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MIGRATION AND THE PHASES OF POPULATION REDISTRIBUTION*

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Major phases of population redistribution include initial urbanization, frontier expansion, traditional urbanization, overurbanization, suburbanization, and metropolitan-to-non-metropolitan turnaround. These major phases are associated with shifts in population settlement patterns as population concentrates in urban centers in response to the need for greater social and economic interaction during the early stages of development and then deconcentrates as improved transportation and communication permit much of the increased interaction to be performed at a distance. While much migration occurs during these major phases of population redistribution, some aspects of migration involve relatively minor shifts in population within a given settlement pattern. Other migration flows may lead to no population shifts but are important to study as 'turnover' migration providing an indication of the degree of integration of the labor markets throughout the society. Migration, population redistribution, and population settlement patterns are closely related phenomena that would benefit from a unified theoretical framework.

1. Introduction

This symposium on migration theory presents several new insights into the developments of migration theory — especially in its relation to rural–urban migration in developing countries. The researchers have focused on what sociologists and demographers have called the 'push–pull' factors in migration [Dorigo and Tobler (1983), Lee (1966), Peterson (1958)] and has been recently formalized by economists as the welfare-maximizing behavior of individuals, families, or household groups in migrating from areas of lower economic opportunity or less attractive amenities to areas with superior opportunities or amenities. This focus has proved appropriate and fruitful for migration research ranging from the theoretical developments pioneered by Todaro (1969) in the analysis of rural–urban migration in developing countries [Salvatore (1981), Stark (1982)] to the human capital approach to migration in developed societies [Greenwood (1975), Godfrey (1973), Kottis (1972)]. The approach has proved useful in studying many aspects of migration research — individual relocation decision making,

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migrant selectivity, job mobility and migration, migration and wage differentials, and others [DaVanzo (1978), Golledge (1980)].

However, the wide applicability of the micro-level theories associated with income maximization comes at a cost. The price of this generalizability to many historical and cultural contexts is that the structural conditions unique to each of these contexts are explicitly or implicitly made external to the scope of micro-level migration analysis. As a consequence, micro-level migration theory alone is not well suited to the role it is sometimes called upon to play — the study of the changes in the settlement patterns of populations. Income-maximizing migration behavior is a feature of both the African migrant to the capital city and the American migrant from the central city to a non-metropolitan countryside — but the wider conditions causing each type of migration and the consequences for population settlement patterns differ. Traditional micro-level theory seldom asks the logically prior question of why such conditions exist. Micro-level migration theory needs to be complemented by a macro-level analysis of population redistribution that addresses the underlying structural conditions affecting changing population distribution [Bach and Schraml (1982), Wood (1982), Zelinsky (1971, 1981)].

Perhaps, one could build up from micro-level analysis to explain the phenomena of the migration of individuals, the redistribution of the population, and the structure of territorial settlement patterns. There should be a clear relationship between these phenomena. Population redistribution from area A to area B (where B represents the rest of the world) would involve the sum of all individual migration from area A to area B, minus all individual movements from area B to area A, plus the excess of births over deaths in area A, minus the excess of births over deaths in area B. With more than two areas, changes in population settlement patterns would be the result of all of the population redistribution trends between all pairs of areas in the settlement system. The result of this building from below should be an integrated explanation that not only explains all these individual flows but is also useful to all the major disciplines that study population movement and settlement patterns.

But, such a comprehensive theory based on micro-foundations that can satisfactorily explain differing individual migration patterns, the changing economic and social conditions causing those migrations, the determinants of differential rates of natural increase, and the joint effect of all these factors as determining final settlement patterns for differing geographical and historical patterns may be very difficult to develop. It would require a complex theoretical framework to account successfully for individual factors, statistical interaction effects, and problems of aggregation involved in such a bottom-up approach to explaining population redistribution and settlement patterns.

There is, however, another approach that attacks the problem from the

other direction. This paper will use such an approach to first describe a framework for major historical settlement patterns, then the major stages of population redistribution that accompany such migration, and finally the other forms of migration that occur within a given settlement pattern. Such a top-down approach is not necessarily better than a bottom-up approach, but it does have the advantage of tying together a number of diverse types and patterns of migration from differing historical periods and geographic areas [Harris and Moore (1980)]. Moreover, it points to a number of interesting research hypotheses that can be investigated while waiting for, yet contributing to, a truly integrated micro–macro theory of migration, population redistribution, and settlement patterns.

2. Population settlement and social economic interaction

Given the need for a broad, multi-disciplinary, conceptual framework of population settlement patterns on which to base this top-down description of population redistribution and migration, this paper proposes a typology based on changing levels and types of socio-economic interactions between territorially defined subunits of the population and the effects of those changing patterns on the redistribution of population. These interactions occur through the flow of persons, goods, and information between the territorial units of society. The distribution of population is itself the result of the level, pattern, and type of social and economic interactions between territorially based subunits of society. Changes in the form of these interactions and the consequent redistribution of the population are conditioned by changes in the physical environment and mediated by the role of social organization and technology [Sly and Tayman (1980), Long (1981), Frisbie and Poston (1976)].

The degree and form of interaction between subsystems change with different stages of development. This dynamic character comes from the need for increasing social and economic interaction with increasing levels of economic development. Since increased proximity is the most direct means of increasing interaction, dense population settlements emerge and grow. However, the increase in physical interactions (in the form of personal contact or the flow of goods) within a confined area sometimes leads to congestion — as extraneous interactions begin to interfere with more productive or desired interactions. One solution to this congestion is the channeling of interaction that becomes possible as technological and organizational innovations permit increasing proportions of this interaction to occur at a distance as a flow of goods or a flow of information rather than as a flow of people. The result is a reversal in population concentration at advanced levels of economic development.

3. The phases of population redistribution

A dynamic analysis of population redistribution requires careful analysis of the changing levels and types of social and economic interactions between units of the social system. These interactions can be divided into those that require the movement of ideas, of objects, and of people. Early in economic history, the movement of these three was inseparable so that productive social-economic interaction between parts of society required the actual face-to-face meeting of individuals for a welfare-improving exchange of goods and services. As long as this inseparability existed, economic development, social-economic interaction, and population density all increased concurrently [Hawley (1971)]. As changes in technology permitted a separation of these three forms of interaction, settlement patterns changed. Transportation developments improved the exchange of goods through long-distance trade relations, and communication developments permitted the exchange of information at a distance. So even though increased economic development called for ever greater levels of social interaction, organizational and technological developments often permitted territorial deconcentration or specialized location of employment and residences [Hawley (1978), Long (1981)].

These changes can be summarized into changing settlement patterns marked by the level of interaction and the level of population density. Under such a system population settlement patterns are the result of two sets of forces that act in unison at certain stages of development but have opposite effects at other stages. One set of forces demands a greater amount of productive interaction among units of the society as development increases. The other set of forces leads toward a maximization of the amount of land per person and the reduction of congestion.

At the earliest stages of economic development, population is organized into autonomous subsistence societies. Given the dependence of these societies on the land and the lack of need for contact with other groups, the pattern of population distribution favors complete dispersion with densities mainly determined by the productivity of the soil, forests, and streams. Population redistribution may occur during this stage by nomadic wanderings of hunting and gathering societies, by tribal migrations in search of better sites for subsistence agriculture, or often by the effects of differential natural increase between areas that have favorable conditions for food production and those that have less favorable conditions.

With increasing economic development comes the need for greater interaction through the exchange of goods and the establishment of commercial and administrative functions for society. With the primitive means of transportation available such increased interaction required substantial face-to-face contact in marketing centers and the establishment of agricultural villages

and towns. Later commercial and industrial development increased the need for interaction even more, resulting in greater population concentrations and eventually in a majority of the population residing in urban areas. However, at this stage the high levels of social interaction of all kinds that occur when a population is confined within a small area leads to congestion that can be counterproductive to social interaction.

This conflict between the need for productive interaction and the problems of congestion at higher levels of population concentration can be alleviated at the very advanced stages of socio-economic development attained by some societies in recent years. These societies are developing a system of efficient interpersonal linkages through improved communication, transportation and other adaptations of formal organizations. With the channeling of social and economic interaction provided by these advancements, information, goods, and people no longer must flow together as a unit. Interaction can occur at a distance through the transfer of goods and information without the need for face-to-face contact. The result is a deconcentration of the population to reduce congestion at the same time that social and economic interaction increases.

As a consequence of these trends, the degree of population concentration has a curvilinear relationship with socio-economic development as shown in fig. 1. Explanation of the changing trends in settlement and the related trends in population redistribution requires a detailed look at the phases of population redistribution that often represent quite massive transfers of population as settlement patterns change. This paper divides these major

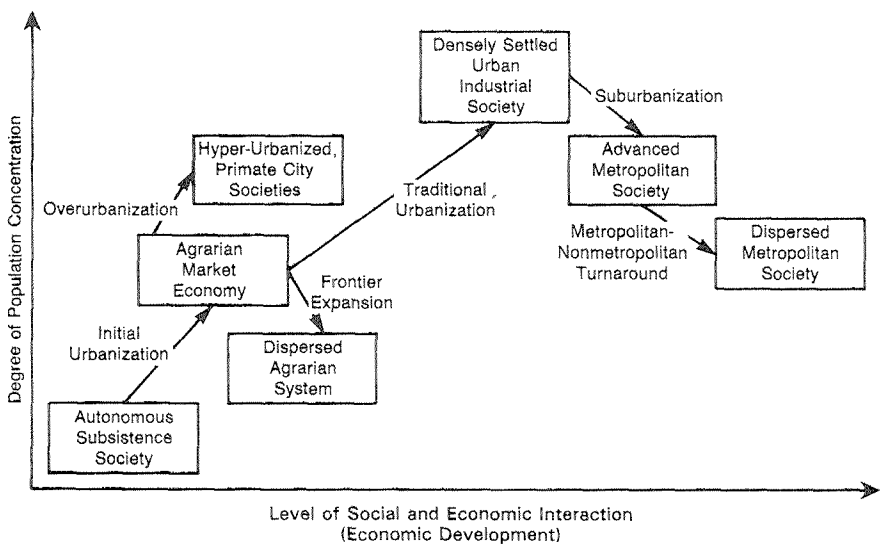

Fig. 1. Phases of population redistribution for migration analysis within an advanced metropolitan society.

population redistribution trends into six phases: initial urbanization, frontier expansion, traditional urbanization, overurbanization, suburbanization, and metropolitan-non-metropolitan turnaround.

(*1*) *Initial urbanization.* The earliest phase of population concentration with increasing socio-economic development is often studied more by archaeologists and anthropologists than by economists, geographers, and sociologists given the early historical or prehistorical periods in which it occurred. In this stage, initial urbanization represents the early establishment of administrative and commercial centers needed in the transition from autonomous subsistence societies to an agrarian market economy. The development of large scale, irrigated agriculture created enough surplus to release a small percentage of the population from the land and required their concentration in cities to administrate and maintain the technology needed for large scale irrigation projects, military protection, exchange of argicultural products and other services necessary for an agrarian society [Hoselitz (1967), Childe (1951)]. While the percentage of the population that became urban during this period is quite small, this transition is important in expanding the scope of control of social interaction.

(*2*) *Frontier settlement.* The historical situation during a time of frontier settlement is one of those examples that does not fit well into a traditional gravity approach to migration. Under the gravity approach, migration between two places is proportional to the population at origin and at destination, and inversely proportional to distance [Carrothers (1956)]. But during frontier movement, the population at destination is quite small compared to the relative size of the migration movement. In frontier settlement, one has a social system in which initial transportation advances, conquest, or trading has opened up a whole new environment for settlement [Billington (1959)]. Often the population redistribution takes place between homogeneous units (e.g., argicultural areas) in which the population transfers to the newly found land to exploit it in much the same way that previous land was exploited. Despite the new transportation links, the new territory is often only tenuously linked to the older areas, so its adequate exploitation requires more than just the shipment of goods back and forth but necessitates a full-scale settlement effort to transfer the entire fabric of society to the new location. This frontier settlement can occur without a transformation of the economic and social structure of the old society, although often the very size and significance of the frontier move acts as a catalyst for further change.

(*3*) *Traditional urbanization.* The process of urbanization with its corresponding massive rural–urban shifts in population is often viewed as the

major example of population redistribution in world history [Ledent (1982), Tisdale (1942)]. During this process, the development of commercial transportation combined with the implementation of the factory system to produce the concentration of large masses of the population in central cities where their daily face-to-face contact provided the needed increases in social interaction [Lampard (1955), Pirenne (1925)].

In addition to being connected by migration, the rural and urban areas were connected by commercial relations between the urban center and hinterland with the rural areas sending agricultural products to the urban areas while receiving services and manufactured goods in return [Hawley (1971)]. In the early stages of the urbanization process, the rural areas also supplied the output of their cottage industry with the urban areas providing the commercial transaction and marketing services. Later, the development of the factory system required a transfer of a large number of the laborers from the rural areas to industrial centers, augmenting the rural to urban population redistribution [Meyer (1980)].

Migration in this scenario crossed the boundaries of units which were relatively homogeneous as the population left rural areas and entered the urban center. Both areas formed part of the developing urban and eventually metropolitan hierarchy of central places dominating their hinterlands. Perhaps one of the best examples of units designed specifically to study this type of population redistribution is the classification of U.S. counties into State economic areas (SEA's) by defining non-metropolitan groups composed of counties that were homogeneous on agricultural, climatic, and cultural aspects and contrasting them with groups of countries representing each of the major metropolitan areas [U.S. Bureau of the Census (1973)].

(*4*) *Overurbanization.* The pattern of population redistribution represented by the unfortunate but standard term 'overurbanization' is one in which the percentage of the population that is urban at a given level of economic development markedly exceeds the traditional pattern [Davis and Golden (1954), Gugler (1982), Kamerschen (1969), Sovani (1964)]. Usually this occurs when a society with good links to the technology and international trade of the world economy has a limited infrastructure of transportation and commercial organizational networks. As a result, practically all of the modern industrial and commercial sector of the nation is located in the urban areas. Without the possibility of interaction at a distance through the regular exchange of goods, the only alternative is the physical movement of people to the urban areas where they can engage in face-to-face interaction. As the city progressively leaves behind the countryside, the rural to urban movement becomes so large that the total workforce is often more than can be productively absorbed quickly by the modern urban economy — although even the marginal urban economy may have advantages over the isolated rural areas.

(5) *Suburbanization.* In later stages of urbanization in the developed societies, the population distribution phenomenon of suburbanization began to occur. With the development of rapid, efficient, short-distance transportation in the early 20th century, commuting patterns permitted the channeling of social interactions so that workplace and residence could become increasingly separated [Glenn (1973), Hawley (1971), Ogburn (1946)]. Moreover, the congestion of central cities with increased levels of social interaction of all types tended to repel social interaction as productive interaction became more difficult [Katzman (1980)].

The units of territorial analysis for population redistribution during the suburbanization stage are the residential areas of the metropolitan area. Studies of relative population redistribution between these residential zones and sectors were popularized by the Chicago school of human ecology [Park, Burgess and McKenzie (1925)], although other paradigms may also be appropriate [Gottdiener (1983), Wheaton (1983)].

(6) *Metropolitan to non-metropolitan migration.* The present period of metropolitan to non-metropolitan population distribution in many developed societies provides a good example of the usefulness of population redistribution theory [Fuguitt, Lichter and Beale (1981), Berry (1980), Berry and Dahmann (1977), Fielding (1982), Vining and Kontuly (1978), Wiltshire and Abe (1978)]. While traditional micro-level methods of migration analysis often have trouble explaining aspects of this migration trend, the social interaction framework of population redistribution provides useful insights.

The improved communication as well as transportation of an advanced economy make many social and economic transactions possible at a distance [Leven (1978), Long (1981)]. Moreover, as was the case with suburbanization, the congestion of counterproductive social interactions in the metropolitan center often makes low density locations preferable [Burns and Ness (1981)]. In fact, the current metropolitan to non-metropolitan movement finds itself characterized by the movement of industries and other economic activities to lower density locations as well [Berry and Cohen (1973), Keinath (1982), Lonsdale and Seyler (1979), Morrill (1982), Norton and Rees (1979)].

As this process continues, attention is likely to become even more focused on the degree to which the entire society is becoming one functionally organized economic unit. While most modern activity can still be organized around a hierarchical metropolitan structure, continued disassociation of economic activity from the need for face-to-face contact might make the labor market area concept of analysis of migration as questionable as the central city was as a unit of analysis during the suburbanization phase [Davis (1965)]. It is at this time of incipient changes in the interrelationship of the hierarchy of territorial subunits that population redistribution analysis

is most difficult. For one thing, there may still be a number of lagging regions that are continuing the population redistribution patterns of the previous phase while more advanced regions are entering a new phase of population redistribution [Morrill (1979)]. Even in the more advanced regions, the tendency of increasing social interaction at a distance to promote a deconcentration of the population does not answer the question of whether these trends will lead to a completely dispersed, societal-wide population distribution or to some new dispersed but still territorially ordered structure that cannot yet be perceived [Morrison and Abrahamse (1983), Romanos (1978)].

4. Population shifts as refinements in settlement patterns

In each of the above phases of population redistribution, migration flows are predominantly in one direction and are the principal means by which population redistribution is carried out. But what happens to migration in a society that is not undergoing one of the major phases of population redistribution? During the periods of relative stability, migration and population redistribution continue, although the net redistribution may be less than it is during a transition from one settlement pattern to another. As an example one might look to the types of net migration that occur within the settlement system referred to in fig. 1 as an advanced metropolitan society.

Once substantial suburbanization has occurred, the system of territorial subunits and interrelationships in an advanced system of inter-labor market and residential migration can be represented as in fig. 2. This particular system works well for structuring the modern U.S. migration and population redistribution system. Here the higher level subunits are heterogeneous, functionally related labor market (or commuting) areas such as BEA areas. These areas are so specified as to maximize the proportion of migration across those boundaries that are job related and to minimize those that are housing related. At this level, changes in trade flows and other factors affecting industrial relocation [Vernon (1957)] lead to refinements in the settlement system that in turn lead to shifting employment opportunities and consequently to job-related migration [Gober-Meyers (1978), Hajj (1975), Rees (1979), Weeden (1973), Willis (1975)].

The second level of subunits represent homogeneous units such as residential neighborhoods which can be categorized by those factors that are most likely to provide incentives for purely residential change and thus provide the most promising set of independent variables for analysis of population redistribution at this level — zoning laws, school quality, tax structure, and other amenities [Fredland (1975), Graves and Linneman (1979), Stucker (1975)].

This hierarchical approach has the advantage of organizing the large

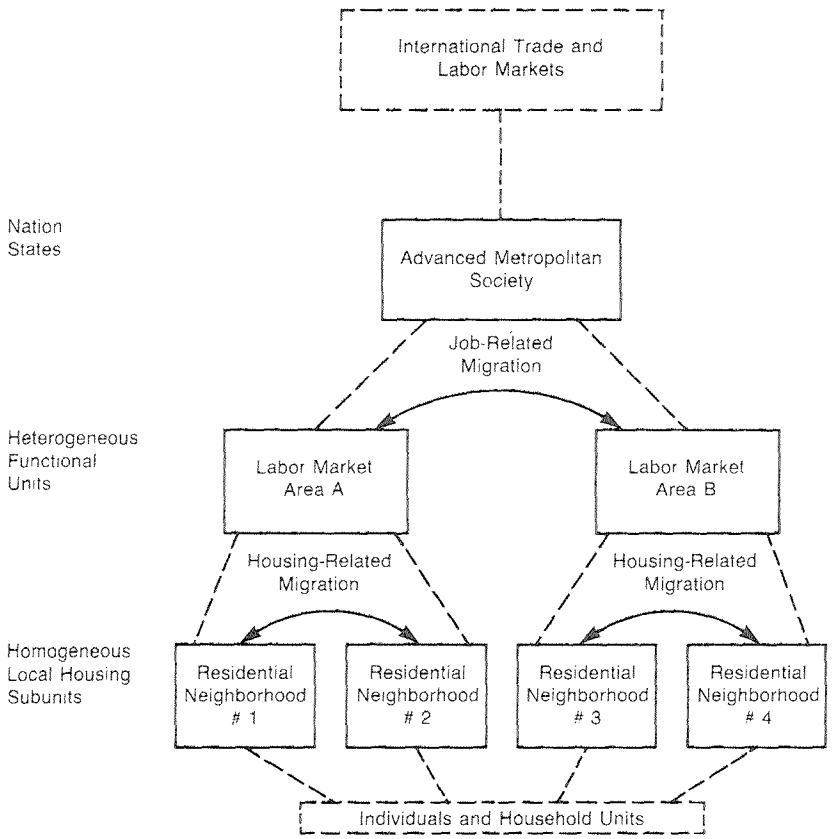

Fig. 2. Hierarchy of analytical units for migration analysis within an advanced metropolitan society.

number of possible flows in such a system so as to reduce the number of flows that must be explicitly considered and to focus analytical attention on separate sets of flows for residential and job-related analysis. It can easily be seen that such an approach could be expanded or restructured in yet another way if one's interest was in international migration (requiring the placement of a society within a system of other national hierarchies) or in residential mobility between housing units within one neighborhood. In fact, one of the most important tasks in looking at population redistribution patterns within a given settlement pattern is the proper specification of the geographic unit of analysis [Bachi (1976), Masser (1976)].

5. Migration in the absence of population redistribution

So far we have discussed cases in which migration and population redistribution occurred simultaneously. There are, however, cases in which

migration is not accompanied by population redistribution. In such cases, there may be large quantities of individual migrations that essentially cancel each other out. In other words, there would be a large amount of gross in and out migration but relatively little net migration.

In fact, these migrations might themselves serve as yet one more form of interaction supporting the existing settlement pattern. This type of migration might be termed 'turnover' migration in that it results in a turnover of individual migrants without a major redistribution in population. On the micro level, this turnover migration might be represented by specific types of migrants who are likely to have counterparts migrating in the opposite direction. In the developing countries of Africa, this turnover migration takes the form of circular migration of workers between the cities and the villages. In the U.S. at present, turnover migration takes quite different forms — office transfers, the movement of professionals between similar jobs, persons who move between labor markets for personal reasons, and return migrants. Much of this migration is a symptom of the degree to which advanced societies are becoming increasingly integrated into a single social and economic network with a nationwide labor market — at least for some segments of the population.

Such a breakdown challenges the interpretation of migration 'efficiency' as the ratio of net to gross migration [Schwartz (1971)]. This interpretation is one of the culturally bound tenets springing from the push–pull analysis of migration as homogeneous. Under such a tenet, migration in a direction opposite to the principal flow is considered the result of imperfect information or the malfunctioning of labor markets leading to emission of biased signals. This article has presented a very different interpretation of certain forms of migration as an interaction between subsystems whose functioning may be made even more efficient by the flexibility shown by turnover migration.

6. Conclusions

This paper has suggested that research in migration that encompasses varying historical and geographic environments can be better understood using a broad macro-level framework that addresses the changing structural conditions under which migration occurs. That framework is one in which the level of social and economic interaction increases with economic development — at first by increased population concentration and face-to-face contact and then by reduced population concentration as improvements in communication and transportation permit improved channeling of productive interaction without frequent face-to-face contact. The more massive migration movements occur as societies undergo the phases of population redistribution that involve transitions between old and new settlement

patterns. These phases include initial urbanization, frontier expansion, overurbanization, traditional urbanization, suburbanization, and the metropolitan-to-non-metropolitan turnaround.

Less massive but still important migration movements occur within a given settlement pattern as adjustments are made in the population distribution to reflect the relative economic fortunes of competing subunits of the society. In these cases models for explaining population redistribution would do well to structure their analysis along lines that take care to include the proper selection of units and to encompass the entire set of relationships between those units. Questions of what type of units and what forms of interaction analysis might be used are left to be specified in each individual research context.

Migration may well occur with little or no population redistribution either because the net migration cancels out a differential in natural increase between subunits or because the gross in and out migration cancel out and produce close to zero net migration. This does not mean that these migrations should be ignored. In fact, this paper has developed a case for more attention to this 'turnover' migration as one of the principal ways in which territorial subunits interact and as a means by which a developed society is bound together in an integrated whole.

This article also has suggested research on the current migration 'turnaround' from metropolitan to non-metropolitan areas by emphasizing the change in social interactions from necessary face-to-face contact to a society in which a large portion of those interactions can be channeled so as to be performed at a distance obviating the need for dense population concentrations. Yet it has not answered the question of what the incipient territorial distribution resulting from the process will be.

Many questions do remain, but hopefully this exposition will encourage the exploration of ways to combine the vast literature on micro-level migration analysis, theories of population change and development, and inquiries into the structure of population settlement patterns.

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