

THEORIES OF URBAN GROWTH

- Although several theories have been developed to explain the dynamics of city growth, all such theories are based upon the operation of five ecological processes of concentration, centralization, invasion and succession and observations based upon it about actual city growth in concrete situations.
- However, one can hardly find a theory of an ideal pattern of urban dynamics as growth of particular city depends upon many factors, the basic one being natural location of a city .Nevertheless, one can notice a set of common principles which govern city growth everywhere
- The major theories of internal structure of urban settlements have been advanced on the basis of empirical investigations conducted in the Western urban society, particularly in North America and Europe.
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Concentric zone model

- Ernest Burgess is the pioneer and his theory on city dynamics which provides the base for the later theorists on the subject. The hypothesis of this theory is that cities grow and develop outwardly in concentric zones. Burgess set out to evolve a theory of dynamics but he arrived at a theory of patterns of city growth which applies to any stage stages of urban development. According to Burgess, an urban area consists of five concentric zones which represent areas of functional differentiation and expand rapidly from the Justness centre. The zones are:
 - (1) The loop or commercial centre
 - (2) The zone of transition.
 - (3) The zone of working class residence
 - (4) The residential zone of high class apartment buildings.
 - (5) The commuter's zone.

Concentric Zone Model or Burgess Model

1. Central Business District

2. Transition Zone

- Deteriorated Housing
- Factories
- Abandoned Buildings

3. Working Class Zone

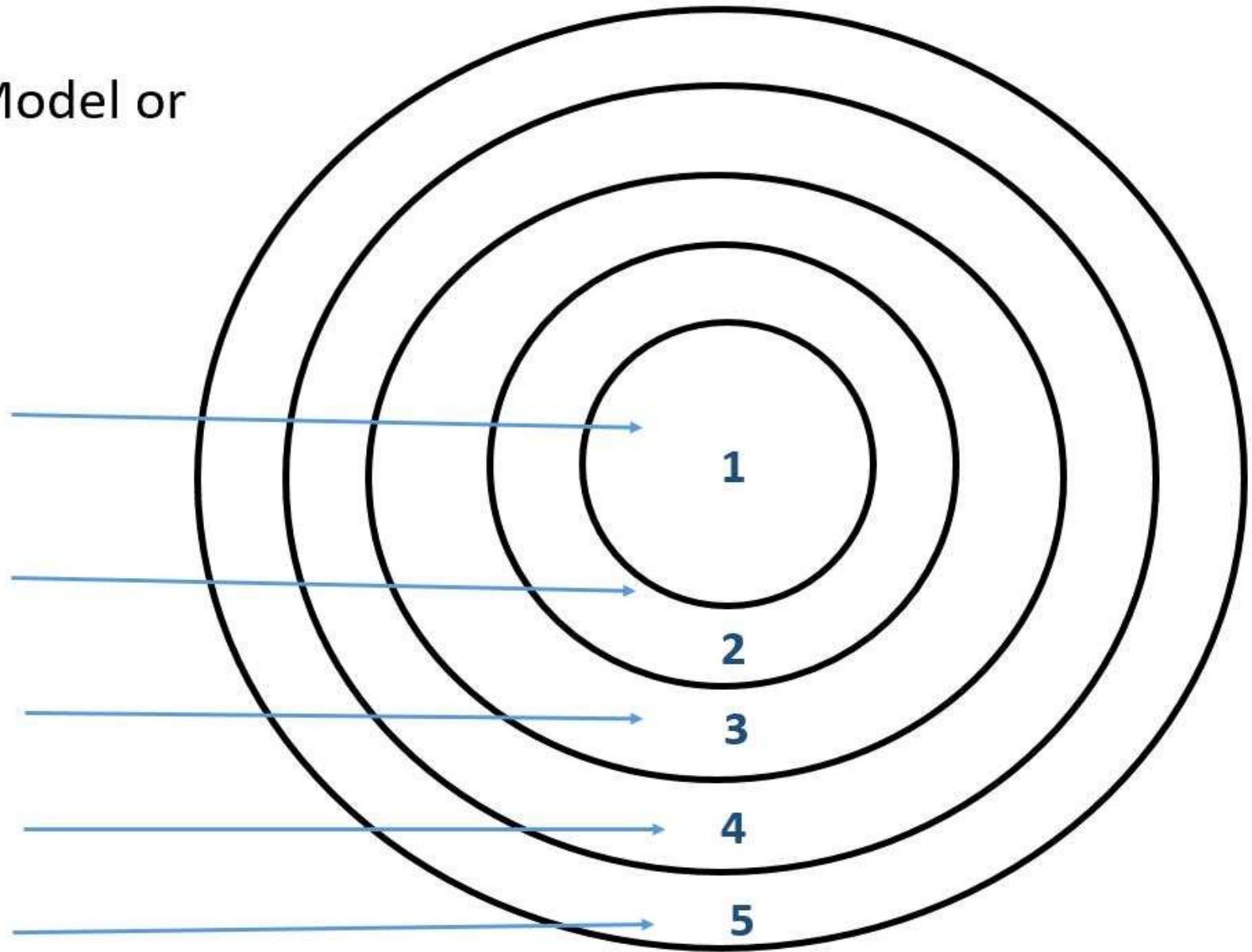
- Single Family Tenements

4. Residential Zone

- Single Family Homes
- Yards/ Garages

5. Commuter Zone

- Suburbs



1. The loop or central business district or commercial centre:

- 1. The loop or central business district or commercial centre:
- This is called as down town in American terminology. It is usually situated at the centre of the city. It is an area of business and official activity. Transportation routes from all parts of the city converge upon it.
- All the activities connected with business and service such as shops of various articles, departmental stores, restaurants, cinema houses, banks, main post offices and warehouses are all situated in and around the area at convenient places.

- This is the center (innermost zone) where central business district is located and has highest land value. The zone has tertiary activities and earns maximum economic returns.
- Another feature is the accessibility of the area because of convergence and passing of transport networks through this part from surrounding and even far of places in the city.
- This part has tall buildings and noticeably high density to maximize the returns from land. Commercial activity taking place in the area results in negligible residential activity in this zone

2. The zone of transition.

- This is the area which is located in the immediate vicinity of the market district. It is a haphazard area of dilapidated buildings and slums. It is in the process of transition from a residential area into a business area.
- It develops out of over-concentration of business area and the consequent turnover of extra and weak units into less favourable neighborhoods. It is an area of business and light industry. It is an area of squalor, regular vice and disorganization.
- This zone is characterized by the mixed residential and commercial use. This is located adjacent and around the CBD and is continuously changing i.e. transition takes place. Another feature is the range of activities taking place like mixed land use, car parking, cafe, old buildings.
- This zone is considered to “decay” because of the large number of old buildings as the buildings in transition zone were earlier used for factories and tenement housing blocks.
- This zone had high population density when industrial activities were at their peak. Those residing in this zone were of poorest segment and had lowest housing condition.

3. The zone of working class residence.

- This is situated immediately after the zone in transition or the factory area as the workers usually prefer to live near the place of their work. This area is a near slum, congested with multifamily dwellings.
- It is inhabited by workers who have escaped from the influence of the area of deterioration. This area is occupied for residential purpose and also known as “inner city” or “inner suburbs”.
- It consist of houses built to accommodate factory workers but had better condition than the transition zone. This area has a mix of new and old development and generally requires orderly redevelopment. People living in this zone are second generation immigrants as many move out of the transition zone to this zone whenever affordable.
- This zone is nearest to the working area with modest living conditions, this resulted in reduced commuting cost. Another interesting feature include the large rental housing occupied by single workers.

4. The residential zone.

- The residential zone of high class apartment buildings or exclusive residential districts are usually situated at a reasonable distance from the city centre and consist of decent single family dwellings inhabited by middle and upper middle class professionals and executives. Wellplanned roads, lounge spaces and beauty are the features of this area.
- This zone had bigger houses and new development occupied by middle class. Many of the homes are detached and unlike single occupants of inner suburbs, families resided in these homes.
- Better facilities are available to the residents like parks, open spaces, shops, large gardens but this comes at an increased commuting cost.

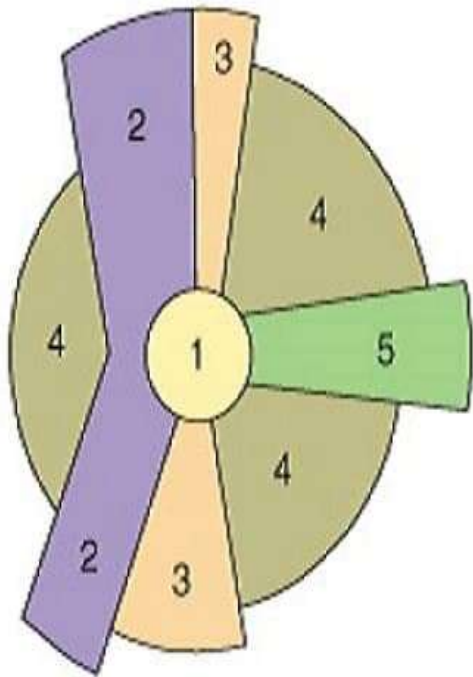
5. The commuter's zone.

- This lies at the outskirts of the city and is usually an area of the rural urban fringe. Hence this area reflects the characteristics of both types of habitats.
- This area is usually inhabited by people working in cities who also own land or by people who cannot find accommodation in cities. The inhabitants of this commuter's zone go daily to their place of work in the city through city transportation.
- This is the outermost area and farthest from the CBD, this resulted in highest commuting cost when compared with other zones. Significant commuting cost gave the name “commuter zone” to this part.
- People living in this part were high income groups which could afford large houses, could pay commuting charges, had access to different transportation mode, enjoy modern facilities like shopping malls. Low rise development, large gardens, less population density are some of the characteristics of this zone.

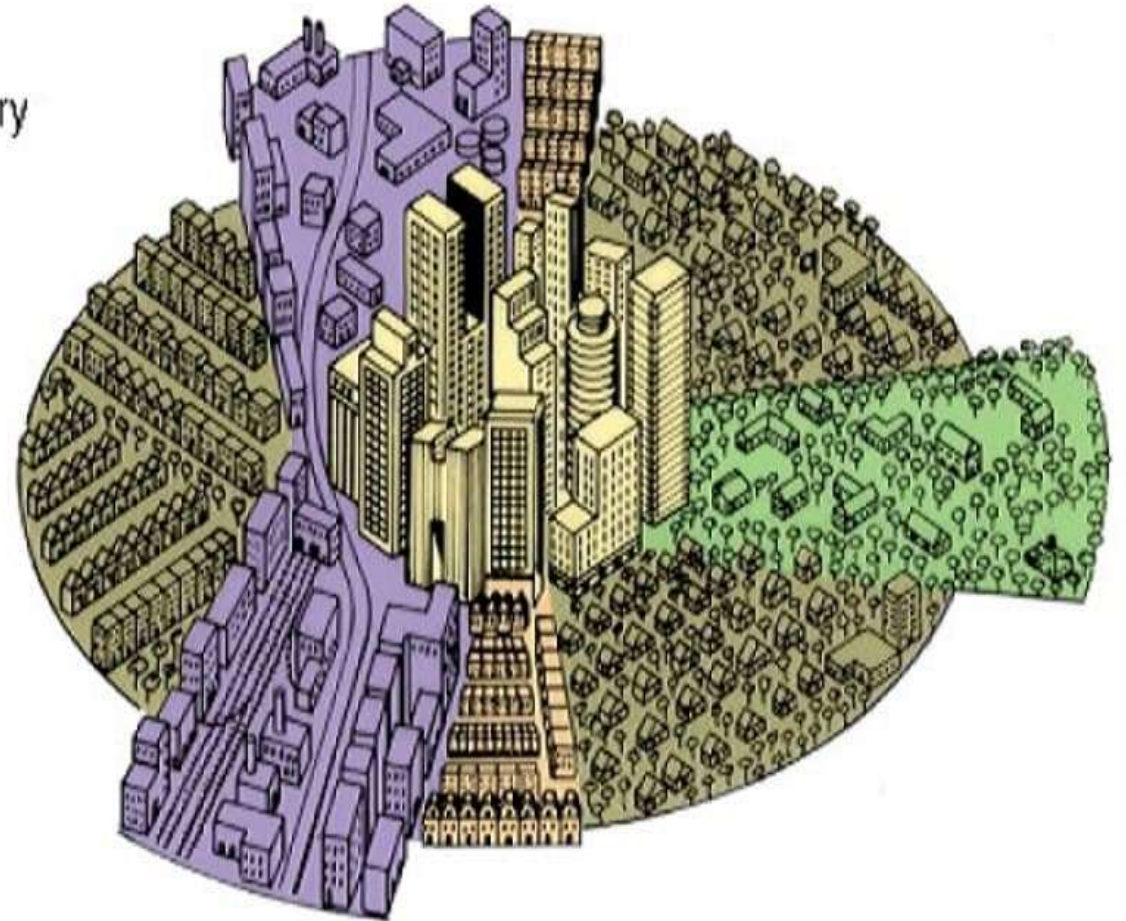
- However, this theory was not free from criticism by himself and others.
- Burgess himself was the first to point out that his proposition was not an actual description of patterns of city growth but an abstract scheme.
- This theory does not conform to the actual growth patterns of cities as proved by subsequent testing in relation to existing cities. It is very rare that we can find a city which has grown in well defined concentric cities.
- Nature itself is a major limiting factor deciding the limitation in the shape of a city. Further, this theory does not explain the patterns of commercial or cultural cities. Researches have shown that excess business, instead of flocking around, in the zone in transition flows away to more remunerative suburban shopping complexes which is a novelty.
- The concept of industrialization insists upon the starting of factories along waterfronts or at the outskirts of the city or breaks in transportation as convenient sport on grounds of health and availability of raw material

- The prominence of the loop has been greatly reduced due to the opening up of suburban shopping centres. The idea of the commuter's zone has been reduced in importance with the growth of twin cities.
- Contrary to expectation, new business and industry does not always flock towards the city centre or to the immediate area but move towards the convenient available area within the city for their location without touching the existing pattern.
- The theory does not account for the growth of satellite townships. However, the idea that residential zone lies away from the city centre and factory area nearby conforms to facts. The theory on the whole provides a ground work for the understanding of the growth patterns of contemporary cities.
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Hoyt model/Sector model of Urban Land Use (1939) by Homer Hoyt



1. Central business district
2. Transportation and industry
3. Low-class residential
4. Middle-class residential
5. High-class residential



- Hoyt Model is somewhat similar to Burgess Model and is often considered as its improved version. Hoyt argued that cities do not develop in form of simple rings, instead they have “sectors”.
- Homer Hoyt in 1939 suggested that few activities grow in form of sectors which radiates out along the main travel links.
- Activities in a sector are considered to be same throughout the sector because of the purpose/function it serves. Land use within each sector would remain the same because like attracts like.
- The high-class sector would stay high-class because it would be the most sought after area to live, so only the rich could afford to live there.
- The industrial sector would remain industrial as the area would have a common advantage of a railway line or river. These sector can be housing, industrial activities etc. These sectors grow along railway lines, highways or rivers
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- Homer Hoyt, an economist, followed the theory of Ernest Burgess and propounded a proposition of urban structure and its growth pattern in 1939, which may be construed as an alternative to the concentric zone theory. Designating his theory as Sectors Model, Hoyt attempted on overcoming the weaknesses of the earlier theory.
- His theory was mainly based on residential rent pattern and impact of transport development. Based on the findings of an empirical investigation of 34 American cities, it was observed that high rent areas are located in one or more sectors in the city.
- Hoyt prepared a map to substantiate how rent changed by sectors by sectors of the city irrespective of concentric circle. He also analyzed the impact of transport and recreational areas and other changes which he generated from the maps of housing features and land uses pattern of city.

Components of Hoyt Model

- CBD – Central Business District is placed at center. Sectors and the partial rings of land use/activities take place. This area is often known as downtown and has high rise buildings.
- Industry – Industries are represented in form of a sector radiating out from the center. These form sectors because of the presence of a transport linkage along which the activities grew. Presence of railway line, river or road would attract similar activity and thus a continuous corridor or “sector” will develop.
- Apart from the industries this area also serves as residential area for lower class workers. Living conditions are bad because of proximity to industries.

Low Class Residential

- Low income groups resides in this area. Narrow roads, high population density, small houses with poor ventilation exist in this area.
- Roads are narrow and often connects to the industries where most of the people from this sector works. Closeness to industries reduces the travel cost and thus attracts industrial workers.
- Environmental and living conditions are often poor because of the closeness to factories.

Middle Class Residential

- This area has middle income groups who can afford larger travel cost and want better living conditions.
- The activities of people residing in this area consist of different activities and not just the industrial work.
- It has more linkages with CBD along with some linkages to industries. This area has the largest residential area.

High Class residential

- This is the outermost and farthest area from the downtown. Wealthy and affluent people lives in this area.
- This area is clean, has less traffic, quiet and has large houses. Corridor or spine extending from CBD to edge has best housing.

Significance of Hoyt Model

- Ecological factors + economic rent concept to explain the land use pattern
- Stress on the role of transport routes in affecting the spatial arrangement of the city
- Both the distance and direction of growth from the city center are considered
- Brings location of industrial and environmental amenity values as determinants in residential location
- Example: Sectors of high class residential areas tend to grow towards higher grounds, sites with better view, more open space, the homes of influential leaders within the community and existing outlying, smaller settlements.

Features of sector model

- Presence of low income groups near industries supports Hoyt Model
- The Hoyt model realized that transportation (in particular) and access to resources caused a disruption of the Burgess model.
- Activities and their locations are highly influenced by transport linkages. Low transportation cost and proximity to roads/railway reduces the cost of production.
- This model applies well to Chicago
- Account for major transportation routes and its effect on activities
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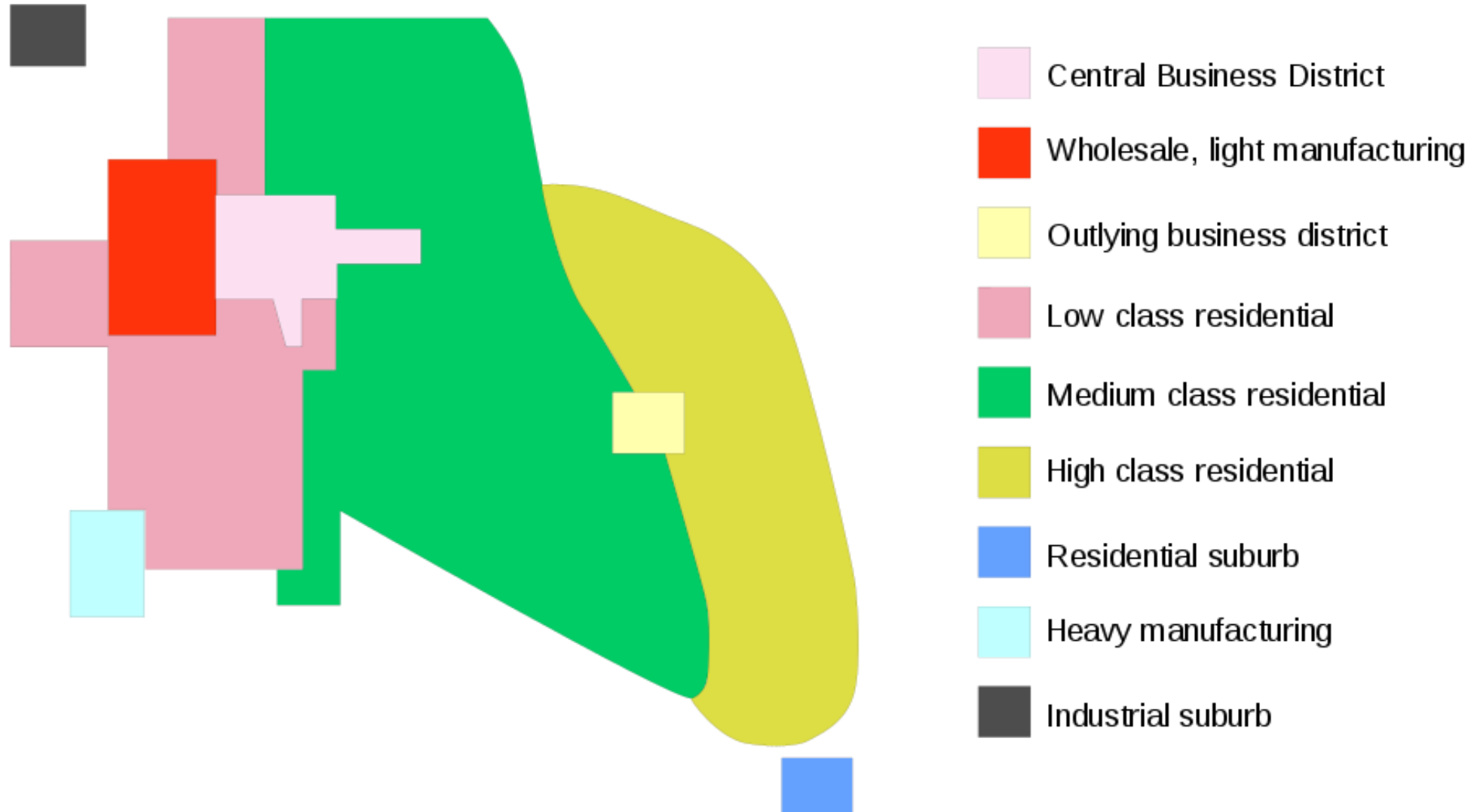
Limitations of Sector Model

- Only Railway lines are considered for growth of sectors and does not make allowances for private cars.
- It is a monocentric representation of cities, multiple business centers are not accounted in this model.
- Physical features – physical features may restrict or direct growth along certain wedges
- No reference to out of town development

• Multiple Nuclei Model Harris and Edward Ullman of 1945

- **Multiple nuclei model of 1945** by C.D. Harris and Edward L. Ullman is based on the argument that the cities have multiple growth points or “nuclei” around which growth take place.
- This model was given in an article by them “The Nature of Cities”.
- This is one of the widely adopted model which was applicable to modern cities unlike older models studied under [settlement geography](#)

Harris and Ullman's Multiple Nuclei Model



Concept and need for Multiple Nuclei Model

- This model is based on the structure of Chicago just like the [Burgess model or Concentric zone model of 1925](#).
- It can be considered as an attempt to explain the structure of city taking into account the complexity and growth over time.
- Harris and Ullman argued that a city might start with a single central business district (CBD) but over the time the activities scatter and gets modified.
- The scattered activities attracts people from surrounding areas and acts as smaller nuclei in itself.
- These small nuclei gain importance and grow in size and starts influencing the growth of activities around them.

- The need for this model was to provide a more realistic explanation of the cities. The influence of cars on personal travel and greater movement of goods provided opportunity in different places instead of concentrating all economic activities in one place.
- People started optimizing their business for maximum profit by locating at different place and bringing down their rent with a slight increase in transportation cost.
- Whereas some activities like industrial areas create pollution and are thus preferred to be located away from residential areas. This model is considered to be more suitable for cities which are large and expanding

Activities listed under the model

- The activities listed in the model can be considered as independent zones which influences activities around them.
- These are also formed because of their dependence on one another, when such activities are located in proximity a “nuclei” is said to be formed.
- Central business district
- Light manufacturing
- Low-class residential
- Middle-class residential
- Upper-class residential
- Heavy manufacturing
- Outlying business district
- Residential suburb
- Industrial suburb

Assumptions for Multiple Nuclei Model

- **Land is not flat** – This provides a more practical application of the multiple nuclei model and is improvement over [Burgess model](#).
- It is difficult to find a flat land for big cities and the terrain features effects the activities, development and direction of growth of urban area.
- **Even distribution of resources** – Resources are evenly distributed within the city, no one enjoys privileges or have exclusive access to resources.
- **Even distribution of people in Residential areas** – People are distributed homogeneously and not concentrated in a particular area or pocket. This is essential as unevenly distributed population has direct impact on markets.
- **Even transportation cost** – Transportation cost are even in the city and not influenced by location.

- **Profit maximization** – A particular activity will locate itself where maximum profit can be earned.
- For this a different combination of rent, transportation costs, labor cost, proximity to market may be tried and the combination which yields best result gives the final location for the activity.
- This location also takes into account the restrictions over the activity and the need to be separated from other non compatible activities such as locating residential areas away from industrial, locating large industries with more accessibility to reduce transportation cost and to ease the movement of goods.

Limitations and criticism of the Harris & Ullman's Multiple Nuclei Model

- Multiple nuclei model was considered much better than the previous simple models which attempted to explain the structure of urban areas. However this model also had its limitations and **could not be applied to many cities and did not entirely explain the structure of urban areas.**
- Formation of well defined zones or “nuclei” required considerable size of the city as the small or new towns do not have a very well defined locations because of which they are usually scattered.
- Another drawback is the limited activities which are considered in the model along with the very rigid and specific boundaries of the activities.
- Some other drawbacks include:

- Negligence of height of buildings.
- Non-existence of abrupt divisions between zones.
- Each zone displays a significant degree of internal heterogeneity and not homogeneity.
- Unawareness of inertia forces.
- No consideration of influence of physical relief and government policy.
- The concepts may not be totally applicable to oriental cities with different cultural, economic and political backgrounds