

# The Use of Economic Geography Theory in the Study of City History, a Methodological Thinking

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**Abstract:** The study of city history requires auxiliary science to explain socio-economic phenomena. One of the essential auxiliary sciences is Geography. This article aims to describe a theoretical analysis of economic geography concepts and theories that can be used to analyze historical phenomena that discuss space as a factor in social phenomena. The research method used is a literature study based on relevant scientific books and journals. The results show that the theory and concept of geography can clarify historical researchers in discussing urban spatial phenomena related to various aspects of social phenomena, primarily the phenomenon of economic development. The images of the geographic theory that can be used are the theory of transportation networks, linkage theory, network theory or “networks,” and agglomeration theory. Through theoretical clarity, one can understand social phenomena in historical situations at a certain period more clearly than narrative studies based solely on historical sources.

**Abstrak:** Kajian sejarah kota memerlukan ilmu bantu untuk menjelaskan fenomena fenomena sosial-ekonomi. Salah satu ilmu bantu penting adalah Geografi. Artikel ini bertujuan untuk memaparkan kajian teoretik konsep dan teori Geografi ekonomi yang dapat digunakan untuk menganalisis fenomena sejarah yang membahas keruangan sebagai faktor fenomena sosial. Metode penelitian yang digunakan adalah studi pustaka dengan mendasarkan pada buku dan jurnal ilmiah yang relevan. Hasil penelitian menunjukkan bahwa teori dan konsep Geografi dapat memperjelas peneliti sejarah dalam membahas fenomena keruangan kota yang terkait dengan berbagai aspek fenomena sosial, terutama fenomena perkembangan ekonomi. Konsep dari teori geografi yang dapat digunakan adalah teori tentang jaringan transportasi, teore linkage, teori jaringan atau “networks”, dan teori aglomerasi. Melalui kejelasan teoretik maka fenomena sosial dalam situasi sejarah pada periode tertentu dapat dipahami lebih jelas dibandingkan dengan kajian naratif semata yang mendasarkan pada sumber-sumber sejarah.

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## INTRODUCTION

History is a very open scientific study involving various aspects of life. It happens because history is inherent in every human life as part of the memory of his life (Roediger, 2019). Even Carl Becker said that each person is a historian for himself (Klein, 1985). It is so open that many historical writers are not historians in Indonesian historiography. Many historical works have been written apart from historians and other scientists, such as philosophy, literature, economics, sociology, and geography, so on (Miftahudin, 2020; p.12- 14). The openness of historical studies is related to the focus of historical studies concerning different human lives, physical, social and cultural aspects. History is a past reality that opens opportunities to study with various philosophical, psychological, economic, sociological, political, and geographic approaches (Kartodirdjo, 2014).



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**Table 1.** The Gradation of Total History

Type of history	Characteristic	Description
<i>Evenementielle</i> (factual history)	short-term history	History of events that happened each time. Political events, sale and purchase transactions.
<i>Conjuncturelle</i> (cyclical history)	medium-term history	History explains economic and demographic trends such as inflation, export-import, production, and population growth.
<i>Longe-duree</i> (structural history)	long-term history	History explains structural aspects such as geographic structure, social system, culture, and mentality.

Source: Kartodirdjo (2014) with modified

Apart from certain aspects, history is also carried out with a holistic approach that places spatial factors (geography) as the primary foundation. This kind of history by Fernand Braudel is known as “total history,” a history discussed in terms of physical and non-physical. The gradation of history in total history can be seen in Table 1

Braudel is one of the founders of the “Annales” school, namely the social history school, and other new historians such as March Bloch, Lucian Febre, etc. In his monumental work, “Mediterranean and the Mediterranean World in the Age of Phillippe II,” Braudel analyzes the history of the nations around the Mediterranean Sea during the time of Philip II (1165-1223 AD) in all aspects ranging from physical, material life, demography, politics and diplomacy. This historical work emphasizes the “space” (geography) aspect as the lowest structure that determines the social, cultural, economic, and political events that occurred during the two centuries. This type of history is known as “longe-Duree” l’histoire.

In long-term history, Braudel, with a geographic approach, imitated the model by Anthony J.S. Reid. This historian explores Southeast Asia’s total history, which he calls the commercial century (1450-1680). Using the total history approach, Reid could make a historical explanation of the history of the civilization of the Southeast Asian nations at that time, which was structurally determined by geographical location and natural conditions. The geographical location of Southeast Asia, which is in a cross position in the world sea trade network from China-India\_Persia to Europe, has led to the development of advanced civilization, politics, and culture in Southeast Asia. The culture interacts and acculturates with the culture of the immigrants to form a distinctive new culture. In Volume 1, the physical aspects and traditional development are explained. Meanwhile, book 2 describes commercial networks, cities’ structure, and Southeast Asia’s political developments.

The total historical tradition was also continued by later generations of Annales, such as Lombard (1996). This historian produced one of his monumental works in Indonesia, “Nusa Java in Crossing the World.” This history explores the long-term history of “Javanese Land” from physical aspects, civilization, and economy to politics. The approach used is a genealogical approach to the origins of the current Javanese phenomenon, with its justification traced to the past. The genealogical approach starts with volume 1, which explores the influence of the West, Volume 2 about the trade network of Asian nations that preceded the entry of westernization, and volume 3 about concentric kingdoms, a phenomenon of the power of traditional kingdoms which is very close to the universe.

The historian’s tradition of leaving the narrative-ideographical model was echoed by Indonesian Social Historians in the 1980s-1990s. Kartodirdjo (2014) introduced the concept of history with a social science approach. Meanwhile, Taufik Abdullah called it an approach to social sciences. Since then, many of Sartono’s students have written history using the social science or multidimensional approach. The key word is that history can borrow concepts and theories of social science to explain historical phenomena that will narrate. One of the essential social sciences is geography-a science that combines the physical and social aspects of human life (Abdullah, 2021).

History has a close relationship with geography, and this is because, in historical phenomena, it is always related to the question of where, where, and the location of historical events. The location of historical events will determine the pattern of human life through a certain period, so a geographical explanation of a historical event is indispensable. A critical aspect of the geographic approach is economic geography to understand the history of cities. The theory of economic geography is an auxiliary science in understanding a city both from the aspect of development and physical and

non-physical changes and problems in a city. This article will discuss a conceptual and theoretical study of the economic geography approach in the study of city history with examples on the northern coast of Java.

## **METHOD**

This research uses the library method. The study is based on documentary materials available in the library in the form of books and journals containing the required material, namely the theory of geography that will be relevant to the study of the city's history. This research includes identifying and tracking the location of data sources that provide factual information to an expert's opinion in answering the research questions posed (George, 2008). At the library source search stage, the literature review is commensurate with tracing sources or heuristics in the historical method (Kuntowijoyo, 2003; Kartodirdjo, 2014; Tosh, 2015; Wasino & Hartatik, 2018). The source search begins with a bibliographic study of the bibliographic book list, then continues with source tracking at the Gadjah Mada University library, the Central Library for Population Studies, UGM, the Jakarta National Library, and bookstores, and research on library resources in the digital area, booksellers' websites, bookstores, and journal website. After the library materials are obtained, the activities of exposure to findings and analysis of the relationship between the concepts and theories of geography and historical facts are carried out. Because the study that most researchers do is the history of the north coast of Central Java, the examples of analysis are about the spatial history of cities that are passed by the North Coast of Central Java highway.

## **GEOGRAPHIC THEORY FOR THE STUDY OF CITY HISTORY**

Based on the literature search, there are several geographical theories to discuss the history of the city. Geographical theories function as a knife of analysis and development of a theoretical framework that is used to make an explanation of the history of the city to be narrated. The theoretical framework concepts that the author uses include transportation theory, linkage theory, network theory, and agglomeration theory. The elaboration of these theories is taken from various opinions in the literature below.

### **Transport Theory**

The theory of space and location states that a specific area depends on other sites and vice versa.

Among the many places, certain areas have advantages that other regions do not because they have facilities that can serve the population's needs in a wide range. Residents at a certain distance will come to meet them. According to Morlok, which was written by Yunus (2000), due to differences in the level of resource ownership and the limited ability of the region to support the needs of the population, it caused the exchange of goods, people, and services between areas. It is reinforced by research conducted by Razi (2014) and (Silondae et al., 2016).

In carrying out their lives, humans use the space where they live (settlement), which consists of working, opportunities, circulation, housing, recreation, and living facilities. According to him, the element of circulation is the transportation and communication network in the settlements. The transportation and communication system includes internal and external systems. The movement of people and goods is always through specific routes. A network/network in space connects the place of origin and destination. The network can vary; for example, the road network is part of the transportation system. Bintarto (1982) says that transportation is essential in a system because, without transportation, transportation from one place to another will interact well if the state of transportation facilities is good so that the activities of the flow of people, goods, and services run smoothly. Transportation is a benchmark in the spatial interaction between regions and has a vital role in supporting the development process of an area.

The transportation system is developed to connect two different land use locations. Transportation is used to move people, goods, and services with increased economic value. Regions with diverse geographical conditions need integration between types of vehicles to serve the needs of their population in a space, whether city or village, in the movement of the flow of people, goods, and services. To meet these needs, residents of an area have two choices, whether they move using or without transportation/walking modes. Population activities without transportation modes are usually minimal, and the distances are short, while residents' activities using transportation modes can deliver relatively medium and long distances.

Agreeing with Bintarto, Dwiatmoko (2018) said that rural development will be slower and hampered due to the lack of available transportation facilities. This condition is caused

because the transportation system can open the way of communication between regions so that the flow of people, goods, services, and ideas that serve as initial capital for regional development can develop (Wardana, 2014). Even transportation can function as a facilitator for an area to progress and grow because the vehicle is often associated with the accessibility of space. Good accessibility will also encourage the interest of the private sector and the public to invest their capital in the context of regional development.

Theoretically, Marshall's (2002) research suggests that land transportation is divided into two models: (1) Hierarchical periphery transportation, consisting of local, collector, and arterial roads. In the local model, local roads provide greater access, the collector provides a balance between access and speed, while the arteries provide more limited but higher speed access. (2) *Ferrovie Statali*, the Italian rail system, consists of three classes, mainly local trains that stop short distances. These intercity trains stop in big cities along long routes. Eurostar stops in big cities with very long paths.

The economic level of this transportation is divided into three classes: (1) long-distance travel and extended trips that are specifically from other primary markets. This first stage of the journey is always related to business and leisure issues or moving from the manufacturing center to various other markets where the commodity is sold. This level one indicator is a matter of speed because people who make trips at this level want to get to their destination as quickly as possible, (2) Medium-distance travel, this economy trip is a business trip, especially daily business such as commutes and delivery. This second level indicator is a problem of reliability, and the user wants in advance how long the trip will take, (3) Short trips, specific time trips, are usually made frequently and in a short time and daily. People use this model to go to grocery stores, restaurants, parks, etc. These trips are usually not rushed, tolerant, and broadly social. The indicator of this travel model is a matter of comfort so that users will get convenience.

Andrew also said that to build transportation facilities in a city, one must pay attention to the indicator factor of the level of economical transportation. The car is the dominant form of transportation in America because it operates effectively at all levels. The problem is that the vehicle takes up much space and creates congestion. It is because there are different critical factors at the transportation level, and conflicts between layers in space are general.

Discussion of transportation issues, another element that is no less important is the issue of land use. In planning, transportation, and land use have specific and targeted objectives. Land use results from the activities and dynamics of human activities on the earth's surface that have not stopped and are still running. The relationship between the transportation system and land development is a study that cannot be separated from the existence of space in the study of geography. In the transportation system, the primary purpose of planning is to provide facilities for moving passengers and goods from one place to another or from various land uses. While land development, the purpose of the planning is to achieve the function of the building with profitable results. Often the goals between the two lead to conflict, so spatial impact analysis is used to bridge the gap between the abovementioned goals.

Analysis of the impact of transportation on land use is systematically divided into several parts: first, retail. This activity uses the land for one shop unit, food stall, plant sales center, and gas station. Second, for business/employment, the land is used for offices, business areas/business parks, industrial areas/industrial estates, and warehousing. Third, housing/residential, private housing, apartments, and nursing homes. Fourth, education includes schools, universities, and training centers. The five health sectors include hospitals, health centers, and doctor's practices. Sixth, tourist facilities include hotels and motels, hotels, and restaurants: seventh, facilities for sports, amusement parks, and arts centers (Marshall, 2002).

As in other developing countries, Indonesia is also experiencing the impact of the development of the transportation system, which results in reduced fertile agricultural land in the transportation route due to the conversion of productive land into built-up land. These changes occur in quantity, quality, and physical patterns of spatial land use. Transportation planning is an inseparable part of urban and regional planning, so there must be synergized between the two. If this is not done, there will be traffic chaos in the future. This condition will eventually lead to an increase in the number of accidents, and violations, a decrease in traffic manners, and an increase in air pollution (Tánczos & Török, 2008; Gao & Zhu, 2022).

Transportation, as one of the sectors of urban activity, has the potential to influence air quality in urban spaces that develops dynamically on a spatial scale and economic activity. Therefore, it is necessary to consider a transportation policy full of envi-

ronmental insight. Moestikahadi (2000) highlights the impact of the development of transportation in urban areas associated with the problem of the intensity of the environmental effects. Three main aspects determine the intensity of the impact on the environment, especially air pollution, noise, and energy used, namely (1) aspects of planning for transportation of goods, people, and services. (2) Aspects of transportation engineering, covering the flow pattern of transportation modes, road facilities, traffic systems, and others. (3) Aspects of mechanical engineering and energy/fuel sources of transportation equipment.

According to Miller (1985), there are three main types of transportation used by people in urban areas. It is related to his opinion, which states that the transportation system in urban areas is the main factor that determines the spatial pattern, the degree of chaos, and the level of economic growth of a metropolitan area. The three types of transportation used by urban residents are private/individual transit, for example, private cars, motorcycles, bicycles, and walking. Second, mass transit/mass transit, for example, trains, buses, opelet, colt, etc. Third, rental transportation/transit. For example, rental cars, taxis that follow a fixed route, one way, and so on.

Ideally, a good transportation policy in urban areas should result from studies from various related departments, including the Ministry of Public Works, Ministry of Transportation, Ministry of Home Affairs, Ministry of Defense, and Ministry of Finance. This condition is carried out because policies regarding road network patterns can affect land use. After all, a properly planned road network will be a suitable traffic controller for the link between urban and transportation planning.

In his book *Urban Spatial Structure*, Yunus (2008) suggests the axial theory, a refinement of the concentric theory. This theory emphasizes transportation's role in influencing the city's spatial structure. The concentric theory argues that the mobility of functions and residents has the same intensity in a uniform city relief configuration. Primary factors affect mobility, so there will be a distortion in some cases. The transport axis that connects the Central Business District (CBD) with its outer regions is the main factor affecting mobility. The existence of the transportation axis will distort the concentric pattern because, along the transportation route, it will be associated with relatively high mobility. The areas traversed by transportation will have other physical developments from the spaces between these transportation routes. A resulting

spatial effect is a form of spatial distribution called the "star-shaped pattern." In this case, accessibility is defined by comparing time and cost (time cost team) concerning the existing transportation system. The development of the current zones along the transport axis appears to be greater than the areas between them. Results in areas along the axis are limited by competition with areas closer to the CBD, even though they are not served by fast transportation facilities (Yunus, 2000, pp. 42-44).

Theoretically, Yunus took the opinion of Hebert (1976) about the influence of the development of transportation infrastructure on the city's morphology. Hebert's study was based on his research in American cities. The results of his research suggest that cities in America are conditioned by technological advances in the field of transportation. The development of this transportation has formed seven categories of city morphology, namely, (1) City morphology during the pedestrian domination period, (2) City morphology during the animal train domination, (3) City morphology during the electric train/trolley era, (4) the morphology of the city during the period of the dominance of inter-city trains, (5) the morphology of the city during the period of the dominance of the automobile for inter-city, (6) the morphology of the city during the development of highways between cities and regions and (7) the morphology of the city in the period of development of ring roads (Yunus, 2000: p.152).

### Linkage Theory

Because the highway, especially the Daendels highway, which extends on the north coast of Central Java, is a link between one city and another, in this paper, the author tries to describe a theoretical study of the urban theory that discusses the relationship between a place and another from various aspects. This group of theories is known as a linkage that pays attention to and emphasizes an urban fabric's relationships and movements (dynamics). In the city's discourse, the attention of many scientists is given to the pattern of urban areas, mass order, urban spatial planning, and so on. City linkage can be observed in different ways and approaches, and these approaches include (1) visual linkage, (2) structural linkage, and (3) collective form linkage (Zahnd, 2006, pp.107-108).

Bacon (1978), in his book *Design of Cities*, explains that the visual linkage of two or more city fragments is linked into a graphical unit. Edmund's theory is well known when he put forward cases showing the impact of visual elements in the history

of cities. This visual linkage consists of two main differences, namely (1) which neutrally connects regions and (2) that connects two regions by prioritizing one region. Examples of neutral visual linkage are found in various regions worldwide, such as Italy, Jaipur (China), Amsterdam (Netherlands), Yogyakarta, etc. The visual connection prioritizes one city is found in the cities, including Versailles (France), Rome (Italy), Monas/Jakarta, and others. The focus area often has a special meaning and function in the city because it is more dominant and prominent than its environment. In visual linkage theory, five elements produce visual relationships: lines, corridors, sides, axes, and rhythm. Each has its characteristics and a particular atmosphere. This visual linkage is appropriate when used to design urban landscapes because it connects fragments and parts of the city (Zahnd, 2006, pp.108-109).

Structural linkage is a refinement of visual linkage because some areas have similar shapes and characteristics but also have different locations. Structural linkage sees the city as a network relationship that exists in the city structurally. The proponent of structural linkage theory, Collin Rowe (1979), in his book entitled *Collage City*, said that a city design that does not pay attention to the problem of urban areas that are not structurally connected or connected but not well will lead to questionable urban quality. He tries to provide a solution to the city's architectural development with a design that unites urban areas through a structural network known as a collage system. The point of the structural linkage theory is that two or more forms of urban structure are combined into a single unit in its construction. The use of this theory also depends on the function of the area in their respective contexts because not all areas have the same structural meaning in the city, so the hierarchical relationship can be different (Davidson & Theobald, 2009; Rowe & Koetter, 2013).

Elements that exist in the structural linkage theory are additions, joints, and translucences. An example of the application of structural linkage with a collage system as a link is found in the construction of the city of Gothenburg in Sweden by using additional elements before and after its construction (Zahnd, 2006, pp. 119-120).

Collective linkage theory requires two main requirements: a collective form different from its environment and a collective form related to its environment. In the collective linkage theory, Tracik (1986) in his book *Finding Lost Space* and King (1991) in his book *Architecture, Form, Space,*

and Its Structure, linkage theory pay attention to the arrangement and relationship of parts of the city to one another by using these dynamics in a datum system such as musical composition. Urban areas with the nature of a collective form are urban characteristics (Zahnd, 2006, pp. 126-127).

According to Maki (1964), in his book *Investigations in Collective Form*, the elements of collective form suggest three types: compositional form, mega form, and group form. We design objects such as two-dimensional and individual compositions with abstract relationships in this compositional form. In this theory, the linkage is developed organically. Ancient and traditional cities tend to follow this type.

According to Wie (1988), in his book entitled *Industrialization of Indonesia: Analysis and Crisis Notes*, he argues that linkage between sectors and within the sector can occur in several ways. First, through vertical links created by cooperation or relationships between small-scale companies and large scale. Second, according to Ranis Steward and Reyes, spatial links occur because of cooperation between companies in one place and another. This spatial relationship can occur on a local, national, regional, and world scale (Ranis & Reyes, 1989; Mahendra, 2006).

According to the growth process, linkages can be divided into consumption linkages and production linkages. *Consumption linkages* result from an increase in income in one sector and then cause an increase in product demand in other sectors. This linkage can occur in the agricultural and non-agricultural sectors or vice versa. Production linkages can occur through forwarding and backward linkages. Future linkages can occur if production from one sector becomes a supplier/supplier for other sectors' production activities. Backward linkage occurs when production activities in one sector become inputs for other sectors.

The interrelationships and interactions between sectors by Mellor (1976) become an essential concern in macro-level analysis. This analysis emphasizes the input-output model approach by focusing on linkages at the national and aggregate levels (Dwiatmoko, 2018b). This linkage seeks to pay attention to the interrelationships between the level of savings, foreign trade, employment, and marketing and seeks to identify the necessary conditions for achieving growth rates. While on a micro-scale, linkage analysis by applying the growth linkages model tries to focus on the interaction between agricultural and non-agricultural activities in rural economic activities (Maryadi, 2019).

### Theory of Networks

In an article written by an expert on regional planning and development, Rustiadi (2018) said that he would not realize regional growth without changes in social organization and value systems because the productivity of an economic strategy and resource management is conditioned by the culture and institutions that exist in the region. Public. While Putnam (1993), in his research on the linkage of social factors with measurable regional development performance, suggests that the role of social capital influences a region's economy.

Social capital is identified and described in various ways. According to Pretty & Ward (2001), there are four main aspects of social capital, namely (1) trusting relationships, (2) exchanges, (3) general rules, norms, and witnesses, and (4) linkages, networks, and groups. - group. Meanwhile, according to Putnam (1993), Fukuyama (1995), and Keefer & Knack (2003), the critical components of social capital are (1) community meeting/dialogue networks, (2) interacting/reciprocal norms, and (3) social trust. Using the game theory model, the researchers say that repeated interactions in a network, especially a horizontal network, will gradually increase equivalent status and power; norms are grown and maintained through various forms of modeling and socialization and accompanied by a witness.

At the community level, social capital has two essential characteristics: autonomy and relatedness. For the government, the existence of community autonomy will support organizational integrity and prevent pressure from certain groups. As for the people, autonomy is reflected in the strength and form of formal organizations that allow them to be free from government pressure. While the aspect of linkages which both vertically from external forces and horizontally among local actors. This linkage will be vital as in family/work network linkages and weaker in bridging linkages in the network system (Granovetter, 1973). The latter linkage in social capital can play an important role, especially in the community's exchange of information and resources between social and economic groups.

Based on the elements of networking/networking, social capital is divided into three types, namely, (1) bonding social capital, (2) bridging social capital, and (3) linking social capital. Bonding social capital is characterized by solid ties/ties, such as between family members or members of certain ethnic groups. This bond is also known as thick trust, namely social capital, built from trust between groups of people who know each other. Second, bridging social capital is characterized by

increasing ties between groups such as business associations, relatives, and friends from different ethnicities. This type is built on thin trust, trust in a group of people who are not known. Linking social capital is characterized by the relationship between different levels of power and social status, such as the linkages between political elites or individuals from different classes (Rustiadi, 2018, pp.454-455).

### Agglomeration Theory

Darwanto's (2009) article "Basic Principles of Regional Development" states that agglomeration means all industries are interrelated and share production and profits. This agglomeration usually occurs in the same business to form business groups with the same character and workforce so that the products and services produced are similar. The grouping also creates the potential for collaborative networks to build joint marketing activities and attract other related activities forward and backward.

Laundhart's location theory states that the selection of industrial locations is influenced by three main factors, namely (1) transportation costs, (2) labor wages, and (3) the impact of agglomeration and deagglomeration. *Agglomeration* is the grouping of several companies in an area/region to be a particular industrial area (Hasan & Munir, 2012; Budiharsono, 2019). This agglomeration consists of two kinds: primary agglomeration and secondary agglomeration. Primary agglomeration is a newly emerging company with no relationship with the old company. In contrast, secondary agglomeration is a company that has just started operating as an old company. Agglomeration can occur due to, among other things: (1) A large workforce with better abilities and expertise compared to other regions; (2) Some companies can be an attraction to other companies; (3) The development of companies from small than develops into large and large companies. Give rise to other companies to support it; (4) the movement of production activity from one place to another; and (5) other companies are approaching the source of materials for production activities, and they support each other (Parera, 2017).

In particular, Yunus also stated the factors that cause the emergence of agglomeration/ deagglomeration of functions, namely (1) certain special facilities and certain activities require certain facilities. For example, retail areas in their activities need maximum accessibility. (2) External economic factors and similar grouping functions give rise to

their advantages. Grouping means an increase in the concentration of potential customers and makes it easier to compare with each other, (3) The mutually detrimental factors between different functions and conflict/antagonism between the development of factories and high-class settlements are real examples. (4) Different factors of financial ability, often because of economic incompetence, do not occupy the ideal location. For example, low-class housing cannot occupy comfortable land with beautiful views because of the high rent of land. At the same time, high-class settlements will be able to occupy it because of the ability to pay rent even though there is free competition. This condition results in high-class settlements occupying attractive places while low-class settlements will be thrown into the wrong locations and identical with low rents (Yunus, 2000, pp. 45-47).

In the aspect of urban spatial structure and economic agglomeration, companies' economies of scale are likely to occur: constant economies of scale, increasing economies of scale, and decreasing economies of scale. The economies of scale will determine the decision for companies whether they remain in the group or not. The grouping that occurs at a constant economic scale will not last long. On the contrary, the economic group will continue at an increasing economic scale. The advantages that the existence of economic agglomeration can obtain are (1) Saving on transportation costs and (2) saving on advertising costs. With these advantages, the company can save production costs. In contrast, the negative impacts caused by economic agglomeration are: (1) The emergence of congestion, (2) The emergence of various types of pollution, and (3) The increase in crime rates.

According to Marshall, there are three sources of why economic agglomeration occurs, namely (1) an abundance of information/information spillovers, (2) local non-traded inputs, and (3) the availability of local skilled labor pools (Potter & Wattsy, 2011; 2014). While the types of economic agglomeration, according to Hoover, consist of three types, namely (1) internal returns to scale that arise because the company has a significant economy of scale, (2) economic localization, which occurs in a group of companies in one similar industry located in the exact location. The same thing, (3) economic urbanization, arises in companies from different industrial sectors clustered in the exact location (Ilyas, 2018; Pavlov, 2021). These types of agglomeration emerge mainly due to the different definitions between companies

and industries. *Firms* are activities that combine inputs to produce goods and services. The industry is a collection of companies that produce similar products. In addition to the agglomeration theory, five other theories explain why company grouping occurs. The five theories are (1) the growth pole model, (2) the incubator model, (3) the product cycle model, (4) the porter model, and (5) the new industrial area model (Terluin, 2003).

Transportation geographer Edward J Taaffe et al. (1996) suggest that in understanding a city connected through transportation, one can see its development through two theoretical models, namely the theory of gravity and linkage models. Based on the theory of the gravity model, it is stated that the development of a city can be seen by connecting two or more factors that can affect some flows/interactions between two or more points, namely population, and distance. While linkage in transportation geography means the linkage between one spatial point/place to another spatial point, for example, one city is connected to another. The relationship between these points is bound by a network system (Taaffe, 1996, pp. 196-197). The model of the relationship between places/spatial can be done using the gravity model and the road network. The land transportation system via the highway can connect spatial points, namely cities, with other cities, both big cities and regency cities, for example, between Semarang and Pekalongan city, Pekalongan city, and Tegal city, and vice versa. In addition, the highway also connects small towns with villages, between villages and other villages. The relationship between these places affects the distribution of products from villages to cities and vice versa. Goods from outside can enter the village area through essential port cities on the north coast of Central Java, such as Semarang. The distribution of goods from cities to villages and vice versa affects consumption patterns and people's lifestyles.

The highway on the north coast of Central Java, when viewed from the model, is included in the category of the suburban hierarchy transportation model where the currently available highways are easily accessible because they can connect major cities in Central Java with other cities in Java by high speed using buses, private vehicles or motorbikes. Before Daendels built the postal highway in the colonial period, the journey between Batavia (Jakarta) to Semarang took more than ten days by horse-drawn carriage. After the postal highway was built at the beginning of the nineteenth century, the journey could be reached by postal horse for four days. Meanwhile, the journey



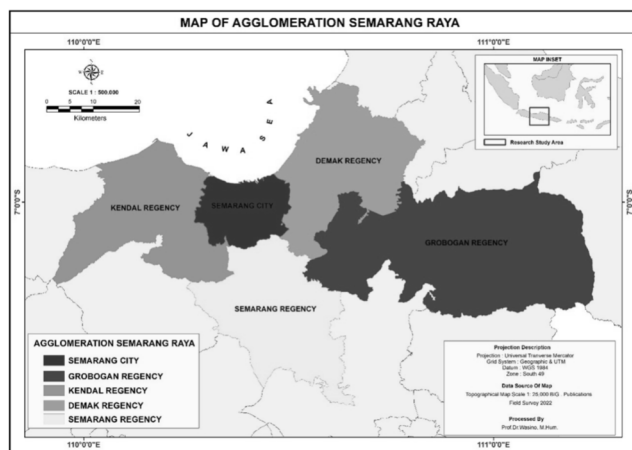


Figure 1. Semarang Agglomeration Map

between the two cities can be reached in 10-12 hours by bus, truck, and private car. To avoid congestion in provincial and district city centers, local governments open arterial roads that serve to speed up speed. This arterial road is not allowed for all vehicles to use, and sometimes certain restrictions are imposed because its primary function is to break up the traffic going to the city center. Other impacts arising from the construction of highway transportation from time to time when associated with land use will cause several spatial changes, for example, the emergence of new settlements along the highway, shops/ stalls, restaurants, inns/ hotels, gas stations/ refueling stations, and others, almost all of which relate to the needs of the people who are on the wheels of the vehicle.

Agreeing with Bacon in Zahnd's work, it was stated that to see the linkage between big cities on the northern coast of Central Java, the author limited three big cities, namely Tegal, Pekalongan, and Semarang, which represented city fragments that became liaisons with other areas in Indonesia surroundings. These three cities are the focus because they have dominant and prominent characteristics and have special meanings and functions in their cities compared to other cities; for example, Semarang has industrial areas and port cities so that they can become magnets for residents of the surrounding cities of Demak, Kendal, Salatiga. Moreover, Purwodadi tries their luck as factory workers, porters, and other jobs.

Semarang, which became the center of trade and services on the north coast of Central Java, eventually became an industrial city by clustering in certain areas, namely the Temple industrial area, the Small Industrial Environment (*LIK*) Bugangan at the Genuk district, Industri Candi area at Ngaliyan districts, and Tugu Industrial area at Tugu



Figure 2. Candi as Industrial Area at Ngaliyan District, Semarang City  
(Source: documentation of Endah Sri Hartatik, July 2022.)

district. Some industrial area groupings are primary agglomerations, and some are secondary agglomerations. Agglomeration in the city of Semarang can occur due to a large and skilled workforce, easy transportation due to the development of the Semarang city area, and the development of companies that have existed since the early twentieth century, for example, the herbal medicine industry, textiles, and food. Pekalongan, which has been the center of the batik industry since the colonial period, is an industrial center that has survived until now and has given its color to the history of the development of the home industry in Indonesia. In marketing the products produced by companies in Semarang and Pekalongan, they need land transportation facilities via the highway to their destination. In addition to causing economic agglomeration in certain areas, there is also an attachment relationship between producers and consumers via the highway, giving rise to a trade network. In the network concept, trade between trading cities and port cities is seen positively as a vehicle for economic integration. It is different from the old concept that sees it as "competition." This economic network concept can also be applied to the case of the history of the Pantura Highway. The sea network using ships can be analogous to the land network using land transportation ranging from "*cikar*," buses to its connection with trains. In addition, the land highway network must have

something to do with the broader network, namely the sea network that has emerged in port cities along the northern coast of Java. Based on this logic, the highway is part of the network/network of the Java Sea network. In other words, there is a “linkage distribution” between the distribution of goods by sea and by land.

The Java sea network with the Java North Coast land network can be developed in distribution. The impact of the distribution network has led to increased production in trading cities or related areas. Besides that, it also impacts the influence of people’s consumption patterns which are strongly influenced by the global capitalist network.

## CONCLUSION

History and geography have a very close relationship because historical events at all times are always related to the spatial aspect. The spatial aspect can be a cup in understanding the relationship of an event with the structural and “conjunctural” (middle time) aspects that underlie historical events. In the study of city history, theories and concepts of geography are needed to explain the spatial aspects that shape the development of cities. One of the essential aspects of the city’s development is the economic aspect which is more developed in line with the growth of economic centers and population movements. In this regard, economic concepts and theories become essential to explaining the relationship between historical events in space and time. The concepts of economic geography, such as linkage, network, and agglomeration, will clarify historians who want to discuss the development of the cities.

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