

SCHOOL OF LOCATIONAL ANALYSIS

Spatial analysis, which is also called **area analysis** and **locational analysis**, is the study of human trends in a specific place. It is an approach in human geography which focuses on the spatial arrangement of phenomena. It tries to build accurate generalization, models and theories with productive power. Locational analysis is based on the philosophy of positivism and empiricism. Its usual methodology is that of spatial science.

The school of locational analysis is based on the philosophy of positivism. The philosophy of positivism supports locational approach, which concentrates on the identification of theories of spatial arrangements. School of locational analysis is closely linked to the quantitative revolution in geography.

Locational analysis is based on empiricism. Empiricism is a philosophy which accords special privilege to empirical observations over theoretical statements. Specifically, it assumes that observational statements are the only ones which make direct reference to phenomena in the real world, and that they can be declared true or false without reference to the truth or falsity of the theoretical statements.

History and development of Locational School

A number of geographers in U.S.A. advocated the cause of locational analysis in the 1950s, although it has much deeper roots in the work of pioneers who were later adopted by geographers. Lukerman was advocated by number of geographers in USA in 1950's, but its actual working started in 1960's. Many geographers were associated with this stream later on. Bunge (1966), for example, wrote a thesis on Theoretical Geography based on the premises who stated that geography is the 'science of locations'. Others such as McCarty were strongly influenced by developments in the field of economics, to which they introduced the spatial variable. Mc Carty introduced spatial variables in the field of geography. These links led to the close interrelationship between geographers and regional scientists in the 1960s and 1970, and illustrated by attempts to build economic geography theories of spatial arrangements.

Haggett, in his book *Locational Analysis in Human Geography* (1965), appealed to adopt the geometrical tradition to explain order, location order and patterns in human geography. Such a focus needed: (1) to adopt a system approach which concentrates on the patterns and linkages within a whole assemblage; (2) to employ models as to understand man and environment relationship; and (3) to use quantitative techniques to make precise statements (generalizations) about locational order. For the spatial analysis they suggested to adopt 'linear model', spatial autocorrelation and regression.

Other geographers who contributed substantially to the field of locational analysis are Morrill, Col, Chorley, Cox, Harvey, Johnston, Pooler, Sack and Smith. In 1966, Sunge wrote thesis of theoretical geography. By the late 1960s these new practices were synthesized in

influential innovative textbooks on both sides of the North Atlantic. Notable examples include Peter Haggett's *Locational Analysis in Human Geography* (1965), Richard Chorley and Haggett's *Models in Geography* (1967), Ron Abler, John Adams, and Peter Gould's *Spatial Organization* (1971), and Richard L. Morrill's *The Spatial Organization of Society* (1970). Each emphasized the theme earlier pronounced by Wreford Watson that "geography is a discipline in distance."

Models and Theories of Locational Analysis

It focused on spatial organization, and its key concepts were embedded into the functional region—the tributary area of a major node, whether a port, a market town, or a city shopping centre. Movements of people, messages, goods, and so on, were organized through such nodal centres. These were structured hierarchically, producing systems of places—cities, towns, villages, etc. whose spatial arrangement followed fundamental principles.

One of the most influential models for these principles was developed by German geographer Walter Christaller in the early 1930s, though it attracted little attention for two decades. Christaller's central-place theory modelled settlement patterns in rural areas, the number and size of different places, their spacing, and the services they provided according to principles of least-cost location. The assumption was that individuals want to minimize the time and cost involved in journeys to shops and offices, and thus the needed facilities should be both as close to their homes as possible and clustered together so that they can make as many purchases as possible in the same place. Likewise, businesses will want to maximize turnover, with people spending as much as possible on goods and services and as little as possible on transport. An efficient distribution of service centres was in the interest of both suppliers and consumers. Christaller showed that this required a hexagonal distribution of centres across a uniform plane (i.e., one that had no topographical barriers), with the smaller centres (providing fewer services) nested within the market areas of the larger.

Economists such as Edgar Hoover, August Lösch (who produced a theory similar to Christaller's), Tord Palander, and Alfred Weber suggested that manufacturing industries be located to minimize both input costs (including the costs of transporting raw materials to a plant) and distribution costs (getting the final goods to market). Least-cost location was the goal, which could be modelled as a form of spatial economics. Efficient spatial organization involved minimizing movement costs, which was represented by an adaptation of the physicists' classical gravity model. The amount of movement between two places should be a function of their size and the distance between them: i.e., size generates interaction, whereas distance attenuates it.

Use of the intervening areas between the nodes and channels was also investigated within the school of locational analysis. A 19th-century German geographer cum economist, Johann Heinrich von Thünen, had modelled the location of agricultural production, involving a zonal patterning of activities consistent with minimizing the costs of

transporting outputs to markets with the highest-intensity activities closest to the nodes and channels.

Another significant theory in the field of locational analysis was given by Hagerstrand. According to Hagerstrand, the main centres of innovation tend to be the largest cities, from which new ideas and practices spread down the urban hierarchies and across the intervening nonurban spaces according to the least-cost principles of distance-decay models.

The early models made relatively simple assumptions regarding human behaviour; and it was assumed that decisions were based on complete information. Later on more-realistic models of spatial behaviour were based on observed decision making in which the acquisition and use of information in spatial contexts took centre stage. Distance was one constraint on behaviour; it was not absolute, however, but manipulable, as patterns of accessibility could be changed. And as the behavioural contexts were altered, the learning and decision-making processes within them also changed, and the spatial organization of society were continually restructured.

Criticisms Against Locational Analysis

The locational approach in human geography has been criticized on philosophical and methodological grounds by the behaviouralists and humanists. Some of the main criticisms against locational analysis are as under:

1. The locational analysis based on positivism ignores the normative questions to explain the man and environment relationship. It was their mistaken belief that “positive theory would lead to normative insight”. The cultural values are quite important in any decision making process. The ideal location for any economic activity may not be acceptable to individuals and the society.
2. The locational analysis did not reflect the reality of decision making processes and so was of little value in predicting locational arrangement.
3. The models developed with the help of locational analysis conceal the complexities of the real world.
4. At present, there is economic interdependence of societies at the global level, which means that spatial interdependence has become much more important and “locally experienced environmental dependencies lost their rationale”.
5. Locational analysis has also been criticized on the ground that it encourages the social order of capitalism in which the owners of the means of production become rich and the poor becomes poorer.

6. The locational analysis has given a chance to the capitalists to optimize their profits. It gives an uncontrolled liberty and licence for plunder and miscalled profit.

7. Owing to locational analysis, there is over production and the economy enters the era of over industrialization.

8. It is mainly because of the locational analysis and capitalism that there is a total newness—new technology, new means of transportation, new education, new art, new morals, new media, new amusement, new weapons, new violence, new terrorism, new war and new mode of exploitation.

9. The followers of spatial science (positivists) treat people as dots on a map, statistics (data) on a graph, or numbers in an equation. They consider humans as non-living beings.

It is because of the inadequacies of the locational analysis that the ‘behaviouralism’ and ‘humanism’ achieved much significance in human geography. Whatever the reason for its origin, there is little doubt that locational analysis substantially changed the nature of human geography from the mid-1960s, although there is some doubt that it ever dominated the discipline. It presented geography as a positivist social science, concerned to develop precise, quantitatively stated generalization about pattern of spatial organization, thereby enriching and being enriched by ‘Location Theory’, and to offer models and procedures which could be used in physical planning.