at little expense and time existing buildings to a new use. Conversion to a new use is likely to delay redevelopment and this is likely to be the case where existing buildings were originally single-family residences. In many urban areas the transition zone contains a significant proportion of such dwellings. Once one building in a road has been taken over by a new use incompatible with its former residential character it casts a shadow over the remaining properties and their values are affected because an element of instability and uncertainty as to their future use has been introduced.

Although the buildings in the transition zone are growing progressively obsolete it has been shown that as a result of the functional change the buildings are not ripe for redevelopment to a higher order use. During the process of ripening these buildings can offer accommodation to some lower use. Therefore they are productive of revenue during this period. But the lower order uses can afford only low rents or prices per unit of accommodation and consequently in order to maximize income in the short run the building is used with greater intensity in its new use and redevelopment is delayed. Moreover the minimum adaptations are made for the user and the maintenance/repair expenditure is also minimized because this would eat into the immediate financial return from the building.

The transition zone becomes an area of decay, as evidenced by the obsolete buildings, partly because of the anticipated expansion of the central business district. Sites in the zone are held for speculative purposes which do not justify

further improvement or even reasonable maintenance of buildings, i.e. why spend money on the building when the larger gain was to come, not from the present use, but from the land itself. This is reflected in the anomalous situation of high site value but low rents/prices for accommodation. Land in the transition zone will be retained as slums or kept vacant in anticipation of the expansion of the higher order uses and deterioration will be progressive until the time when redevelopment takes place. Where redevelopment takes place to a different site area than that which existed this may result in the appearance of odd, unused parcels of land which have been left over from redevelopment project and await incorporation in other redevelopment schemes.

In Britain further factors would have to be considered in explaining the delay which precedes redevelopment. For example any interference with the working of the price mechanism, such as rent control imposed on unfurnished residential accommodation, coupled with security of tenure, may have this effect. There is a close correspondence in many British cities between the location of rent-controlled dwellings and the transition zone. Also planning legislation and financial aid to local authorities exerts an influence on the type of redevelopment possible in this zone.

A further point in the explanation of the transition zone was put forward by Walter Firey¹ who argued that this zone (and the rural urban fringe) corresponds to an area in which land is indifferently suited to more than one use. For instance, if it is assumed that accessibility decreases with distance from the city centre (i.e., position of greatest accessibility) then the price any user will pay for sites will decrease with increasing distance from the centre.

11.6 OUTWARD EXPANSION

The increased demand for land on the periphery of an existing built-up area which results from the growth of that area reflects both the demand from new activities and persons and from activities displaced from the urban area during the process of internal reorganization.

Peripheral growth, compared with areas nearer the city centre, takes place at relatively low densities because the supply of land shows a more than proportionate increase as distance from the centre increases, improvements in transport widen, the possibilities of using land for urban purposes, especially in the case of residences. The first wave of suburban development is patchy because the initial development leapfrogs sites with any developmental handicap, such as poor drainage or remoteness from transport facilities. Development is along the lines of least resistance which prove to be the existing routes affording the easiest access. Thus land on either side of a main road, for considerable distances into the countryside, is converted to urban uses. Peripheral expansion takes this form, i.e., ribbon development, because there is a saving to the private developer on road and public utility costs plus the advantage of direct access to a main route.

With further increases in demand for suburban land then ribbon development is extended along existing routes and other development selects the best available sites for their purpose within the compass of the transport facilities. It would now be worthwhile to use land in the interstice areas between main routes because such land will be nearer to the city centre in terms of distance and, although, not having the advantage of immediate access to main routes the time taken to make a journey to the centre will allow such sites to compete with those adjacent to a fast route and much farther from the city centre. Also, advances in building technology may overcome the disadvantages which previously prevented the development of certain sites and when this occurs one will get the infilling of open spaces between the already developed areas.

Expansion of the urban area involving the initial improvement of vacant land is, under the free working of the price mechanism, usually confined to residential and industrial use. This reflects both the attractive qualities of the periphery and the pressure of demand for central land which squeezes out certain uses. The high land values and local taxes together with the difficulties of obtaining space for expansion, the unsuitability because of obsolescent buildings, and the difficulty of securing a location with adequate transport facilities force those land uses which use relatively large amounts of space per person to seek alternative sites. These

uses are especially modern industry and single-family residences. Industry finds peripheral sites attractive because large areas of lower cost land are available and future expansion can be catered for. The residences seek out the most amenable sites.

Where outward expansion of an urban area takes the form of discontinuous sporadic settlement and ribbon development there will be wasteful provision of public facilities and services. The linear pattern of ribbon development does not lead to the most efficient layout of public utility services, for example, a greater number of residents can be served from an electricity sub-station when those residents are grouped around that station than when they are strung out on either side of the sub-station. Costs per user are therefore higher and progress towards an optimum unit may be hindered. Moreover, peripheral spread, by concentrating along the most accessible routes to the city centre, will eventually lead to the congestion of those routes. The new suburbanite did not get other things he desired for the building of houses outstripped the provision of communal buildings, shopping facilities, etc.

The expansion of the urban area also brought a clash with agricultural interests. There will be a rise in the value of agricultural land because of the anticipation of urban use. Farmland can lie idle if there is the prospect of immediate sale and will be held by speculators until ripe for development. In other cases part of a farm unit may be sold for urban use and the remainder is too small to be a viable economic entity, with the result, that, in time, it too becomes derelict.

Moreover, suburban development is concentrated in the better farming areas because the urban uses are buying accessibility – to roads, public utility services, etc- and it is only in the better farming areas that these are readily available.

Peripheral growth around the smaller cities which have a single, dominant nodal point is a relatively straightforward process. Where such cities are located near to each other their continued expansion may bring about the coalescence of the neighboring but formerly separate nuclei. The outward spread of large cities can also take the form of distinctly separate settlements at some distance from the city

itself and usually such dormitory settlements are linked by rail to the “parent” city and are characterized by a very small proportion of land in commercial and industrial activities as workers living here depend upon the city for employment opportunities.

11.7 THE OVERALL PATTERN OF CHANGES

Certain generalizations can be made regarding the effect of urban growth on patterns of land use, intensities, and land values. As an urban area grows in size specialization takes place in both the type of service and the location of that service within the city. Thus land use patterns reflect this increasing specialization. The changes in land use are brought about by the relocation of firms, the decline or death of old firms in outmoded locations and the rise of new firms in more favorable positions. When a firm changes its location this requires the expenditure of economic resources and the new location must promise sufficient advantages to offset this cost as well as any sacrifice of non-transportable fixed capital. The latter is a relatively slow process and marginal activities will be spun off from the centre as sunk capital can be written off. The changing location of jobs is a most important factor influencing the location of residences. Specialization of land use within the central business district may result in the retail and office uses separating into their own sub cores. Elsewhere industrial areas appear and, in the case of residences, marked distinctions appear on the basis of social class.

With urban growth there is also an increased intensity of use of available sites for it becomes profitable to erect higher buildings. Other things remaining the same, the increased demand for urban sites would give the greatest increase in the intensity of use in the central business district, with proportionately smaller changes on other sites as distance from the centre rose. Thus with increasing city size more persons require accommodation and the higher residential densities make it worthwhile to provide this accommodation in the form of multi-family dwellings. The proportion of multi-family dwellings in the total stock of residential accommodation increases both as the city centre is approached and as the size of cities increases. However, there may be simultaneous changes taking place which also increase the supply of land for urban purposes that, outside of the central

business district and the transition zone, new development is at appreciably lower densities than elsewhere. Urban areas which have grown only in the era of the motor-car have much lower residential densities than older urban areas.

The changes accompanying the expansion and growth of urban areas are best summed up by the resultant variations in land values. As a result of transport improvements, and assuming conditions of demand remain unchanged, there will be a relative rise in the value of space adjacent to large cities. Within the previous built-up area certain land values may fall because of the shift of demand to adjacent sites. In other cases values rise because the improvement in accessibility has created more opportunities for specialization and any saving on transport costs means more money to pay for land. In the case of urban growth, where the demand for space increases, the result must be to raise the aggregate of land values within that particular urban area. The greatest relative increase in the land values of sites within the urban area is placed in and around the position of greatest accessibility (i.e., the central business district) and above average increases may be associated with sites which are being developed for the first time or are adjacent to new or improved transport routes. Changes in land values will thus reflect alterations in the type of user and the intensity of use of sites within an urban area.

11.8 PROBLEMS OF URBAN GROWTH AND INCREASING CITY SIZE

It has been maintained throughout this chapter that the adjustments necessitated by urban growth will be brought about by the interaction of demand and supply forces in the urban land market. On the other hand it has not been contended that these adjustments are accomplished without difficulty, nor even that adaptations made represent complete adjustment to the changed circumstances. For instance, it was pointed out when considering redevelopment that private enterprise is likely to redevelop buildings within a given network of roads but there comes a time when the road system needs re-aligning if an urban area is to perform its functions efficiently. The process of growth is accompanied by certain problems which are intensified as city size increases. Space does not permit here the exhaustive treatment of all such problems but an indication may be given of the

nature of these problems. This may serve as a pointer to improvements to the framework within which the price mechanism works and allow a more efficient use to be made of our scarce resources.

With the redistribution of population around a city which is characteristic of urban growth the process of selection is such that the population remaining near the city centre is predominantly from the lower income groups. Such income groups require the greatest number of city services yet they contribute the lowest proportion of all urban land users to the cost of those services. Associated with these concentrations of low-income persons are high rates of disease, crime and vice. The dwellings they occupy are slums and it is not profitable for private enterprise to redevelop to higher standards of accommodation because the price/rent would far exceed anything these income groups could afford, even where the redevelopment was of a very intensive nature. The initiative for slum clearance in these areas must often rest with the urban government authorities. Usually where redevelopment is attempted under the latter's guidance the new development takes place at a lower gross residential density than existed, in order to provide open space, etc., previously lacking. In consequence all the persons displaced cannot be re-housed in the area being redeveloped and the overspill population must be settled elsewhere.

As earlier indicated the urban infrastructure of roads, public services, and the like are especially important to an urban area's efficiency. The provision of these facilities and services is now largely the responsibility of public authorities. As such they have been removed from the full influence of the working of the price mechanism, in the sense that changes in supply do not only take into account alterations in demand but depend on the availability of money from the public purse. This is especially true of non-profit-making activities where no price is charged directly on that facility. In many urban areas the supply of roads has not been increased in line with demand with the eventual result that as an urban area grows the roads become congested and parking space more difficult to find.

The increased specialization in the location of urban activities brings further separation of workplace and residence so that the length of the journey to work, in distance and time, tends to increase as the size of an urban area grows. Each movement of persons to the suburbs throws an increasing burden upon the existing roads and public transport systems. This demand is of course, highly concentrated at the beginning and end of working day so giving those short periods of daily ebb and flow, the rush hours.

Expansion of urban areas proceeds at such a pace that the local government boundaries are soon outdated. Problems may arise where a conurbation resulting from the coalescence adjacent, growing urban areas is subdivided amongst several urban authorities. Similarly, when urban expansion takes place in an area still controlled by a rural authority. In both cases problems of local government responsibilities and finance may arise. Other problems associated with increasing city size are the increased cost of motor accidents, environmental deterioration, atmospheric pollution, greater incidence of suicides, and many more.

In spite of these numerous disadvantages urban areas continue to grow in size, and the largest urban areas have shown some of the fastest rates of growth. This suggests that the considerable advantages of large size have not been outweighed. Indeed the large cities have been amongst the leaders in improving the range of social services available to their inhabitants and these have been able to provide better medical, educational, and other institutional facilities, and their standard of efficiency in public services such as sewerage, water supply and refuse collection is unsurpassed by smaller urban areas.

CHAPTER TWELVE

THEORIES OF URBAN GROWTH

12.1 URBAN GROWTH THEORY

Urbanization is a field of interest of many disciplines and within each discipline answers have been sought to similar questions, for example, attempts to explain why and how urban areas grow. All these studies contribute to an understanding of the phenomenon of urbanisation. It is also unlikely that a single discipline can provide answers to all the questions asked about something as complex as an urban community. Indeed, it has been emphasized, earlier in this section, that economic forces act within a framework and that there is a constant interplay between economic and other forces. An evaluation, from the economic point of view, of some of the theories relating to urban structure and growth may aid the understanding of urban development.

In this chapter attention is focused on certain theories and ideas which set out to explain the growth of urban areas. Line group of theories has concentrated upon the development of the internal structure of an urban area and these may be conveniently treated under the title, pattern of growth theories. Another group singles out changes in a particular type of activity as the stimulus to growth. Finally, to complete the picture the contribution of location theory and input-output analysis needs to be assessed.

12.2 PATTERN OF GROWTH THEORIES

Four theories generalizing the pattern of growth of urban land use have been recognized-concentric zoning, axial development, sector, and multiple nuclei. All these emanate from a common source, the urban research undertaken at the University of Chicago. Each theory will be examined in turn before discussing the contribution of these patterns of growth theories in general.

i. Concentric Zone Thesis

The concentric zone thesis was the work of Ernest W. Burgess¹ and, based on empirical studies of Chicago, illustrated the typical process of urban growth by a series of concentric circles expanding radically from the central business district. The first zone, the central business district, is the focal point of commercial, social and civic life of the urban area. Land use takes the form of shops, offices, hotels, theatres, and the like. It also represents the area of original settlement and this explains its central position in the subsequent expansion. Early in an urban area's history zone two was a rural fringe which attracted high income groups to then fashionable homes. Now it is an area of transition in which the deteriorating residences have been invaded by business and light industrial uses, including wholesaling warehousing and marshalling yards. Any residents who remain in the slum conditions have no choice but to live there and they are followed by services catering for them, such as cheap bars and pawnshops. Zone three is basically an area of low-income housing which is determined by convenience for those workers who must live within easy access of their job. The outer zones provide residential facilities for progressively higher-income groups. In zone Four the better class residences are single-family dwellings, with an occasional exclusive district restricted to the highest income groups and certain minor commercial concentrations duplicating some of the central business district services. In the commuter zone there is a patchy development of high-class residences associated with the fastest existing transport routes. The outer limit of this zone being regarded as an hour's journey to the central business district.

Concentric zoning is based on the idea that similar or functionally related activities will locate at the same distance from the centre of an urban area. Land uses in each successive outward zone from the central business district are sorted out in order of their relative ability to benefit from and pay for proximity to the centre. Each zone would be of a relatively homogeneous land use, and as physical growth proceeds outwards from the centre, then, areas occupied at the same time will have a similar character. From the economic point the perfect regularity of concentric zoning would only result if sites a given distance from the centre,

irrespective of direction, were 'equally accessible to that centre. Differences in physical features, transport facilities and the like would destroy the symmetry of the ideal pattern.

According to this theory the process of urban growth is one of radial expansion from the centre whereby each inner zone extends its area by invading the adjoining zone towards the periphery of the urban area.

The concentric zone theory thus offers an explanation of the internal structure of urban areas as well as showing how the urban area grows in the physical sense. Concentric zoning emphasizes competition for sites based on the principle of ability to benefit from accessibility reckoned solely in distance terms to the city centre. But time is just as important as distance for accessibility. With transport confined to limited routes sites a given distance from the centre may not be equally accessible to that centre and the regular rings of land use would be disturbed. Also certain uses, once located, may attract or repel other uses and this raises questions of accessibility other than to the urban centre. Thus accessibility to a single focus; the central business district, may not be the only consideration where concentrations of heavy industry and commercial activities occur elsewhere in the urban area. This explanation of internal structure is an over-simplification although pointing to the importance of accessibility within an urban area.

In an urban area in terms of growth this theory tells how and not why an urban area grows. Assuming growth to take place it requires internal reorganization where one zone invades another and peripheral expansion of the outermost zone of the built-up area.

ii. Axial Development Theory

This theory represents a natural progression of thought from the previous one because accessibility to a single focal point is still a basic premise. However, accessibility is considered in terms of time as well as physical distance, and it is accepted that transport facilities in any urban area are limited. Therefore movement will be concentrated along particular routes and the form of urban expansion would be controlled by the available transport facilities. By introducing

limited transport routes this theory represents step forward in explaining the shape of urban built-up areas and also the way in which peripheral expansion takes place. The internal pattern of land use would, in this case, be one of irregularly snapped zones. Therefore, criticisms of concentric zoning, regarding accessibility to places other than the central business district, will apply. Economists would then have proceeded by introducing further complications, e.g., importance of complementarity, into the analysis and outlining their effects until a realistic pattern of urban land use had been established. However, the next theory, although basically a refinement of axial development, focused attention on a particular land use.

iii. Sector Theory

The sector or wedge theory, formulated by Hoyt, suggests that growth along a particular axis of transport usually takes the form of similar types of land use. Each sector is of relatively homogeneous land use and expands outward in particular direction from central business district. Empirical evidence for the sector arrangement was provided by patterns of residential land use. The sector theory attempts to explain the pattern of urban growth from the point of view of changes in residential land use.

The growth of an urban area was conditioned by the expansion of the residential districts, the latter hinging upon and influenced by the movement of the high-class residential pole. Since high-income group housing is hemmed in on each side by middle-income housing, the only place where new high-grade housing can be built is on the edge of the existing area. Factors which influence the outward expansion of high-grade housing are thus especially important to the sector theory. Growth of the high-income areas proceeds along the fastest existing transport routes and progresses towards higher ground. The sector has pleasant open country beyond its edges, and towards the homes of the leaders of the community. In certain instances the direction of growth may be influenced by estate developers.

It is common for persons to seek to live near to others of similar social and income class and the resultant segregation of residential areas will be reflected in urban

land use pattern. The higher a person's income the better the standard of housing he is likely to demand, the greater his ability to afford access to an amenable environment and the further away he can live from his place of work. At the other extreme persons with very low income are tied to locations giving them low cost access to their place of work and so their range of choice is severely limited. The sector principle appears to be a likely explanation of urban land use patterns and is able to explain differential rates of growth in different parts of the city. However, the sector theory takes, as given, the sources of employment. In concentrating upon factors influencing high-income housing the theory overlooks the factors affecting the location of employment opportunities. The location of the latter is of special importance in the case of low-income housing. Therefore the outward expansion of the low-income sector will be dependent on the location of new employment opportunities. As with the two previous theories no indication is given as to the causes of urban growth.

iv. Multiple Nuclei Theory

Harris and Ullman argue that in many urban areas there may be more than one focal point and that each of the discrete nuclei, influence the location of certain land uses. In some urban areas such nuclei may have existed from the very beginning as when subsidiary settlements are absorbed into an expanding urban area to form secondary nuclei around which land use is intensified. In other cases the nuclei appear with the growth of the urban area. For example, the growth of urban population in one part reaches a level which will support a suburban shopping centre or manufacturing firms find an advantage from being located together in an industrial area as they grow in number.

Four main principles were suggested for the rise of separate nuclei and differentiated districts. In the first place it was recognized that certain activities require very particular conditions of access e.g., retailing and general accessibility. Secondly, certain activities benefit from grouping because of advantages of complementarity. Thirdly, other activities are detrimental to each other and the location of one such use will deter other users from locating in that neighborhood.

Fourthly, some activities, e.g., bulk wholesaling, are unable to afford the high price for the most desirable sites.

The larger an urban area becomes the more numerous and specialized the nuclei. All urban areas will have a central business district which will be located near the focus of intra-city transport. The central business district need not be in the centre of a city but as a result of asymmetrical growth it could be towards one edge of the built-up area. Industry is also likely to cluster together in an urban area and in the larger urban areas, light industry, plus wholesaling and warehousing, etc will be found near the focus of extra-city transport whilst heavy industry, for reasons of noise, odours, waste disposal, etc., will be located away from the main part of the urban area. Residential districts also show increasing differentiation as city size increases. Other nuclei within the town may take the form of cultural and entertainment centers, or suburban business districts. Yet other nuclei could appear beyond the main built-up area in the form of dormitory settlements and represent a response to commuter rail services and use of private cars.

This theory allows the development of the most irregular pattern of urban land use because development can proceed from more than one centre. In underlining irregularity of urban land use patterns it can be suggested that a particular pattern would have to be drawn to fit each urban area. From this one would conclude that there is not really basic pattern common to all urban areas. But such a conclusion overlooks the fact that urban land uses would be distributed according to the four principles outlined above. Thus accessibility considerations, opportunities for specialization, the importance of complementarity, and the mutually repellant nature in certain land uses operate to determine land uses within an urban area. These forces would only give a pattern of land use common to all urban areas if the framework within which they operated was identical in the case of each urban area. The framework, of course differs. One urban area may be located on the coast, another on a river, yet another inland away from any water body: one city may be the terminal point of a railway whilst, another is astride a through route, a third at the junction of two lines: and so on for the many other differences. Features such as these will influence the pattern of land use within urban areas

and it is unlikely that even similar patterns occur in all cities. In assessing the value of these patterns of growth theories to urban land economics it must be realized that they are descriptive in as much as they are analytical. As generalizations they seek to explain the internal structure of urban land use and the pattern of outward growth. The individual theories concentrate on one or more factors in attempting to explain urban land use patterns. However, it is unlikely that a single factor explains these patterns or even a mix of two or three factors. It is therefore probable that most cities exhibit some aspect of each of the generalizations of land-use patterns commented upon in these four theories.

Especially important amongst the factors ignored in these theories are the effect of public decisions to use land in certain ways and the fact that some uses are motivated by non-economic considerations. Land use is not exclusively determined by economic competition. Further the overall shape of the urban area is relatively compact in the case of all these theories. The shape is the end product of the analysis. Empirical evidence suggests that urban areas can have varied shapes: e.g. compact nucleation, linear patterns. This, of course, poses the question whether the shape of an urban area has any relationship with the pattern of internal land use. The location of certain activities and their scale of operation may well be influenced by "shape of an urban area. The concentration of functions in the central business district is a case in point. A linear shaped urban area has a wider spreading of functions and a relatively smaller and weaker central business district than a similarly sized urban area which has expanded more equally in all directions.

Although dealing with urban growth these theories concentrate upon on urban development. No answer is provided to the question as to what causes the growth of urban areas. In fact, these theories take growth for granted. i.e., it is an implicit assumption that an urban area will grow in size. The predictive value of any of these theories would, therefore, depend upon knowledge of the type and amount of growth and it is to the problem of the causes of urban growth that the next group of theories sought an answer.

12.3 GROWTH MULTIPLIER THEORIES

This second group of theories not only tries to explain why an urban area grew but also attempts to determine the extent of growth. This is where the concept of the multiplier comes in. Each theory identifies an activity or item within the city which, in changing, brings about an increase in the size of a city. There is a particular relationship between such an activity and the number of other activities in a city and from this a multiplier can be deduced which will indicate the extent of urban growth resulting from a certain change in the causative activity. As there is a common basic idea behind these theories it is proposed to comment in detail on just one of these theories, the economic base theory.

12.4 ECONOMIC BASE THEORY

Urban areas are centers of specialized activity and the level of urbanization is closely associated with specialization between urban areas. Where urban areas reach a high degree of specialization in the production of goods and services to be supplied to outsiders they cannot be self-sufficient. The economic base theory suggests that, to a large extent, the size of an urban area will depend on the amount of goods and services supplied to outsiders, i.e., its exports. Thus growth of an urban area is a response of industries within that area, in supplying more goods following an increase in demand from outside the area itself. The rate at which an urban area grows depends on the rate at which demand for its exportable products increases. Activities producing goods and services for export beyond an urban area's boundary, therefore, provide the reason for the existence and growth of urban areas. Moreover, the money earned by the export activities provides the means of payment for goods and services an urban area cannot produce for itself and also supports the production of goods and services to cater for the needs of the area's population.

Urban activities are subdivided into two categories: base or service. Base or export activities supply goods and services to meet the non-local demand of persons living outside the urban areas, and thus they bring money into the area. Service activities produce goods and for consumption by the inhabitants of the urban area and so satisfy only local demand. An activity is classed as base activity where its

good or service is supplied to persons living outside of the urban area, even if those customers come to the urban area to make their purchases, e.g., where a service is rendered in an urban area, such as hairdressing, legal aid, negotiation for a loan. Transactions such as these will bring income into an urban area just as much as the export of physical goods. Nor should the effect of money flows resulting from transfer payments and the spending of tax proceeds be overlooked as a way in which income can find its way into an urban area.

The economic base theory states a cause and effect relationship between the base activities and the service activities, and hence the total population of an urban area. An increase in the amount of base activity located in any urban area would increase the flow of income into that area and so further increase the demand for goods and services within the area. The result would be an increase in the volume of service activity within the urban area. Labour is attracted from other areas and the population would grow. Alternatively a decrease in base activity would lead to a fall in income coming into the area and a decline in the demand for the products of the service activities. Unless there was a revival of base activity, in time, people would move away and the population would decline.

By means of a series of ratios, not only the trend of change is indicated, but also the extent of urban growth or decline. Normally the ratios are established by considering employment figures. Activities within the urban area must be allocated to either base or service categories and this may present difficulties where activities are "mixed" in the sense that their customers are found both in and outside the urban area. In such cases employment is subdivided between base and service categories according to the proportion of that activity's sales made outside and inside the urban area. The following ratios can then be established between base employment and service employment and, therefore, between base and total employment, and, knowing the ratio between total employment and urban population, the ratio base employment and total population for an urban area. To illustrate the analysis assume that in an urban area of 30,000 inhabitants, one in three of those persons is in employment, and that for every person

employed in base activity one is employed in service activity. The set of ratios for this urban area would be:

Base employment: service employment - 1:1

Base employment: total employment - 1:2

Total employment: total population - 1:3

Base employment: total population - 1:6

As long as the base activity and the employment-population relationships remain unchanged an urban area will be in a state of equilibrium. It was thought that the set of ratios outlined remained constant for any particular urban area. If there was an increase in demand for the products of the base industries the equilibrium will be disturbed and adjustments will take place until a situation is reached where the employment/population relationships are once more in the same proportions as before the increase in base activity. The assumption that, for any particular urban area there is a given base/service employment ratio which remains constant as ~~changes~~ in the size and make-up of an urban area take place, is unlikely to hold ~~throughout~~ for the periods during which urban change takes place. It appears more ~~likely~~ that the base/service ratio actually changes with the very growth or decline ~~it is~~ supposed to estimate. The service element tends to increase in relative importance as an urban area grows in size. This is logical for urban expansion is not simply a multiplication of cells as a constant ratio assumes. All base industries do not necessarily change at the same rate and certainly different base industries generate varying amounts of service activity. The base/service ratio is an average which masks such differences and for those urban areas with more than one base industry, changes at the margin need to be the same as the average represented by the ratio. Although the numerical refinement of the economic base theory may well be suspect, it need not detract from the truth of the underlying proposition that changes in urban areas depend upon changes in base activities.

However, the theory has been criticized for the undue importance it attaches to base or export industries in determining the magnitude of economic activity in an urban area. It has been pointed out that this may not be true of a larger area, such as a region or a country. For example, if the whole of the United States is taken

then exports are not the major determinants of the level of economic activity. But this is a fallacy of composition: it cannot be argued that what is true of a part must be true of the whole. For the world as a whole it is obvious that exports do not determine the level of economic activity, since there are none, but this fact, in itself, does not invalidate the possibility that the economic activity of each individual urban area is determined largely by its exports. Another criticism concerns the position of service activity. The theory argues that service activity is dependent upon base industry, but, in some cases at least, well developed service activities in an urban area will attract base industries to that area, and these would be amongst the determinants of that area's level of economic activity. Moreover the growth of an urban area increases the size of the local market and there comes a point where the area can produce a commodity for itself, rather than import it, and the resultant increase in service activity may attract new base activity, which provides opportunities for yet new service industry. The fortunes of certain service activities are closely tied to base industry but some service activity may be, more or less, independent of base industry. It is true that persons cannot live solely by taking in each other's washing but if no one took in other persons' washing then income-earning opportunities would be lost. Although there are circumstances in which service industry can be a determinant of the level of an urban area's economic activity it cannot be denied that, in the long run, service and base activities are complementary and without base industries, or the attraction of these, the service industries are likely to decline and population will move away from that area.

A further criticism of the economic base theory is that it only tells what will happen when there is a change in base or export activity. It gives no indication of what future base changes may be expected in the case of a particular urban area. After singling out base or export industries as the reason for the existence of urban areas and, thus, changes in those industries as the cause of urban growth and decline, the base theory goes on to concentrate on the responses within an urban area and pays little or no attention to the factors which determine the extent of the market for that urban area's exports.

A valid criticism of the theory is that it does not emphasize the importance of imports. The base or export industries earn a money inflow for an urban community, whereas the purchase of Imports results in a money outflow. It is just as important to measure the imported and locally produced shares of total consumption in an urban area as it is to measure the exported and locally consumed shares of total production in that area. For instance, if, with an increased inflow of money into an urban area due to additional base activity, all the extra money was spent on imports there would be no increase in the demand for the products of the service industries in that area. Therefore the multiplier effect of an increase in base activity must depend on the proportion of the extra money which is spent on imports, i.e., the marginal propensity to import into the area. The larger the proportion spent on imports the smaller will be the multiplier effect leading to an increase in service activity.

Recent developments in the search for an urban multiplier use a Keynesian approach to give an overall consideration to the major determinants of the level of income in an urban area. Various techniques are advocated for doing this, from drawing up a social account for the urban area showing income, output and expenditure, to analyzing the inter-area flows of goods, services and money. In practice the main problem of the Keynesian approach at this local level is the lack of statistics. However, the factors influencing the level of urban economic activity, and their inter-relationships can be noted. Here one assumes that the urban community can be subdivided into two parts, the resident population, who supply factors of production, and demand goods and services, and the urban industries (including local government) producing goods with the aid of hired factors for sale inside and outside the urban area. The value of goods and services produced by the urban industries in a given period equals the money income paid out to factors of production which have contributed to that output. Of this income part may be paid to factors owned by persons living outside the urban area, part may be retained in the form of undistributed profits by the producers, and remainder will be paid to factors owned by the residents of the area, although a proportion may be siphoned off by national government taxation of incomes. Additional income may accrue to

these urban residents from factors owned but hired to producers located outside that area and from any government transfer payments. The urban population disposes of its income in three ways, expenditure on goods and services produced within the area, expenditure on imports, and savings.

The money inflow to the urban community derives from outsiders' spending on exports, earnings of externally employed factors, and national government transfer payments and subsidies. If there is an increase in this money inflow the effect on the economy of the urban area will depend on the proportion of the additional money' which is spent within the town, i.e., on the marginal propensity to consume internally produced goods and services. The money that leaks from the urban community, in the form of spending on imports, payment for the use of externally own factors of production, national government taxes, will generate economic activity elsewhere. In the case savings and undistributed profits these may or may not be retained for use within the urban area.

Keynsian analysis provides a multiplier which indicates the extent of growth of urban income consequent upon an initial increase in the money inflow into that urban area. It remains for the increased urban income to be translated into increased employment and population. Such factors as wage differentials, increased productivity due to improved capital equipment must be taken into account in the calculation.

Growth multiplier theories do suggest possible causes of urban changes, the economic base theory emphasizing export or base activity and the Keynesian approach stressing income-generating activities. However, having isolated the activity(ies) fostering urban change, these theories concentrate on the rate and extent of urban change brought about by a given change in the causative activity(ies). The weakness of these theories is that they cannot predict when a change in the causative activities will take place and do not explain why any activity serving other than a local market chooses to locate in a particular urban area. For example the economic base theory does not examine the factors which determine the extent of the market for the products of its base industries. It will be

changes in the extent of the export market which bring about the growth or decline of base activity.

An alternative to the Keynesian approach is input-output analysis which attempts a detailed presentation of the production and distribution of the individual industries of an urban area and of the nature of inter-relationships among the industries themselves and between those industries and other economic sectors both within and outside that urban area. Thus, for each industry; it is necessary to know its purchases of inputs (labour, raw materials, components, transport, services, etc.) from all other industries and Sectors of the economy, with a distinction being made between those input purchases internal to an urban area and those involving activities located elsewhere. A similar analysis is made for the distribution of the output of each industry. It is not proposed here to construct input-output tables for an imaginary urban area, for it is the underlying principle of the analysis which is important. Input-output studies of urban areas show the structural dependence of one industry on the other industries; and activities and so allow the chain of repercussions following & given change in one industry or activity to be traced through until the adjustments necessary to restore an equilibrium position have been made. Again the reasons for the original change must be examined separately for input-output analysis goes no farther than the multiplier theories in examining the causes of changes in activity which necessitate adjustments within the urban area. To complete the survey of the theory behind urban growth it remains to consider ideas relating to the type and amount of economic activity found in an urban area and to examine the causes of changes in such activity. The answers to both are found in location theory.

12.5 LOCATION THEORY

The general nature of location theory shows that the location decision of any economic activity was made after a comparison of the relative advantages of various sites for the performance of the activity in question. Thus, by considering the factors influencing the choice of area or site, location theory throws light on what industry and how much of each industry can be expected to develop in an urban area. The growth or decline of an urban area's volume of economic activity

depends upon changes in that area's access at competitive costs to factor inputs and to markets for its output.

As production inputs and outputs are for most firms relatively mobile and substitutable the costs involved in moving those items will be important. Thus urban areas able to offer relative advantages for factor assembly or market contacts will be able to attract economic activities. Any change in the availability of transport, changes in market areas and occurrence of resources and so on, will alter the relative advantages of urban areas for various economic activities. In consequence new investment will take place in such an urban area and growth will continue so long as investment opportunities in that area, relative to opportunities elsewhere, are the most profitable. New investment of an urban area will have a multiplier effect. The kind of growth that follows new investment depends on the extent to which a new activity or the increase in existing industry is closely tied to or independent of associated processes which precede or follow it. Some industries will generate a greater amount of additional activity than others.

Location theory, by outlining the factors influencing an activity's choice of site, indicates the type and amount of industries location in an urban area and will explain changes in the location of economic activities.

CHAPTER THIRTEEN

THE SIZE AND SPACING OF URBAN AREAS

13.1 URBAN SIZE AND SPACING

Urban areas grow up in particular locations in order to discharge certain functions for the surrounding countryside, or for regional, national, or even world markets. In each case the actual location was dependent upon factors favoring the establishment of certain activities, having a comparative advantage, at that point. Local conditions of site, such as availability of water or river crossing, may be of importance in localizing the original function or functions at a particular spot and this is usually the nucleus around which further growth takes place. Towns are only exceptionally maintained by the intrinsic resources of their site but rely on their situation with respect to surrounding areas and regions in order to develop economic activity to the fullest possible extent.

13.2 THE SIZE OF AN URBAN AREA

In discussing the size to which an urban area may develop the economist is concerned more with the size of an urban area relative to other urban areas than with the question of absolute size. The fallacy of the extreme local development approach which regards city as capable of limitless economic expansion need not concern us for each urban area has to meet competition from others in the country in which it is situated. The competitive advantage of a city or otherwise, will depend upon its efficiency in assembling materials, producing and distributing its specialized goods and services.

The size of an urban area is thus a function of the number of activities located within it, and the extent to which specialization is possible within some or all of those activities. The advantages of specialization can only be reaped by incurring transport cost, and degree of specialization in the production of goods and services within an urban area depends on the extent of the market. The extent of the

market depends upon the demand of persons living within and outside the urban area. The demand for goods and services, produced in an urban area, by persons living outside that area is determined by the cost of production in that area plus the cost of transport from that area relative to the cost of production in, plus the cost of transport from, other urban areas to the potential customer. Thus an outsider will purchase goods and services from the urban area which can supply him at the lowest price, including the cost of transportation. Because of increasing transport costs a point will be reached for any good or service where it becomes dearer to an outsider to obtain it from a given urban area than from elsewhere, i.e., the limit to the extent of the market for the given urban area has been reached. Such market limits will be different for the various goods and services produced in an urban area.

With any particular good or service the limiting points to the market need not be equi-distant in all directions from an urban area, for there is no unique correlation between distance and cost of transport. In practice a large part of total transport costs for any good is accounted for by loading, unloading, and trans-shipment, the need for the latter depends on geographical and political factors. The actual movement of goods on the conveyance may represent only a small proportion of the total transport costs. The same principle applies where outsiders come to an urban area for a service, as the limits to the extent of the market still reflect the cost of transport. Similar considerations influence the residents of an urban area travelling outside to render services.

Here, then, is the reason for not concentrating as many activities as possible in one or a few urban areas of a country. A small urban area may be able to supply goods and services at a cheaper cost (including cost of transport) than a larger urban area to persons at a given geographical location. This is not to deny that the larger urban area may have advantages over smaller urban areas in the form of lower production costs due to greater specialization, but that these advantages are more than offset by transport cost when supplying goods and services to certain outsiders. No matter how large an urban area, there must be limiting point to the

market for its goods and services beyond which other urban areas have a relative cost (including transport costs) advantage in supplying some people.

The size of an urban area is thus dependent on the extent of the market for the product it produces. Given the same cost of production for various commodities in all urban areas, the cheapest transport facilities will have the largest market areas for the goods it produces and be the largest city. If transport costs were the same for all urban areas then the largest urban area would be the one with the lowest production costs per unit of output. In fact, cost of production and the size of the market are inter-related because the size of the market determines the extent of specialization in production and on the latter hinges the benefits to be derived from internal and external economies of scale. Thus urban areas which have a relative transport cost advantage will find this reinforced by a relative production cost advantage associated with the larger market. However, there will still come a point, at some distance from the area in question, where the price (including transport costs) of supplying goods and services from that area to an outside consumer is higher than the price of alternative supplies.

13.3 THE OPTIMUM SIZE OF URBAN AREA

The best or optimum size for an urban area depends very much on the criterion chosen. There are two elements to any criterion: a normative element which places a value-judgment on a particular situation and the empirical facts of the relationship between city size and the variable considered. To illustrate this, take the literacy of the population as the basis of a criterion. Thus the size of an urban area should be that which is most favorable to the literacy of its population. A value-judgment has been made that literacy has a positive value and illiteracy a negative value. The empirical facts would then have to show that there is a significant size of urban area from the point of view of literacy.

The economist has remained fairly neutral on the question of city size. From an economic point of view the optimum size of urban area would be that population and organization of land use which maximizes the net product and utilities per head of population, given available resources, technological and social conditions

This has two implications. Firstly, that there is an optimum population for the most efficient performance of productive activity and social relationships and that any increase in population creates difficulties out of all proportion to the benefits received. Secondly, that there is an optimum area beyond which further growth hinders rather than promotes efficient execution of an urban area functions.

It has been supposed that there is some absolute maximum size of city beyond which growth stops because the city becomes subject to increasing costs, and, therefore, a less efficient and desirable place to live in or carry on economic activities. Publicity has been given to the ill effects of urban growth, such as traffic congestion, but these ill effects have not been sufficient to prevent further growth of large urban areas. This suggests that the additional economic benefits from urban growth more than outweigh the extra economic costs which accompany that growth.

The economic advantages of urban organization are the same as the economic factors which favor increasing growth of urban areas. The larger an urban area the greater the opportunities for specialization in the production of goods and services. The significance of complementarity is enhanced to further increase the output of goods and services. Better use can be made of labor of varying abilities and the supply of labor, from an individual employer's point of view, will be greater; whilst, for the individual worker, there is a wider range of job-opportunities. General economics of agglomeration confer further advantages upon large urban areas. These advantages show themselves economically in a higher output per head of city population as the size of urban area increases. The income level per worker and per family is thus positively related to city size. It is the greater advantages of specialization and complementarity, etc., which explain the income advantage of large cities. On the other hand it has been suggested that the advantage of large cities is illusory because the cost of living in such cities is greater than in smaller cities. This may well be so but as long as the income advantage of large cities is greater than their cost disadvantage these cities are likely to grow even larger, in other words their real income is higher.

Even from just the economic point of view it is doubtful if a single optimum size city should be defined because different urban areas perform different economic functions. Therefore, a city size limit will depend on the functions it performs. Thus an urban area performing functions only for the surrounding countryside is likely to have a different optimum size from an urban area which serves as a regional capital. There can be no single economic optimum to which all urban areas tend. Instead a range of sizes related to the functions performed and the market areas served is more likely.

However, not all criteria regarding optimum city size are based on purely economic factors. For example, using public safety as a criterion it can be shown that cities of under 50,000 are safer to live in than larger cities. Such cities have lower rates of crime and fewer traffic deaths per 1,000 residents, as well as a lower probability of destruction in a nuclear attack. Not all non-economic factors give such a clear indication of the optimum size. Conflicting indications can be obtained when health is used as a criterion. The principal health advantage of large cities is the immediate access to superior medical services which is reflected in such factors as a higher ratio of doctors to population and lower infant and maternal mortality rates. Alternatively persons living in large cities are more vulnerable to long-term hazards resulting in higher death rates from cancer, heart disease, tuberculosis, diabetes, etc.

The optimum size for a city may, therefore, be very different for various criteria. However, here we are concerned with economic criteria. Economic factors, in general, favor an increasing size of city. Of course, the economic advantages of larger cities may be outweighed by non-economic considerations which militate against increasing city size. Moreover, the extent to which any urban area can grow to reap the benefits accompanying increased size depends on the extent of the market for its economic activities.

13.4 RELATIONSHIP BETWEEN SIZE AND SPACING OF URBAN AREAS

When the factors determining the extent of the market for the products of any given urban area was analyzed it was apparent that the fortunes of any one urban

area could not be divorced from that of other urban areas. The geographical distribution of urban areas is highly irregular. It is not, however, an arbitrary pattern for a definite ordering of urban areas to be recognized. The relationships between urban areas can be summed up in two tendencies. Firstly, urban areas show a size hierarchy. It ranges from the smaller number of the largest urban areas to the largest number of the smallest ones. Secondly, the larger an urban area is the greater will be the distance between it and another urban area of similar size.

The explanation of these tendencies depends on propositions already expounded. The larger an urban area the greater opportunities for specialization in the production of goods and services. The extent of the market for goods and services produced in any urban area depends upon their production costs plus transport costs relative to the same costs for other urban areas. It follows that the larger an urban area, because of the higher degree of specialization, the lower will be its production costs for a higher proportion of the goods and services it produces relative to other urban areas. For example, assume a given urban area could supply half the goods and services at lower costs to another urban area some distance away. If the size of the second urban area was doubled the first urban area would now be able to supply less than half the goods and services at a lower cost. Large urban areas inhibit the production of some goods and services in smaller urban areas, so limiting the growth of the latter.

A corollary of the above is that the larger the urban area the greater will be the distance before another urban area can produce the same goods and services at equal cost and thereby growing to a comparable size. Within this distance the growth of another urban area to a comparable size is inhibited by the competitive advantage of the two large urban areas. Between the two large urban areas of equal size smaller urban areas will develop to produce those goods and services, in the production of which the larger urban areas have little production cost advantage or for which transport costs are high. Still smaller towns develop between these for the same reasons. Thus a hierarchy of urban areas will be built

up. Within the market area served by a large urban area will be a number of smaller urban areas, within whose market areas there will be a number of yet smaller urban areas, and so on down the hierarchy. The larger the urban areas are the greater will be the distance between them and as one moves down the hierarchy so the smaller urban areas are found nearer and nearer to each other.

Every urban area has associated with it a specific spatial tributary area. At the lowest order of the hierarchy a certain amount of productive land is necessary to support an urban area which will perform essential services for the surrounding area. Such urban areas represent the first step in the distributive process of outgoing basic commodities and the last stage in the process of distributing final products for consumption. For every order above the lowest, the tributary area of an urban area of any given order will contain the tributary areas of a finite number of urban areas of the next lower order. Corresponding to every order in the hierarchy there is a definite number of economic functions which each urban area of that order performs and, therefore, a population size typical of urban areas of that order. With each urban area in a given hierarchy having a specific tributary area there must be an associated hierarchy of commodity flows, measured in both terms of volume of flow and length of journey. Therefore, the import-export relationships of urban areas at the various levels of the hierarchy will differ in volume and length and so the internal economic structure of cities will differ according to their order in the hierarchy.

Ideally each urban area should be in the centre of its tributary area. The tributary area would thus be circular, indicating that the limits to the extent of the market are equi-distant in all directions. Central place theory, which covers both the fact that services for surrounding areas become concentrated in urban areas and the resultant hierarchy which emerges, was first fully formulated by Walter Christaller. Refinements of and developments in central place theory have taken place in the last decade but these need not concern us here for it is the principle of a hierarchy which is of interest.

The regularity of the spacing of urban areas is proportional to the simplicity and uniformity of the land area question. The theoretical idea appears to be most nearly approached in poor, thinly settled, relatively homogeneous agricultural areas which are virtually self-contained. The uniformity of the pattern would be distorted where soils were of varying fertilities, different types of agriculture were practiced, levels of intensity of cultivation varied, or topographical feature altered. However, more important distortions result from the fact that urban areas specialize upon certain economic functions, and other urban areas of similar size thus form part of the market, and from the development of limited transport facilities.

Central place theory assumes that the same goods and services will be produced in any urban area of a given size. This is not necessarily true for some urban areas concentrate on producing one or a few goods and/or services. Such urban areas can, therefore, achieve a higher degree of specialization than would otherwise be the case. Specialist urban areas can occur singly or in clusters. This specialization will distort the hierarchical pattern previously outlined. Moreover, there will be no given correlation between specialist urban areas of given sizes or between such areas and cities of similar size performing central place functions.

The size of a specialist urban area depends on the extent of the market for its product. There are of course many products which are tied to very local markets, because of factors such as bulk and perishability. The production of such goods and services will be widely distributed in accordance with the geographical location of population and could be very well dispensed from central place cities. For other goods advantages of concentrating production in one or a few urban areas more than outweigh additional transport costs to the customers farthest from the place of production. These advantages of specialization may be of a threefold nature:

1. The growth of large firms reaping the advantages of internal economies of scale.

2. Where firms engaged in the production of a commodity concentrate in a particular urban area, once the industry has reached a certain size, they will enjoy the benefits of external economies of scale.
3. The concentration, in a particular urban area, of firms engaged in different industries will derive general economies of urban agglomeration, once the industries and the urban area have reached a minimum size.

The size of any specialist urban area will be a function of the number of economic activities, and the number and size of firms within each activity, choosing to locate in that area. Since the advantages attaching to internal and external economies and the general agglomeration economies preclude the presence of every economic activity in every urban area then urban areas of different sizes must develop. This can be illustrated by reference to only one of the economies mentioned. Internal economies of scale have varying significance for different goods and services. Where the advantages of such economies are most dominant and where the good or service produced is a national one then all the markets will be served from one location. That urban area which attracts the greatest number of such national activities will be the largest urban area. The next largest urban area will be the one with the second largest number of such activities and so on, down the scale to urban areas with fewer national activities, to urban areas with activities supplying regional markets, down to urban areas serving only local markets. Similar reasoning applies to the influence of the other economies on the size of urban areas.

In spite of the distortion brought by urban specialization there are sufficient goods and services which would be produced in a given urban area (if not inhibited by lower production plus transport costs elsewhere) to give a hierarchical pattern. Superimposed upon the hierarchy will be single or clustered specialized urban areas. The single specialist urban areas probably perform central place functions for the surrounding territory whereas it is unlikely that the clustered urban areas will have wide tributary areas for which they perform central place functions. Even though it may be argued that functional specialization amongst urban areas creates the necessity for some hierarchy of control. The specialist urban areas,

which by favourable location or historical accident, become the places where the institutions of control centre, tend to be larger than other urban areas performing similar productive functions.

In practice many of the controlling institutions are connected with political and social administration. The capital of a country most naturally develops in the most accessible position relative to transport routes because national administration is cheaper from that location than any other, since such administration is largely a matter of communication between the capital and the areas administered. This inhibits the growth of national administration activities elsewhere and gives the capital an advantage in growth prospects over other urban areas. Such activities are just as important in the economic base of an urban area, because they bring income into the area, as other more normal manufacturing and commercial activity. The same is true for regional and local capitals. The development of an urban area in a region or locality performing such administrative functions will naturally inhibit growth of those same functions in other urban areas. Political functions and other control functions are important, therefore, in determining any hierarchical pattern. Moreover, these administrative activities will attract complementary activities so reinforcing the growth prospects of the urban areas in which they are located. For example, national newspapers will locate in the capital city because many of the events taking place there are likely to have national repercussions. Offices of industrial and commercial firms which need to communicate with central government departments will also find advantages from locating in the capital city. Likewise for regional and local political centers.

A further factor distorting the hierarchical pattern of urban locations is the irregular spacing and varying importance of transport routes. Instead of a spider web pattern of city locations, linear patterns, even of urban areas performing central place functions, develop along main transport lines. The tributary areas of urban areas thwart such transport routes which will be elongated at right angles to the route. They will not be hexagonal. Such linear patterns may develop along railway lines, as those across the North American prairies, or along navigable

rivers, such as the Amazon, or along coastlines, e.g., Chile's Pacific seaboard. The central place arrangement may also be distorted by urban areas whose existence is associated with very special transport advantages. Certain urban areas develop as transport foci or at break-of-bulk points and can thus be supported by areas remote, in terms of distance, from the location of such an urban area. These urban areas are unevenly distributed.

It must not be thought that the system of central places is fixed or static. Usually central place cities are older than industrial cities, for many developed from cities of medieval political importance. Their growth has been slower than their industrial counterparts but changes have taken place in response to the changing needs of and conditions within a country. Foremost amongst factors bringing about such changes have been general improvements in transport. Prior to the use of canal, rail, and road transport, the tributary of any urban area was very limited and, therefore, the size of those urban areas. General transport improvements, such as the introduction of railways, allowed goods and persons to be transported over longer distances. As a result, those central place services where scale economies were possible concentrated in certain central urban places which benefited from a favourable location in respect to the improved transport facilities. Such central places became larger than the others.

Motor transport has not created a different spatial ordering of the largest urban areas or metropolises from that laid down in the rail era. It has had the effect of opening up and extending the tributary areas of the metropolises so as to increase the inter-dependence between the metropolis and its surrounding urban areas. In fact, within the region dominated by a metropolis, urban areas may be complementary to each other, rather than competitive. Thus seaside resorts are complementary to inland industrial cities, the Lancashire cotton spinning towns to the cotton weaving ones, and so on.

In this section of the book, it has been shown that there is an underlying order in the internal arrangement of uses within urban areas, in the way in which individual urban areas adjust to changing conditions, and in the spatial

relationships between urban areas. This underlying order is very much associated, although not exclusively, with the economic activities performed in urban areas. However, it has not been claimed that economic competition will produce the same result in each urban area or region. Throughout attempt has been made to emphasize the framework within which the economic forces actually operate. It is also recognized that many urban situations and problems have received no mention and others are worthy of more detailed analysis than given here. For example, the influence of age on the type of economic activities found in urban areas could have been considered but the conclusions drawn from such a study are unlikely to alter the general principles outlined in this section.

CHAPTER FOURTEEN

ECONOMIC JUSTIFICATION FOR TOWN PLANNING

14.1 TOWN PLANNING AND ECONOMICS

It is possible to study town planning from many different angles. To name a few, the legal, architectural, surveying, historical, sociological and economic; all are studying the subject from different points of view, inevitably, conclusions reached in one field of study will have implications in other fields of study. If in sociological studies, it is found that man lives in groups to satisfy the gregarious instinct, then this will have economic and other implications. It is necessary to look at all these implications, especially in a subject such as town planning when one automatically moves from analyzing and describing to prescribing what ought to be done. For example, it is of no use for a sociologist to prescribe that no town should have a population of more than half a million, because this is desirable from a sociological point of view, if the economic cost or loss of economic benefits from not having larger towns reduces the real national income considerably. Likewise, it is of no use for an economist to prescribe that towns should be allowed to grow indefinitely in order to maximize the real national income, if the mental health of the nation deteriorates, so that less enjoyment is obtained from the greater amount of goods and services. The psychological and other aspects of the economist's prescriptions must be considered.

When making a decision on town planning each factor must be considered along with every other factor. Such a decision cannot be taken purely on economic considerations alone, since what is desirable from an economic point of view, may be undesirable from other points of view. This is not to say that economics can be ignored. It must be considered along with other factors, if planning is not to be frustrated. The pressure of economic forces is strong, and they may produce undesirable results, if town planning is working against them. For example, if as a result of planning there is an imbalance from an economic point of view, between

industry and residential accommodation in a town, then there may be pressure to increase or decrease one or the other against the plan.

In this section, the attempt is made to look at town planning purely from an economic point of view, although only in the context of the society in which we live. The assumption of a mixed economy in which both private and public enterprise operate is implicit, throughout the discussion. In a society where only public enterprise is allowed to operate, the function of the profit motive is less important in determining land use, and economic forces therefore manifest themselves differently. We ask town planners to be tolerant of the authors' lack of knowledge of the details of town planning, and look at the soundness of the ideas expressed rather than at any lack of realism in any examples given. They are meant to form the basis of discussion out of which a better understanding of the relationship between town planning and economics will emerge.

14.2 ECONOMIC CRITERIA

In analyzing and describing how resources are used and allocated to satisfy man's wants, the question inevitably arises whether from an economic point of view, a given action is a good or bad one. To answer this question, a criterion must be laid down against which one can be judged. One criterion is the maximization of the satisfaction of persons. If one set of goods or services produced from a given amount of resources gives persons more satisfaction than another set produced from the same resources, then the action of producing the first set is better from an economic view point. Alternatively, if one set of goods or services produced from a given amount of resources give persons the same satisfaction as another set produced from a larger amount of resources, then the action of producing the first set is better than producing the second one.

There are many difficulties arising from the use of this criterion. How is satisfaction measured? If one person spends a shilling on one article rather than another, then presumably he is obtaining more satisfaction from that article than the other. But how much more satisfaction? Then there is the question of the comparability of satisfaction between persons. If two persons spend the same

amount of money on a commodity, do they receive the same amount of satisfaction? It is unlikely, for apart from the fact that one man may be rich and the other poor, their capacities for enjoyment may be different. What exactly is meant by the maximization of the satisfaction of persons? Does it mean the greatest number or in total? An ethical judgment must come in here as to what is morally good or bad.

A more objective criterion is in terms of efficiency. If out of a given quantity of resources, one action produces more goods and services than another, then the first action is better or more economically efficient than the second one. Alternatively if a given amount of goods and services can be produced with less resources by one action rather than another, then that action is more efficient. A better utilization of resources has been achieved.

There are difficulties attached to the use of this criterion. It is possible that a larger quantity of goods and services produced from a given amount of resources will give less satisfaction than a smaller amount, whichever "satisfaction criterion" is used. But it can be assumed that the goods and services produced are in accordance with the general desire of the people, if only expressed by a lack of opposition to the government of the day, and thereby indirectly correlated with satisfaction. This is a wide assumption to make, but it enables one to escape from the very difficult problems attaching to the use of a subjective feeling as a criterion for economic action.

With the efficiency criterion, there are difficulties of measurement, especially over time. Goods and services differ qualitatively and over a period, new commodities are produced, and the production of some others ended. These difficulties are overcome by reducing all goods and services to a common standard-money value. This in itself raises the problem of the change in the value of money over time. In its turn this is solved by means of index numbers. The present value of goods and services produced is deflated by an index number which reflects the change which has taken place in the value of money. By this means a comparison can be made of

the “real” change which has taken place in the production of goods and services between different years.

However imperfect and whatever its shortcomings, the efficiency criterion appears to be the best one at the moment, and it is the one which will be used. It may be in the future that another one will become better, when more is known about the workings of the human mind or when the feeling of satisfaction can be uniquely correlated than objective factor. The use of efficiency criterion also invokes an ethical judgment as to whether an action which is good from an economic point of view is good from a moral view point. Many persons, especially economists assume that a good action economically is a good action morally, and use the word “good” when referring to an economic action automatically in an ethical sense. In some cases, there may be a negative correlation between them. This is for the individual to judge in accordance with his ethical criteria.

14.3 THE EFFICIENCY CRITERION FOR TOWN PLANNING

Using the efficiency criterion, it can be said that town planning is desirable from an economic point of view if it leads to a more efficient or better utilization of the resources of the community than would otherwise be achieved. If more goods and services are produced from a given amount of resources with town planning than without, then in an economic sense there is a justification for it. The question which is now raised is how it can be judged whether more goods and services are being produced from a given amount of resources, and in particular from a given amount of land resources.

To answer this question, the use of one piece of land must be examined. If one person can produce more goods and services in value than another person with the same co-operating resources from a given piece of land, then that person will be willing and able to compete successfully for the land against the other by paying a higher price. The higher land value signifies a better utilization of that piece of land. With one or two provisions this can be generalized and used with reference to town planning. If town planning leads to higher land value than would exist without it, then a better or more efficient utilization of resources has been

achieved. A corollary of this is that for any given size the best planned town is one where the aggregate land values are at a maximum.

In making an assessment of the economic worth of past town planning, it is necessary to take into consideration certain provisions when using the land value criterion. The first is that the increase in land value resulting from town planning has not led to a corresponding decrease in land value elsewhere. For example, by limiting the land used for a given purpose to a smaller area than would be used in the absence of town planning, town planners may cause the value of land for that purpose to rise. But the land which would have been used for that purpose may have decreased in value. If by chance this land were to be used for another purpose under the town plan, which gave higher value, this would just shift the decrease in value on to land which would have been used for this other purpose. Where town planning leads to a redistribution of land values with no net increase, then it has not led to a better or more efficient utilization of resources and from an economic point of view only, it is not justified. This applies to land values both within and outside of a planning area.

The second condition is that techniques of production do not change so that more efficient use can be made of resources. Suppose, building methods became more efficient, so that to build a given amount of accommodation cost a great deal less. Then with building cheaper relative to land there would be the tendency for developers to substitute building for land, and the reduced demand for land would cause its value to fall. Of course, if at the same time the demand for accommodation were to rise, then the land values would not fall or fall as much. It is possible that changing production techniques may be offsetting the effect of town planning on land values.

The third provision is that the demand for goods and services does not change. If the demand for all goods and services were to fall, then the demand for the resources with which the goods and services are produced would also fall. Under these circumstances, land values would fall. The fourth condition is that the quantities of resources do not change; if for example, the working population were

to increase, assuming every other condition remaining the same, then the increased supply of labor would cause its value to fall, and there would be the tendency to substitute labor for land indirectly because of say, cheaper building costs. Therefore a change in the quantity of resources may affect land values.

It is seldom that such factors as production techniques, the demand for goods and services, and other factors which could affect land values remain constant for long. It is necessary therefore to take them into consideration when assessing the effect of town planning on land values. Account must be taken as to how each factor has changed, and its effect on land values computed. Only then would it be possible to use land values as a criterion to judge the economic worth of past town planning.

Most of these provisions can be ignored when the economic desirability of town planning which is taking place at present is under consideration. If it is calculated that the town planning will lead to higher land values than would exist without it, then it is desirable from an economic point of view. The town plan which would lead to the highest aggregate land value is the best economically. The only proviso is that all land values both within and outside of the planning area must be taken into consideration. A reduction in land values outside of the planning area caused by the plan indicates a reduction in efficiency in use. Therefore any such reductions in land value ought to be deducted from the total.

14.4 PROFIT AND NON-PROFIT USES OF LAND

In the development of an urban area, land will automatically be divided into profit-making uses and non profit-making uses. Non-profit uses of land being those which are not usually provided by persons working under the profit motive. The main non-profit- making use in an urban area will be the roads. There are exceptions when roads are profit-making, as in the case of toll roads, but these are seldom found in urban areas. Other land such as parks, land used for educational purposes, and governmental offices will also be non-profit-making. Often these non-profit-making uses of land pass into public control, so that non-profit-making land and profit-making land roughly corresponds to public and private uses of urban land.

Once land in an urban area is divided up into profit and non-profit uses, in the absence of planning, it tends to fossilize into that pattern. Suppose a minor road in an urban area develops into a main road with profit-making uses on both sides, when it comes to the redevelopment of a profit-making use, an individual developer will tend to take the road as given, and consider only the possible future uses of the other profit-making use when assessing the most profitable use. In other words the land will only be redeveloped to the most profitable use within the existing pattern of non-profit uses.

Probably the road would no longer be adequate to cope with traffic, so much so, that the profitability of the uses at the sides of the road would be reduced. This situation may have been brought about both by the growth of the urban area, and the rapid increase in the use of road transport. Without public action it is unlikely that the road would be redeveloped to cope with the traffic. The individual owners would be unlikely to agree on the need for the road improvement, and would therefore be unable to reach the necessary joint decision to give up voluntarily the land required to widen the road.

With public action and the redevelopment of the road, profitability of the uses at the sides would increase, and land values would rise as persons competed to be in these positions. Providing that land values here have not been correspondingly decreased by the road improvement, then it could be said that according to our criterion, this action had been desirable from an economic point of view. It is possible that such a road improvement would also make a net increase in values elsewhere by facilitating accessibility. It is also possible that other road improvements and in some instances a re-orientation of parts of the road system would increase land value along the road being considered.

In any urban area there is a strong possibility that with a different road system from the one which actually exists, the most profitable, or what is known as the highest and best use of sites used for profit-making would be generally higher. The principle that under private enterprise land tends to be used for its highest and best use, only operates within a given framework of non-profit land uses. Change

that framework and the highest and best use of sites would change. Such a change in the road system can only come about by planning. It would require the joint decisions of thousands of persons in the absence of planning.

It must not be concluded from what has been said that town planning ought to be only concerned with the roads, although inevitably a large part of planning will be road planning. The inter-dependence between land uses make it necessary to plan other land uses as well as roads. There are two aspects of this inter-dependence, the relationship between profit-making uses and non-profit ones and the relationship between profit uses themselves. The first aspect has already been outlined. The profitable uses of land are dependent on the nonprofit uses. Alter the latter and this will alter the former. One cannot take the profit uses as given and plan the road system accordingly, for the alteration of the road system will react on the pattern of profit uses and alter it. In planning an urban road system, one is automatically planning the pattern of profit uses of land. If this is so, it is better to plan this pattern consciously and explicitly.

It has been argued that town planners may be wrong in their judgment as to the economic desirability of the particular pattern of land uses which they plan, and this may lead to a less efficient use of resources than otherwise. This is possible. But in the absence of knowledge of the future land use pattern, they are almost sure to be wrong in their judgment as to the economic desirability of a road system which they plan. If it is argued that because planners may be wrong on the land use pattern, they should not plan the pattern, then it is argued that there should be no town planning, for planners may be wrong on any aspect of planning. In the future, one of the causes of incorrect decisions, imperfect knowledge on which to base decisions, may be reduced by the use of computers.

The second aspect of inter-dependence between profitable uses of land themselves is self evident, if a factory with a very noisy or smelly process of production were to establish itself in an office building area, it might affect the use of these offices adversely reducing their profitability and generally lowering land values in the area. True the office users would tend to move elsewhere, but the same thing could

happen again and again with the result that the most profitable use of land would be kept permanently below the optimum. It is possible that planning the pattern of land uses in an urban area may lead to a more efficient use of land generally than would exist if everyone were allowed to use it for what they regarded as the most profitable use irrespective of the effects on other land uses.

Complementarity is an example as to how the profitable use of one site can favorably affect the use of another. If land used for one purpose is redeveloped to another complementary to other land uses around it, then this is likely to enhance profitability generally and increase land values. It is possible that a group of land uses can jointly increase their profits by locating near to one another, but the increase in profits which accrues to each one rating independently within the existing pattern of land uses is not enough to complete the land required for other uses. If planning can bring these uses together, it is likely to make a net increase in profitability and enhance land values. One of the main functions of town planning is to facilitate complementarity between uses, thereby leading to a more efficient use of resources. If planning is confined merely to road planning it will not be able to perform this function.

14.5 MONOPOLISTIC ELEMENT IN LAND OWNERSHIP

In the absence of town planning, the fragmentation in the ownership of land for profit-making uses may prevent land moving to its highest and best use, it is possible that the most profitable use of land may require the combination of sites previously used separately. One or more of the existing owners of the sites may refuse to allow his land to be used for this purpose, and this would effectively prevent other land shifting to its highest and best use. This refusal may be due to a dislike of change, ignorance, viciousness and stupidity, but it may also be due to the owners trying to take advantage of their monopolistic position, thereby making the cost of the redevelopment prohibitive.

There is always a monopolistic element in the ownership of land in so far as each plot of land is unique in its spatial relationships with other plots of land. A seller is in monopolistic position if he is selling a commodity which has no near substitutes

in the eyes of the buyers. In the case being considered, the owners of the sites are in a perfect monopoly position, since it may be very difficult to redevelop the surrounding land without their land, they might be in a position to force a developer to give them more for their land than the profit obtainable from the redevelopment. If the developer had already spent large sums of money acquiring land, in the last resort he may pay the owners the sum demanded as a means of minimizing losses. If, for example, he would lose N100, 000 by abandoning the redevelopment, but he would only lose N50, 000 by paying the owners the price they were asking for their land, and carrying out the redevelopment, then this would be the best course of action open to him.

Without a background of town planning, intervention would be difficult, for it would appear that it was taking place on behalf of the developers against the interests of the owners. If such a redevelopment does lead to a more efficient use of land, then developers ought to be able to perform this function by making a reasonable profit without it being whittled away by monopoly. This monopolistic element in land ownership must also be overcome when land shifts from profit-making uses to non-profit ones. It could make the cost of redevelopment to non-profit-making uses prohibitive, thereby keeping down the highest and best use of profit-making land below what it could be.

14.6 UNCERTAINTY AND LAND USE

When a person is considering the development or redevelopment of a site, he will try to guess how other persons are going to use their sites in the future, for he knows that the future uses of other sites may greatly influence the profitability of his site. In most cases, the person will be uncertain as to how others propose to use their sites, and he will redevelop taking into account only obvious changes and assuming all other uses will remain as at present. The natural assumption to make in the face of uncertainty is that the present situation will continue. This may lead to a waste of resources, for it may be found that in a relatively short time, because there have been unanticipated changes in other land use, it is necessary to redevelop the site again to a different use.

The waste of resources is not in the later redevelopment of the site since this is its best use, but in the first one which could have been avoided. It is also possible that other sites than the one being considered, would not be redeveloped to the highest and best use possible, because of uncertainty as to the future use of that site. The highest and best use of land is mutually determined in this way. Town planning by laying down a pattern of future land uses in an urban area can reduce this type of uncertainty, thus making for a more efficient use of land generally.

Town planning itself must cause a certain amount of uncertainty. If it is planned to build a new road through an area, until the plan is finalized into precise details uncertainty will exist as to how land in the vicinity will be affected. This may lead to a less efficient use of land in the area, than would exist in the absence of the plan, causing land values to fall. This inefficiency in land use caused by town planning can be justified, if it is only temporary, and will in the long run lead to a more efficient use of land, and therefore higher land values. Temporary uncertainty is necessary to achieve a degree of flexibility in planning to take into consideration such factors as changing economic conditions, the knowledge and wishes of the public which come to light after the publication of the plan, and any unforeseen potential which a developer may see.

What must be avoided is uncertainty which is unnecessary and uncertainty which becomes semi-permanent. There may be certainty as to what are the intentions of the town planner with regard to land use in an area. If this is necessary to achieve flexibility then it is unavoidable, but if it is due to a lack of information which the planners could provide, then this is undesirable, for it could lead to an avoidable less efficient use of land for at least a short period of time. The same is true of uncertainty as to the administration of the planning. If it is due to flexibility such as appeals against planning decisions then it may be desirable, but if it is due to lack of knowledge of rules of administration which have not been adequately publicised, then this is undesirable. Uncertainty should always be to the shortest possible time consistent with flexibility.

14.7 TOWN PLANNING AND PRIVATE DEVELOPMENT

It is not from any deficiencies in private development or redevelopment that the need for town planning arises, but from the inadequacies of the urban land use patterns which have developed. The process of private enterprise could work perfectly bringing each piece of land to its highest and best use, and it still would not achieve an efficient use of resources as a different land use pattern from the one which has developed historically could bring about. Private enterprise operating perfectly within one pattern of non-profit land uses will bring about a given level of efficiency in the use of resource. In a different pattern still working perfectly, it will bring about a different level of efficiency.

As long as the profit motive is allowed to operate whatever the limitations, private enterprise will tend to bring those sites which can be bought and sold to their highest and best use. If town planning places a restriction on land used for a given purpose, then private enterprise will bring that land to its highest and best use within that limitation. If with a given demand, a density limitation is placed on a land use, private enterprise will tend to increase the area in that use, and if the area for that purpose is limited by planning within the town, then private enterprise will try to develop that land use elsewhere. If there is an effective demand for a given land use, then private enterprise will try to satisfy that demand. It can be compared with an air cushion. If it is pushed down in one place, it will rise in another.

It is sometimes claimed that the economic function of town planning is to enable the competition of private enterprise to work more perfectly. Such factors as monopoly and imperfect knowledge, or what are known as imperfections of the market may hinder competition and prevent land being used for its highest and best use. Whilst it is true that town planning may help to overcome these factors, here it is being argued that to remove the imperfections of the market is not enough. The main function of town planning is to change the framework within which private enterprise operates to achieve a more efficient use of resources than would otherwise be possible.

14.8 SOCIAL AND PRIVATE COSTS AND BENEFITS

A possible fault in using land values as a measure of the economic usefulness of town planning, is that it may help to increase efficiency without affecting land values. Suppose town planning reduces the number of road accidents, then the economic consequences of this would be to save resources such as hospitalization, and gain resources in extra labour from persons who would have been involved. This may or may not affect land values. The use of a different criterion, the balance sheet of social and private Costs and benefits has been adopted to try to take such economic consequences into account.

Unfortunately there are at least four different definitions of social and private Costs and benefits, and this has led to a certain amount of confusion. There is the definition laid down by Pigou. Private costs and benefits being the costs incurred and benefits received by the person carrying out an enterprise, whilst social costs and benefits are all costs and benefits which result from the enterprise experienced by the community including the person carrying out the enterprise.

In other words according to this definition, social costs and benefits include private costs and benefits. Lichfield uses two different definitions which he clearly distinguishes. In one definition he uses private costs as being those costs which can be measured in monetary terms to be called tangible or economic, and social costs as those costs which cannot be measured in money terms to be called intangible or social. In the second definition he uses the same definition of private costs and benefits as Pigou, but defines social costs and benefits as the losses and gains to other persons as a result of the enterprise. In this definition, social costs and benefits are apart from, and exclude private costs and benefits. The fourth definition is the one which is in popular usage amongst non-economists, where social costs are the costs borne by the community of a public authority carrying out a scheme and the social benefits are the benefits from the scheme received by the community. This differs from Pigou's definition in that the public authority's original capital cost is not included in social costs. The net social benefit i.e., difference between social costs and benefits is related to the capital cost to

estimate a rate of return. The study made by the Road Research Laboratory and Birmingham University of the London-Birmingham Motorway and other such studies are often referred to as social cost/benefit studies.

Although Pigou's definition or Lichfield's second definition may be useful as a criterion to judge the economic merits or demerits of a particular private development under a town plan, and the fourth definition as the basis of a criterion to judge the desirability of public development, the social costs and benefits analysis is not much used in assessing the merits and demerits of a town plan itself. Apart from the massive amount of work which would be involved in trying to draw up a social costs and benefits balance sheet for each development, both private and public, under different possible plans, because of the inter-dependence of land use it would be almost impossible to avoid double counting of social costs and benefits.

Suppose Lichfield's second definition were used to judge the desirability of a road widening under a plan. The social benefits would be the benefits received by other individuals when each individual owning land at the side of the road, acting on his own, widened the road. But when every person has widened the road there would be extra benefits which have not resulted from any individuals action, but the accumulative action of the individuals. The benefits which result from the joint action of the individuals will be greater than the sum of social benefits taken in isolation. Therefore it can be concluded that this criterion taken on its own would be inadequate to measure the desirability of changes in land use under planning. If it were used in conjunction with the fourth definition, there is likely to be double-counting since the "social" benefits would then be seen as the result of the public development in widening the road.

Although social costs and benefits can be taken to mean economic cost and benefits, in so far as the use of resources are involved, it is often difficult to convert them into monetary terms. They are often diffused throughout the community, and do not involve the use of money. If this criterion is used, however defined, to assess the economic merits or demerits of planning, unconsciously persons would inflate

or deflate the monetary value of these costs and benefits to “prove” that planning is good or bad in an economic/ethical sense. It would appear that whatever are its imperfections, the land values criterion would be a more objective criterion than the social costs and benefits.

14.9 NON-PROFIT USES OF LAND

As stated, the profitable uses of land are highly dependent on the non-profit use of land. Land used for shops, houses, industry and offices is dependent on land being used for schools, hospitals, parks, rubbish dumps, sewerage works, etc., as well as roads for its profitability. Without these non-profit uses of land, the return on the profit-making uses would be greatly reduced. Yet, because these uses of land are non-profit-making they cannot compete on equal terms for land against the profit-making uses. With profit uses, the return on investment is self evident since it has to be calculated to estimate the profitability of the use, but with non-profit uses, the return on investment has to be calculated without reference to a clear-cut criterion such as profit. It has to be calculated in relation to benefits received by members of the community.

The fourth definition of social costs and benefits, now to be called community costs and benefits to avoid confusion, used to calculate the return on non-profit uses of land such as roads, has drawbacks which must be recognised. Anyone who has made such a calculation must admit the possibility that costs and benefits may have been excluded which should have been included and some items which have been included may not be “net”. For instance, accidents prevented in the place may be a contributory factor in the cause of accidents elsewhere. By the very nature community benefits are difficult to isolate and more difficult to measure, and translate into monetary terms.

It is also difficult to look back in time to say whether or not a community cost and benefit analysis has been correct. With profit uses, one can see if the rate of return has been as expected, but since some of the costs and most of the benefits of non-profit uses would not have been paid or accrued in money, another estimate has

been made. In the profit uses, estimated profit can be compared with actual profit, whilst with non-profit uses, one estimate has to be compared with another. If the second estimate showed the first estimate to be wrong, there would be a temptation for persons who wanted to accept the figures at their face value, and persons who did not want to accept them to find unforeseen factors which had altered the outcome.

Another difficulty is that the return on investment in non-profit uses of land is often received in the far distant future. Much more in the future than with most private investment. Take as an example, land used for educational purposes. The return may not begin to accrue for a number of years and then last in varying degrees for fifty-odd years. In theory this return could be calculated by comparing the national product without the land used for educational purposes, with the national product when it is used for this purpose. But over such a long period of time, so many variables could affect the national product, that it is virtually impossible to isolate one factor and quantify the return. This is true of much public investment.

The community costs and benefits analysis is useful in establishing a system of priorities between different investments in one type of land use such as roads to decide how to allocate the money which it has been decided to spend on them. An imperfect measure is better than no measure at all, as long as its limitations are recognised. If its drawbacks are not recognised a wrong system of priorities may be established, and mere intuition may have been better. When different investments in the same land use are being compared, like is being compared with like, but it must be recognised that this criterion of community costs and benefits is not much use when comparing investments in different non-profit land uses such as roads and educational land. How can one compare the saving of a life on the roads with improved educational opportunity, even when reduced to money terms? It is of even less use when comparing the return on non-profit uses with profit uses. If it is used for these purposes, it is inevitable that political opinion will enter into these pseudo economic calculations.

14.10 NON-PROFIT USES OF LAND AND TOWN PLANNING

If the land-value criterion is used to judge the economic desirability of land use plans, the question arises whether the value of the land used for non-profit use ought or ought not to be included in the calculations. The difficulty in trying to include such land values is that non-profit land is not bought and sold on the market in the same way as profit-making land, and has therefore no "true" market value. Any value placed on such land must be arbitrary, and there is the danger again of inflating or deflating these values to obtain the result required. If, for example, the present acquisition costs of land for non-profit uses are taken as the current value of all land used for such purposes, then it will be found that the values will change as the law on compulsory purchase changes. Ethical considerations rather than economic ones, often appear to be the motive behind such changes.

With this difficulty in making consistent valuations of non-profit land, and since such land uses have a major influence on the profit uses, it would appear to be less arbitrary to use the value of land in profit-making uses only as a criterion. In this case profit uses must include all land used for office, shops, industry and residential purposes, whether under private or public control or ownership, and would, for example, include land used by the public corporations. The use of land for non-profit purposes would influence the criterion in so far as it influenced the value of land in profit uses. A difficulty would, arise if it was decided to use more land for non-profit uses regardless of the fact that this caused land values in profit uses to fall. Under these circumstances, because of the difficulty of making consistent valuations of non-profit land, it would be better to judge the desirability of such actions according to political or ethical criteria, rather than make an arbitrary pseudo-economic calculation.

14.11 COST OF TOWN PLANNING

Town planning involves a cost to the community in that resources will be used in formulating and implementing the plans. Ideally the cost of planning should be related to the benefits to estimate what is the rate of return on planning over the cost. Then varying expenditures in planning could be related to the rates of return

to find out what would be the optimum expenditure on planning. Comparisons could also be made with alternative investments to find out, if better use could be made of the resources, for example, it may be found that a higher rate of return could be obtained by using the resources to increase the capital used in industry.

In practice it will be found that the amount of money allocated to planning, including the implementation of the plans, is decided by the politicians. Recognizing this, it is not much use trying to relate different levels of land values to varying expenditures on planning. Just as private enterprise has to work within given limitations, so does the town planner. There will be limitations placed on town planning by such factors as the law relating to town planning; the amount of money which the community is willing to spend on roads, schools, etc., the present pattern of land use and many other factors. Until society is much more sophisticated than it is at present, the only sensible question which an economist town planner can ask is, given these limitations, which town plan will maximize land values.

CHAPTER FIFTEEN

LAND VALUES AND TOWN PLANNING

15.1 DETERMINATION OF LAND VALUES

If there are two real properties which are identical in all respects, having the same buildings and layout of surrounding land but one has a higher market price than the other, then the difference must be due to differences in their relative positions. This difference in the market prices of the two properties will show itself in a difference in their land values. If a developer wished to acquire the two plots of land to build two buildings, assuming his building costs, etc. are the same in both cases, he would be willing to pay more for one site than the other up to the difference in the market prices of the developed properties.

This example supports the contention that it is the market prices of the developed real properties that determine land values, and not the other way round. It is often argued that it is the high price of land, which causes the price of accommodation to be high. But supposing the developer could obtain the two sites for the same price, and this allowed him to make an adequate profit on the developed property at a lower market price, is this likely to lower the market price of the other developed real property? The answer is no, for the developer will most naturally sell the property to the highest bidder, and if competing demands for the property force its price up to the higher level, he will sell at that price. Instead of the lower land value reducing the price of the accommodation, it will just cause the difference to accrue to the developer in the form of extra profit.

To reinforce this contention, let us look at another example. Suppose a person owning a bare site placed a subjective valuation on it, which did not allow any potential developer to make an adequate profit, then he would not be able to sell the site. Before he could sell, he would have to revise his subjective valuation until it was equal to the valuation placed on it by the highest bidder amongst the

potential developers. Again, it would be the price of the developed property which would determine the value of the land. From this, it can be seen that to fix maximum prices for land will not reduce the prices of accommodation, but merely result in the difference between the controlled price and the market price of the land accruing to someone else other than the landowner. Likewise, a tax on land values would not reduce the price of accommodation. This is not to say that a tax on land values should not be levied for some other purposes other than to keep down the price of accommodation.

If land already developed has redevelopment potential, it will be the redevelopment potential, i.e. its latent value which will determine the value of the land rather than the existing use. Suppose a developer can see that he could make an adequate profit by demolishing the existing structure on a site and erecting a new one. This will only be the case if he can offer a higher price for the real property than the present users. Then the value of the potential development will be determining the price of the land rather than the value of the property in its existing use. It will be the collective demands for real property, both present and anticipated, which will determine land values in an urban area. Since this is the case, ultimately, land values will be dependent on the factors which determine the prices of the developed real properties. These factors have already been outlined as the advantages, which users of accommodation obtain from being in positions of accessibility and complementarity.

Accessibility and complementarity themselves are dependent on the combination of capital and land. Land must be altered to increase these factors. Roads and other means of transport must be put in place, and buildings constructed. The question is often posed as to who creates a particular land value? Is it the developer who sees the potential uses for the particular piece of land, or is it the private and public bodies which have made capital improvements to the other land? To answer this question, let us look at an analogy in the physical sciences. Suppose there are six chemicals which, if brought together, will cause an explosion. If anyone is absent, then the explosion will not take place. Which of the chemicals cause the explosion? Anyone witnessing such an experiment will say the last chemical introduced into

the situation, but that would not be the cause, since it could be introduced without causing an explosion, if one of the other chemicals was absent. All the chemicals jointly cause the explosion, not any particular one.

In a similar manner, land values are created jointly by a number of factors. Capital improvements in the way of roads and buildings can increase the potential value of particular sites and developers, private or public, can make these values a reality. A large number of factors besides the two just mentioned, can jointly create a particular land value, for instance, the demand to use that site for a particular purpose and the demand to use other sites for complementary or competitive uses. The absence of any one factor may change the value.

Take away the developer who sees the potential or take away the roads or other buildings, and the value of a particular site will change. It cannot be said that the community, meaning anyone other than the developer, or the developer create a land value, both do jointly.

Factors like accessibility and complementarity increase the usefulness of sites to potential users, thereby increasing the demand. In economic literature, emphasis is placed on the importance of demand in determining the value of developed real property and hence the value of land. This is because land is seen as being fixed in supply. Where there is a fixed supply of any commodity, the price of that commodity will be very sensitive to changes in demand. The question is how exactly is the supply of land fixed? The supply of land in a particular location is fixed, for example, within a half mile radius of a Bank. But these factors are unimportant from an economic point of view. What is important is the supply of land for a particular purpose. Land in a particular use is variable in supply. If there is an increase in demand for residential accommodation, land can be transferred to that use from other uses, thereby increasing the supply of land used for residential purposes, and decreasing the supply for other uses. If there is an increase in demand for office accommodation near to a location, land can be transferred from other uses to this use, thus making the supply variable.

It is true that the supply of a particular type of accommodation is likely to be fixed in the immediate future since development is of necessity a slow process, and can only change the total stock of a given type of accommodation by a relatively small amount each year. For this reason, the price of real property is highly sensitive to changes in demand. But if say the medium or long term is being considered, say when town planning will reach fruition, then the variability in the supply of land will be just as important as the demand in determining the price of real property. This in no way contradicts the statement made earlier that the prices of land generally are determined by the demand for, and hence the prices of real property, for the implicit assumption, made explicit at one point, was that the supply of land was fixed overall. Where land is variable, as it is in an urban area by taking it from rural uses, or in a particular use by taking it from other uses, and an increase or decrease in the supply of land leads to an increase or decrease in the supply of accommodation, then this will be a determining factor in the price of the real property as well as the demand. If an increase in the price of land led to an increase in the supply of land for a particular use and this led to an increase in the accommodation, then the price of real property will be affected, depending on how much of the demand, the additional supply satisfied. If it only satisfied an infinitesimal part of the demand for that accommodation, its price might remain the same, but if it satisfied an appreciable part of the demand, the price of the real property would probably fall.

At any given time, the price of real property will determine the price of land because the supply of land in any use is fixed, but over time because land in any use is variable, the price of land is a determining factor in the price of real property. The essence of town planning is to consider the use of land over time.

15.2 IMPACT OF TOWN PLANNING ON THE GENERAL LEVEL OF LAND VALUES

According to Uthwatt Report, the effect of town planning is merely to shift values. To quote, "The public control of the use of land, whether it is operated by means of the existing planning legislations or by other means, necessarily has the effect of shifting land values: in other words, it increases the value of some land and decreases the value of other land, but it does not destroy land values. Neither the

total demand for development nor its average annual rate is materially affected, if at all, by planning ordinances "No one can deny that there would be a redistribution of land values under town planning. If certain land uses were permitted in some places and prohibited in others, in so far as this differed from the existing pattern of land use, there would be an increase in some land values and a decrease in other land values.

What must be doubted is the implicit assumption in the above statement that town planning does not affect land values overall. Suppose that the town planner limited by zoning and density regulations, the amount of office accommodation in the centre of a city to an amount well below the existing amount. There would be a tendency for office accommodation to be developed elsewhere, say on the outskirts of the town. It is possible that the efficiency of firms dependent on accessibility and complementarity who were forced out of the centre would be reduced. They might lose customers by being in less accessible positions, and the services of complementary firms might be made more costly by being at a great distance from them. If this were the case, it is unlikely that the firms moving away from the centre would be able or willing to pay the same rents as previously. The increase in land values in places, to which the firms moved, would not be equal to the loss in values in the centre of the town.

Under these circumstances, there is likely to be a reduction in the overall land values caused by town planning. This reduction in land values may be reinforced by other factors than those already mentioned. Firms remaining in the centre may suffer a loss of efficiency through other firms moving out. If they are reliant on their services, these services will become more costly because of distance. With the loss of efficiency, income will be reduced, and this may have secondary effects. The demand for retail services and residential accommodation may be reduced with the resultant fall in land values in these uses. It is to be hoped that such a situation would not arise, for according to our criterion, a reduction in the overall land values would denote a reduction in economic efficiency and bad planning. From an economic point of view, it would be better without town planning.

Since the economic objective of planning is to lead to a more efficient use of resources, and a better utilization of land that is signified by higher land values, the contention that planning merely shifts values, must be rejected. Town planning by changing accessibility, complementarity and the supply of land to different uses, can increase or decrease the overall land values as well as cause a redistribution of values.

15.3 ACCESSIBILITY AND LAND VALUES

If there is an increase in accessibility within an urban area, this is equivalent to a reduction in transport costs. If, as postulated in the last chapter, a planned road system increases accessibility within an urban area, the time taken to make journeys and transport goods would be reduced, and this would decrease the cost of petrol, labour, wear on vehicles, etc. It has been claimed by Ratcliff that a general reduction in transportation costs, i.e., an increase in population fluidity, will tend to reduce all site rentals. This conclusion is based on the explicit assumption that "rent is a charge that the landowner can levy in return for savings in transportation costs." If this assumption corresponds with the facts, then the conclusion reached that "the best planned city is one where the aggregate site rents are least and the transport system is superior or both," is also likely to be true.

This assumption can be disputed. Rent is not merely a charge for saving in transport costs to the user of a site, but a charge based on the utility which he receives from it. Suppose the sites along the sides of a river were the most desired, where persons experienced the most utility, and then site values would be highest beside the river and decrease as the distance from it increased. The utility received at the sides of the river might not be transportable, and no matter how much the transport costs were reduced, the site values at the riverside would always remain above site values away from it. What may happen as transport costs are decreased is that the utility of sites away from the river may be increased. Travelling, to most persons, is a disutility. The time, cost, inconvenience and discomfort in getting to and from a site is likely to reduce the utility from using it. Therefore, it may be

found that if transport costs are reduced, the utility of sites away from the river will increase and site rentals there will rise. Thus, the conclusion is that a reduction in transport costs will lead, *ceteris paribus*, to an increase in site rentals. This conclusion that a general decrease in transport costs will increase land values is supported by a basic proposition in economics that the degree of specialization depends on the extent of the market. To see this, let us look at a simple example. Suppose there is an island with fifty communities, and the cost of transport is such that each community consumes only its own products. The cost of transport is so high that when it is added to the price of goods produced by the other communities, their value becomes prohibitive. Competition within each community for land is such that the landlords are able to take as rent, any surplus product above the tenants' own requirements. Now, suppose there is a great increase in accessibility between the communities with the resultant decrease in transport costs, so that many goods can now be transported between communities without adding much to their prices, producers of these goods will find that the size of their market had greatly increased. They will also find that with such a large market, it will pay different communities to specialize on producing some of the goods, and exchanging them for other goods they require. Specialization enables them to produce more of the product. Any elementary textbook in economics will explain why this is so. The net result will be that each community will produce greater amount of goods, and the surplus product, which the landlords can take as rents, will also increase.

What is true of our island is also true of urban areas. An increase in accessibility both within and outside the town will increase, generally, the utility and profitability of sites. It increases the specialization possible and hence the complementarity between different positions. The general conclusion for town planning, supporting what was said in the last chapter, is that for any given size of town, the best planned urban area is one where the aggregate land values are at the maximum and transport costs are at the minimum consistent with the most efficient use of the area.

15.4 PATTERN OF LAND VALUES

The centre of an urban area is normally the position of greatest accessibility where transport routes and transport systems, such as buses and railways, converge. Competition between firms whose revenue is high when in such a position, will force up rents and land values above those in the remainder of the urban area. Firms will also compete to be in the centre to take advantage of complementarity which, as we have seen, is to a large extent, a function of accessibility. Depending on the size of the urban area, complementary uses will tend to separate themselves out into clusters within the central position, so there will be peaks of high land values within the centre. The larger the urban area, the more distinct will the clusters of complementary use become, for instance, the office centre will separate from the shopping centre. It will also be found that because of the higher degree of accessibility and complementarity, the larger the urban area, the higher the land values in the centre are likely to be. For example, land values are higher in the centre of London than in the centre of other urban areas in Britain.

Any residential accommodation in or near to the centre of an urban area is likely to be at relatively high densities in order to attract the land away from the alternative uses, for, as shown in the chapter on Real Property Development, up to a point, an increase in density will enable the developer to pay more for the site. As the distance is increased from the centre, one would expect the value of land used for residential purposes gradually to fall. There are two main reasons for this. There is progressively more land available and there is likely to be less competition from other users. As the land values fall, land will be substituted for building, and densities will fall. Although, there will be this general tendency for the value of land used for residential purposes to fall as one moves away from the centre, there are likely to be pockets or strips where land values are higher than those of the surrounding land. These will be positions where accessibility is better than the surrounding area such as near a railway station or positions where there are desired amenities nearby such as open spaces or parks.

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within an urban area, i.e., where the main and secondary roads are placed, will be a major determinant in the location of these land uses, for they require accessibility to their suppliers and/or customers, if only on a local level. In positions of good accessibility, clusters of complementary uses will tend to develop such as groups of shops or groups of factories. Generally speaking, industrial and commercial uses can always attract land away from residential uses. Competition between similar firms to be in the desired positions, will force the land values above those of the surrounding land used for residential purposes. For reasons given earlier, commercial uses can normally attract land away from industrial uses, so that the general pattern will be the highest land values for commercial uses, the next highest for industrial uses and the lowest for residential accommodation; although as explained in the previous paragraph, residential accommodation may be found on high value land near the centre.

Whether land uses are complementary or incompatible to each other, may be an important factor determining land values in parts of an urban area. If all the land in a given area of the town is used for complementary uses, this is likely to enhance the land values, whereas if they are incompatible to each other, this may lower the land values.

For example, if there is a residential district well served by schools, open spaces, transport, etc., persons will desire to live there; property values and hence land values will be higher than if it lacked these complementary facilities, and factories, workshops and ware houses were intermingled with the houses.

As explained in before urban areas are continually subject to the forces of change. As social and economic factors making for such change exert their influence, land uses within an urban area will change with the resultant effect on land values. If one or two factories moved in to the residential district, then residential property values would decline with a fall in their land values. As more moved in, and the open spaces disappeared, they would decline more rapidly, probably more than offsetting the rise in the value of the land used for industrial purposes. As more and more factories, workshops and warehouses moved into the area, the rise in the

value of the land used for industrial purposes would more than offset the fall in the value of the remaining residential land, and land values generally in the district would be higher, especially if the industrial uses were complementary to one another. In the absence of town planning, urban areas are subject to this type of change. To a certain extent, the fall in the value of the residential land may be offset by a rise in values elsewhere as persons move to other districts.

Developments in transport routes or systems may lead to changes in the land values in an urban area. The extension of a railway line or bus route, the building of station, the redevelopment of the roads, may cause a major change in the land values in the part of the urban area affected. Some land values may rise as accessibility is increased by such a development, whilst others may fall because incompatible land uses move nearby. But for reasons already given, an increase in accessibility would be expected to increase the overall land values. An expansion or contraction of an urban area would also affect the distribution of land values and the overall general level, if only because it would be likely to increase or decrease the amount of specialization amongst land uses.

15.5 EFFECTS OF TOWN PLANNING ON THE PATTERN OF LAND VALUES

As the Uthwatt Report pointed out, the obvious effect of town planning on land values is to shift or redistribute them. If it is planned in the future to use land for a different purpose than at present, then its value will be affected. If the present use is permitted elsewhere, there will be a tendency for the present value to shift to that position. If the proposed use is at present elsewhere and is to be prohibited there, the value will tend to shift from where the use is prohibited to where it is permitted. The re-allocation of land uses by planning will shift values in this way.

Suppose it was planned to merely redistribute land uses by zoning land into areas to be used mainly for a given purpose, such as industry, shops or housing, there would be a redistribution of land values, and the value of land used for a different purpose from that permitted in its area would be adjusted accordingly. If some of the uses of land which are incompatible with nearby uses shift to places where

they are complementary to nearby uses, then the mere redistribution of land uses, besides shifting land values, may bring about an increase in them overall. It is important to note that complementary use does not necessarily mean the same use. Mixed uses may be complementary to one another, for example a group of shops may be complementary to a group of houses, and offices such as banks may be complementary to a group of factories.

What would happen if the supply of land for each purpose, except of course a residual use such as open spaces, was reduced below the amount used at present. Then assuming the demand for accommodation remained the same, it would be concentrated on a smaller supply of land and there would be pressure to increase the amount of accommodation on each plot of land, and land values would rise. The same thing would happen if the amount planned for each purpose was exactly the same as used at present, but there was an increase in the demand for accommodation and the same reasoning would apply if the supply of land in any given use only were restricted, or the plans did not take into consideration an increase in demand for any given use.

If at the same time as restricting the supply of land, the amount of accommodation on each site was also restricted, then the land values would not rise. In all probability, the demand for accommodation would shift elsewhere outside of the planning area, either to another urban area where the supply of accommodation was adjustable by variations in the supply of land and/or in the intensity of use of land, or to a rural area, assuming that this was possible. These restrictions together may cause land values to shift in this way, but possibly they may actually destroy the potential increase in land values. This would be the case if the demand was tied to the urban area as might happen when the demand for residential accommodation was increased by persons wanting to move into the town to fill vacancies in the factories. The social and economic forces, which led to the increase in demand would be frustrated and this might have undesirable results, for example, the factories might have unused capacity because of the shortage of labour, or there might be more persons living in the accommodation than is officially permitted.

It is not possible to predict precisely what will be the demand for land for particular uses in the future. The only method by which the planner can counter this unavoidable uncertainty is to make his plan as flexible as possible. This may be achieved by placing land uses which are easy to change between different land uses, for example, sports grounds between a residential area and an industrial area, and long front gardens attached to houses along roads, which may be used more frequently in the future. This may, in fact, keep down land values at present, but this can be more than offset by the rise in land values in the future as adjustments are made to changing condition of demand.

It is possible that town planning may bring about a very different pattern of land values than would exist in the absence of a plan. If, for example, it limited the supply of land used for residential purposes, and permitted high densities on the outskirts of the town, and relatively low densities internal to the town, providing the demand for accommodation could not shift, it would be found that land used for residential purposes would have a higher value on the outskirts than within the town. It may appear that the town planner was creating the high values on the outskirts, but he would in fact be shifting the value from the inside of the town.

By limiting the supply of land for different uses, and manipulating the densities permitted, the planner can almost shift values at will, and it will appear as if he is creating a land value by permitting a certain density. If, for example, the density permitted on a given site is increased, the land value would be seen to increase immediately. The point to remember here is that the increase in the supply of accommodation caused by the increased density, is likely to be such a small part of the total stock of accommodation, that it will make a difference to its price, and this enables a developer to give, up to a point, more for the land as density is increased. But, if with a given demand for accommodation, the overall densities were increased, without decreasing the supply of land, then as developers built more accommodation, its price would fall, and any initial increase in land values would disappear as developers found that the decrease in the price of accommodation left them with less money to pay for the land. If at the same time as the overall

densities were increased, the demand for accommodation was also to increase, and then of course land values are likely to increase.

It was the main theme of the last chapter that land values would be changed, not only by a redistribution of profit uses of land, but also by the alteration and reorganization of the non-profit uses in an urban area. The planned positioning of sewerage works, rubbish dumps, schools, clinics, recreation grounds. etc., may affect the land values around them depending on whether they are incompatible or complementary to surrounding land uses.

Town planning should facilitate the efficient use of resources. If as a result of a redistribution of land values by planning there is a net overall increase, then it could be said to be desirable from an economic point of view.

15.6 COMPENSATION AND BETTERMENT

With the distribution of land values by planning, the question arises whether compensation should be paid to those whose land values have increased in value for the 'worsement', and betterment collected from those whose land values have increased. There is some confusion as to exactly what is the compensation and betterment problem, and to some extent this is due to the Uthwatt Report's contention that Town Planning merely redistributes value, and does not in the overall alter them. To quote again, "Planning control may reduce the value of a particular piece of land, but over the country as a whole, there is no loss. In theory therefore, compensation and betterment should balance each other. In practice, they do not."

There are really two distinct parts of the compensation and betterment question. First of all there is the question whether there should be compensation paid to the losers from the redistribution of land values caused by town planning, and the collection of betterment from the gainers. This part of the question is generally fairly clearly stated. The second part of the question is not. In the operation of town planning, it is often necessary to shift land from profit-making uses to non-profit-making uses or from private ownership into public ownership, and the

question is raised as to the compensation for the present owners, i.e., compensation for compulsory acquisition. At the same time, if there is good planning from an economic point of view, there will be an increase in the overall land values and the question is raised whether this betterment due to planning should be collected or not.

There is the possibility of compensation for the loss of value caused by the restriction of use, and compensation for the loss of ownership by compulsory acquisition. There is betterment due to a redistribution or shift of values, and betterment due to a more efficient use of resources caused by planning. There is no reason why in theory or in practice, the two types of compensation and the two types of betterment, either singly or jointly, should balance. In practice, the different types may be difficult to separate. There can be said to be a restriction in use when there is a loss of ownership, and when there is an increase in value, it would be difficult to say whether it was due to a shift in value from elsewhere caused by planning restriction, or an increase in efficiency caused by good planning.

Betterment and loss of land values can be due to factors other than planning, and this adds to the problem of identifying whether an increase or decrease in land values has been due to a particular aspect of planning or not. If a private person redevelops his land, this may result in betterment or loss to nearby land. If there is a rise in the real national income, there is likely to be an increase in the demand for land, and betterment to land values generally. If building costs decrease, developers are likely to substitute building for land, and there will be a loss in land values. If compensation is to be payable and betterment collected for decreases and increases in land values due to planning, then it is necessary to separate such decreases and increases from those due to these other factors. Another fact to be taken into consideration is that the values of factors other than land such as labour and capital may receive betterment or experience worsement as a result of any of the above factors.

Before considering the practical aspect of the payment of compensation and the collection of betterment, let us examine the justification for such payments and collection. There would be an economic justification if the payment of compensation and the collection of betterment led to a more efficient use of resources. What would be the effect if there were no compensation payable for compulsory purchase or the restriction of use by planning, and no betterment collected? Land would still be brought to its highest and best use within this planning framework. It must be remembered that today, many restrictions are placed on land use without receipt of compensation, and nothing like betterment is collected, yet by adjustments to the value of land to take these factors into consideration, land is still brought to its highest and best use within this framework. Provided that no additional elements of uncertainty were introduced into the situation as would be the case if the law of confiscation for public use was not precise and appeared to be arbitrarily applied, then land would be brought to its highest and best use within the plan. The test of economic desirability would rest on whether the highest and best uses within the plan were generally higher than without the plan. In a democratic society, uncertainty may be greatly increased by anticipated changes in political power, and this may be a major influence on the highest and best uses under the plan, causing them to be lower than otherwise.

It is argued that if public authorities could acquire land for roads and other uses at zero costs, then this would lead to too much land being used for public uses as opposed to private uses. What is meant by too much land being used for public uses? It can only mean that so much land is transferred from private uses to public uses that there is a worse utilization of resources than hitherto. According to our criterion of land values as an index of efficiency, there would be a reduction of land values overall and this would signify bad planning. It must be admitted that compulsory acquisition without payment of compensation give planning a built-in tendency towards bad planning from an economic point of view, but if planners realized exactly what should be the economic objective of planning, this need not necessarily follow.

It is also argued that if public authorities were made to pay the market price for the land which they compulsorily acquire, then this would lead to the right amount of planning. In this argument, planning is being falsely equated with actions by public authorities. Even if this error is overlooked and the right amount of planning is taken to mean the transfer of just that amount of land from private to public uses as would lead to the best utilization of resources, the argument would still be false.

There is no reason why the amount of land which public authorities could purchase at the market price in competition with private users, should be the right amount in this sense. Some public authorities may have a large income whilst others have a small one, and this would govern the amount of land they compulsorily acquired. Since this would lead to amounts being acquired different from the amounts required in public use for the best use of resources, this cannot be the right amount.

Since the income of public authorities is variable, no price, market or otherwise, can correlate the amount which would be acquired with the amount required in public use to make the best use of resources. This may be admitted by the advocates of the acquisition of land at market prices by public authorities, but it is then argued that it will at least make the public aware of the cost of planning. It is doubtful whether this could be called the cost of planning. In any case, the returns or benefits must be weighed against the costs in assessing its desirability. Does the fact that the goods and services required by public authorities for education, defence, the social services or planning, are purchased at market prices, make the public aware of the costs of these specific services or even their relative costs? It is doubtful.

From what has been said, it must not be concluded that there is no justification for the payment of compensation and the collection of betterment. Even if it were proved that there is no justification on economic grounds, payment and collection may still be justified on an ethical criterion. If it is believed to be right to collect a proportion of all income and capital to pay for the activities of public authorities,

then it will appear fair to tax increases in land values, and if it is believed to be right that a person should be paid when relinquishing ownership of property, then it would appear fair to receive compensation for compulsory purchase. This is a case where ethical and other considerations may outweigh economic considerations in reaching decisions. If compensation is payable and betterment collected, for whatever reasons, it may have economic effects, which must be considered. If the public expenditure required by a plan is limited by the amount of money collected as betterment, and the amount which has to be paid in compensation for compulsory purchase and/or restriction of use, then this may place a limitation on the best utilization of resources which can be achieved by the planning. If this is a worse utilization of resources than would be possible without these limitations, then the desirability of making planning less dependent on them ought to be considered.

If compensation is payable and betterment is collected, what should be the basis of payment and collection? To look at the payment of compensation first as we have seen, the market value of an object is determined by the interactions of the subjective valuations of buyers and the seller, and these facts have been used as the bases of compensation for compulsory purchase. Under the Land Clauses (Consolidation) Act, 1845, the basis of compensation was value to the owner. Under the Acquisition of Land (Assessment of Compensation) Act, 1919, the main effect was to make the open market value between willing buyers and sellers the basis of compensation. The 1959 Town and Country Planning Act introduced an element of value to the buyer into the basis of compensation. If land acquired is used for a different purpose from that anticipated within five years of the acquisition, then additional compensation is payable. The 1947 Town and Country Planning Act had yet another basis, that of existing use value.

All these values for compensation are highly artificial. Only the owner knows the value to him, and naturally, he will try to obtain as much as possible. This being so, the 1845 Act laid down that the value to the owner was the market value including development value plus any additional loss suffered by the owner. If value to the buyer was to be made the basis of compensation, again, he would try to pay as little

as possible and arbitrary rules would have to be laid down as to what is the value to the buyer. Existing use value is again difficult to assess unless arbitrary rules as to what is existing use value, are laid down, since the market price of any property will reflect development potential.

Even the open market value between willing buyers and sellers is fictitious since the public authority is an unusual buyer and the seller may not be willing to sell in the absence of compulsion. In any case, the open market price in the absence of town planning will be different from the open market price within a planning framework. Who can say after a few years of planning what would be the value of a particular site in the absence of planning? If the open market price within the planning framework is taken as the basis of compensation, then it may include value shifted from elsewhere by planning, and increases in value brought about by a more efficient use of land under the plan. What is important from an economic point of view is the effect of the payment of compensation on planning and the efficient use of land. The basis of compensation should be that artificial value, which leads to the most efficient use of resources under planning. Ideally, planning for the efficient use of resources should be completely separated from the payment of compensation, but since planning involves, for non-economic reasons, the payment of compensation, this is almost impossible to achieve.

As indicated, the problem of deciding what should be the basis for the collection of betterment is complicated by the difficulty of separating betterment due to the operation of planning from betterment due to other causes. Like the payment of compensation, the value of betterment must be artificial. If it is collected when a property changes hands, then the difference between the market price realized and the market price which would have operated without the plan, has to be estimated. It is impossible to say what the latter market price would be an artificial value such as existing use value has to be invented. Such was the procedure under the 1947 Act which allowed the State to purchase all rights of development in land. This enabled the State to sell the development rights, i.e., the difference between the market price and the existing use value to developers to whom planning permission was granted, thereby collecting the betterment.

No attempt was made under the 1947 Act to separate the different types of betterment. In fact, the name "existing use value" indicated that all betterment, whatever the cause, was to be collected. It is sometimes claimed that the fact that all betterment was collected greatly retarded redevelopment in the post-1947 period, but it has to be remembered that existing use values and therefore the development charges were artificial values subject to negotiations, which could be adjusted upwards or downwards to advance or retard redevelopment. Looking through the Estates Gazette during the period 1949 to 1952, it would appear that the building licensing system deliberately retarded certain redevelopment, and when a building license was granted, the development charge was calculated to ensure that the redevelopment took place.

Attempts have been made to collect betterment on a local basis due to a more efficient use of land caused by the operation of planning. Recoupment is one such method whereby a public authority acquires land around a proposed redevelopment, to resell after the redevelopment thereby collecting any enhancement of the land values due to the carrying out of the plan. Set-off under the 1959 Act is another method. Under this Act, compensation payable to a person could be reduced if the values of other lands owned by that person were enhanced by the development, i.e., the betterment offset part of the compensation. This appears to violate the ethical principle that persons in the same position should be treated equally under the law, since other persons may have their land values enhanced without paying betterment. Unless planning can be made completely independent of the collection of betterment, it should be on a basis which ensures that planning leads to the most efficient use of resources. If betterment is collected for some other purposes, then any effects on planning should be examined to see if they are detrimental or not to the efficient use of resources.

CHAPTER SIXTEEN

TOWN PLANNING AND THE EFFICIENT USE OF URBAN AREAS

16.1 VIRTUES OF COMPACTNESS

In the study of the use of urban areas, the Buchanan Report can be said to be a classic, for it highlights the present problems involved in the use of urban areas and indicates some of the possible solutions. The use of access space e.g., roads and parking places, in urban areas, is a function of the activities which take place in those areas, and it is inevitable that a study which sets out to look at the long-term development of roads and traffic in urban areas should lead to a study of urban areas as a whole and have implications not only for the use of access space but other land uses as well. For this reason, we will begin by examining the Report.

The Report recognizes that the basic economic advantage of urban areas is that they make for a high degree of specialization. To quote from paragraph 62, "The concentration of people makes it possible to provide a diversity of services, interests and contacts. There is a wider choice of housing, employment, schools and recreational and cultural pursuits. It is easier in a compact society to maintain the secondary activities, such as restaurants, specialists shops and service industries, which all too easily fail if there is not a large enough clientele close at hand. The issue is not starkly between high-density flats and low-density suburbs- it is desirable that towns should have some of both- whether to maintain or abandon the degree of compactness and proximity which seems to contribute so much to the variety and richness of urban life."

As already stated, this diversity of facilities is partly a function of the size of population in an urban area. A shopping centre which serves a population of 100,000 persons is likely to contain a greater variety of shops than five separate ones serving the same population. The increase in variety with increase in

population within easy reach of a facility is not only true of shops, but all facilities found in urban areas. As a general rule, the larger the size of the market, the greater will be the degree of specialization possible in the provision of facilities.

General accessibility or the ease and convenience with which persons can reach facilities by all means of transport, is also important in determining the size of the market and therefore the variety in the provision of facilities. The report examines how to improve accessibility in towns with reference to road use only, whilst maintaining a given environmental standard. To achieve this, the basic principle is laid down that environments should be created together with a complementary network of distributory highways. An environmental area should be free from all traffic except that which is required for the functioning of the area.

This is an application of the principle that specialization increases efficiency. If the space in a hospital is divided into wards, kitchens, operating theatres and corridors, then this leads to a more efficient use of that space than if all these uses were performed together. Likewise if land in an urban area is divided and used for different purposes, it may increase efficiency. Industrial, administrative, retailing and other activities may be performed more efficiently separated from one another. The same is true of access space. If the access space in an environmental area is used by traffic only relevant to its functioning, then this specialization of access space may lead to its more efficient use. Parking, the delivery of goods and other uses of access space in the environmental area may be performed more efficiently if separated from the use of access space outside the area. Not only may there be a more efficient use of access space within the area, but access space outside it, free from these activities may also function more efficiently.

16.2 INCREASING SPECIALIZATION IN THE USE OF ACCESS SPACE

It was recognized implicitly in the report that it would be more efficient to have specialization in the use of access space not only within an environmental area, but in the use of access space outside of it as well. Not only should local distributors within an environmental area be separated from the district distributors, but the district distributors should be separated from the primary distributors. The fact

that the principle that up to a point the efficient use of access space as well as other land can be increased by increased specialization in use was not stated explicitly in the report. This led to the emphasizing of one factor which could lead to a more efficient use of urban areas. The whole problem of traffic in towns was related to this.

With all but the most rudimentary of access space, there is some specialization and separation of uses. Each side of a road is used primarily for traffic going in one direction, and pavements are built to separate pedestrian use from road traffic. The question is raised as to how far this specialization in the use of access space should be carried. This depends on the demand for the use of access space relative to the cost of creating the special use access space. The general rule being that the greater the demand, the more specialization there should be to maintain a given level of efficiency. The increases in community benefits are likely to more than outweigh the increase in the community costs. In a town centre, the common use of access space for all purposes would greatly reduce the efficient use for each purpose, and the benefits of creating special use access space are likely to outweigh the costs, whereas efficiency in use would not be greatly increased if the access space in a country lane used for walking, parking, delivery of goods to houses, etc., were to be divided into special access space for each purpose. The community benefits are not likely to outweigh the costs; although they will be much lower than in the town centre.

With the rapid increase in the ownership of motor-car, the demand for access space has, and is expected to increase greatly. In the short run, much can be done to improve the efficiency in the use of the inherited road system by the application of the principle of specialization in use. In London, the existing pattern of roads has been divided into one-way streets, primarily parking streets and clearways. Much more could possibly be done by the further application of the principle, for example by the creation of special bulk passenger traffic lanes into the centre of towns, or the giving over of access space to pedestrian use only as advocated in the report. It may be possible to increase the efficiency in use of access space by creating special use for a limited time only. The experiment of tidal flows during

the peak hour over some of the London bridges did this. At traffic lights, the special use of traffic going across a crossroads lasts for only a minute or two, yet nevertheless, the efficient use of that access space is greatly increased.

Town planning can greatly facilitate the efficient use of access space by planning the separation of uses. It may be possible to predict a minimum demand and a maximum demand for access space within an urban area. Planners can base the division of access space into special uses on the minimum demand, and provide for flexibility in the plans to take into consideration any possible demand above the minimum. They may be able to do this by bearing in mind the adaptations described in the previous paragraph, which can take place within the inherited road system to changing traffic requirements. By planning the road system in such a way as to facilitate such adaptations, the costs of these can be greatly reduced, for example, the road system can be planned to make conversions into one-way streets, clearways, pedestrian precincts, etc., fairly easy.

Two points need to be made about the effects of specialization in the use of access space on the absolute level of efficiency in its use. One is that the special uses of access space are complementary to each other and there has to be the right balance between them. If too much access space in the centre of a town is given over to parking, this may induce persons to use cars, and reduce efficient use of the clearways. If not, enough access space is given to pedestrian use, they will spill over into the road, reducing efficiency there. The second point amply emphasized in the Report is that the road system, inherited or planned, sets an absolute limit to the traffic that can be used in a town. An increase in the specialization of access space may increase the efficiency in the use of the road system, but this increase may be more than offset by the decrease in efficiency caused by the ever-increasing amount of traffic coming into the town. It may be possible to increase the access space in towns by taking land from other uses, creation of multi-level specialized-use access space, re-orientation of the road system and the rearrangement of land uses, but with all these measures, a point must be reached where an increase in the traffic must decrease absolutely the efficient use of access space in towns. Given the amount of access space in a town, and the optimum

allocation of it amongst the specialized uses, if traffic continually increases, a point must be reached where there must be some restriction on traffic coming in, in order to maintain a given level of efficiency. No matter how well a town is planned, this will remain true.

16.3 ENVIRONMENTAL AREAS

The Report advocates that an environmental area should be of a size which does not generate the build-up of traffic to a volume which necessitates its subdivision by the insertion of a further distributor link. It should also be of such a size that traffic does not interfere with its functioning in the urban area whether it is to provide living or working accommodation. In economic terms, an environmental area should be of a size which leads to the most efficient use of the access space and the remaining land in the area. In the centre of Norwich and Leeds where the demand for land is relatively high, it was possible to divide the land into environmental areas each being broadly homogeneous in character and not cut by a major distributor. From this, it can be seen that the basic idea behind the creation of environmental areas, in town centers at least, is the separation of different land uses.

At first sight, it may appear that the idea of the separation of different land uses by the creation of environmental areas contradicts the statement in the Report that any kind of development—residential, industrial, commercial or even mixed uses, can form an environmental area. But there is no contradiction when it is remembered that the degree of specialization, even within and amongst environmental areas, depends on the intensity of demand for land use. In town centers, the degree of socialization amongst environmental areas is likely to be high whereas on the outskirts, it is likely to be low. It is in areas away from the centers of towns that environmental areas of mixed uses are likely to be found.

In the centre of towns, it may be necessary to subdivide a large area used for a particular use by the creation of more than one environmental area devoted to that use, for example, where there is a large area of office accommodation. If the land uses are complementary to one another, there may be an economic loss, if say the

area loses its cohesion. But this loss must be weighed against the gain to be had from permitting more traffic into the area by the insertion of further distributor links. It may be possible to minimize the loss by the creation of special access space between these environmental areas of complementary land uses, such as pedestrian ways or special exclusive roadways.

16.4 ENVIRONMENTAL STANDARDS

A problem never really solved in the Report is how environmental standards are to be fixed. It may be possible to measure objectively the amount of air pollution, vibration, noise, or even visual intrusion, but what is the relative importance of each of these factors in causing deterioration in the environment? A hundred persons would give a hundred different answers. Even if this problem were solved, there would emerge not one environmental standard, but many, for the relative importance of these factors would be different in different types of environmental areas. Visual intrusion is likely to cause more of deterioration in the environment in a residential area than in an industrial one. To an economist, it would appear that there is already an objective measure of environmental standards in property or land values in one than the other. Then this may indicate that there is a difference in the environmental standard between them, likewise with similar industrial or commercial areas.

There are two possible objectives to the use of land values as a measure of environmental standards. First, land values reflect factors other than differences in environmental standards, for instance, the location of different positions relative to other land uses, and it is difficult to separate the influence of each factor on land values. Whilst this is true, experiments could be carried out to find the differences which change in environmental standards would make to land values. The environmental capacity or volume or character of traffic permitted into an environmental area could be lowered to ascertain the effect on land values. If it made no difference to land values, then this would signify that no monetary value is being placed on the improvement in the environmental standard.

The second objection is to the economist's sordid habit of reducing everything to a monetary value. It is possible to value something without placing a monetary value on it, for example, the sight of the bird, trees and fields seen on the journey between home and work. But it is impossible to measure such values unless there is an objective factor to which the value is correlated. If there is a correlation between the time spent looking at the birds, trees and fields, and the subjective value, then time can be used as a measure. This type of *ad hoc* measure may be alright in this instance but one of the main purposes of finding a measure is to make a comparison between the value placed on different things. Only by correlating subjective values with a common objective factor can this be done. Money is the common objective measure of the relative subjective values placed on many things, and it is being suggested here that it is the best one to use to measure the many factors which determine environmental standards.

There is another important reason why monetary values or land values should be used to measure changes in environmental standards. This improvement of an environmental standard may involve a cost or loss of benefits elsewhere, and these should enter into any appraisal as to whether an improvement in the environmental standard is desirable or not. If the number of vehicles allowed into an environmental area is limited, then not only may some persons within the area suffer for the good of the remainder but some persons outside of the area may lose benefits they hitherto enjoyed. It may be found that efficiency elsewhere is reduced because of a reduction in accessibility caused by vehicles not being allowed to pass through an environmental area. The use of a monetary measure enables a comparison to be made between the costs and benefits of improving environmental standards.

16.5 PLANNING THE EFFICIENT USE OF URBAN AREAS

It is possible to deduce from the Buchanan Report that the efficient use of urban areas, depending on their sizes and functions, can be facilitated by a greater specialization in the use of land, with each specialized use having a distinct functional relationship to other land uses. It is tempting to compare urban areas with organisms in which growth is a process of differentiation of the parts, and

where the parts are inter-dependent and form a co-ordinate whole. But this process in urban areas does not take place automatically as a result of the nature of urban areas as with organisms. True, as a town grows, there will tend to be increased specialization in the use of land in private hands in response to the profit motive, but as has been pointed out, there is no automatic adjustment between profit uses and non-profit ones in response to change and growth, and no self-working mechanism leading to the required increased specialization in land uses for non-profit or public uses. In order to make the optimum use of urban areas, it is necessary for planning to facilitate this increased specialization of land use as they grow and respond to the forces of change.

The planner's task is not easy; he cannot ignore the limitations placed on him by factors beyond his control. For example, in existing urban areas, he may find that the cost of making a wholesale reorientation of the inherited road system is prohibitive, and he is limited to partial adaptations here and there. He may find that society wishes to preserve certain buildings and that he must adapt his plan accordingly. In existing urban areas, he is truly the slave of past decisions, and the optimum use of these areas must mean the most efficient use within the limitations and not in the abstract.

To achieve this aim, the planner requires knowledge of, as many of the forces which can cause changes in the urban structure as possible, such as possible geographical movements in the population, changes in the social structure, technological developments, changes in the real national income per head of the population, etc. He must attempt to assess the future effect of urban forces on the urban area and try to anticipate their impact. The economic aim of town planning is more likely to be achieved working in harmony with these forces than against them.

This is not to say that a planner ought to adapt his plan to these forces without trying to influence them. For instance, if it is anticipated that there may be a large movement of people into an urban area, it may be considered that it would be undesirable to allow them to congregate in the inner residential districts. The