Services

Flying across the United States on a clear night, you look down on the lights of settlements, large and small. You see small clusters of lights from villages and towns, and large, brightly lit metropolitan areas. It may appear that the light clusters are random, but geographers discern a regular pattern in them. These regularities have been documented, and concepts from economic geography can be applied to understand why this pattern exists.

However, the regular distribution observed over North America and over other more developed countries (MDCs) is not seen in less developed countries (LDCs). Geographers explain this difference and why the absence of a regular pattern is significant.

The regular pattern of settlement in MDCs reflects where services are provided. In MDCs the majority of the workers are employed in the tertiary sector of the economy, defined in Chapter 9 as the provision of goods and services to people in exchange for payment. In contrast, less than 10 percent of the labor force in LDCs provide services.

Everyone needs food for survival. In LDCs, most people work in the primary sector, growing food. In MDCs, people purchase food at supermarkets or restaurants. The people employed at the supermarkets and restaurants are examples of service-sector workers, and the customers pay for the food with money earned in other service-sector jobs, such as retailing, banking, law, education, and government.
CASE STUDY

Phoning the Help Desk

Need to have your computer fixed? Correct a mistake on your credit card bill? Change your plane reservation? Relief is just a single toll-free call away, the company assures you. You punch in the company’s “800” number, and after several loops through “press 1 for X, press 2 for Y,” you actually reach a live human offering to help you.

The human you have reached on the phone could be in India. The company whose name is on the computer, credit card, or airplane may not actually employ the person who answered your call. Instead, the call-answering job may have been contracted out to another company known as a call center. Leading call centers are located in India.

Call centers are one of the fastest-growing activities in the global economy. They take orders and provide customer service at the other end of the “800” numbers. They are also the source of many of those “annoying” calls that interrupt your dinner to ask you questions or sell you something.

Kalldesk is one such call center, located in Chandigarh, a city of nearly 1 million in northern India. Started by 27-year-old Anuj Mahajan in 2002, Kalldesk grew within 1 year to 80 employees, mostly local college students.

The attraction of a less developed country is, naturally, low wages, about $150 a month at Kalldesk, for example. However, India—rather than other LDCs—has attracted call centers for other reasons. A call-center employee must be able to understand what a customer located in North America is trying to say and must be able to respond clearly in language understood by a “typical” North American. In India, English is understood and spoken among educated people, such as the college students working at Kalldesk.

Kalldesk trains potential employees in what it calls “accent neutralization.” In other words, Indians are taught to alter their accents to sound like a “typical North American.” And they adopt “typical North American” names, which they use when they place or answer a call.

Call centers in India can “pretend” that they are located in North America and are employing Americans. But in one respect, they can’t escape the “tyranny” of geography. Refer to Figure 1–9, the map of world time zones. In the middle of the day, when most Americans are placing calls, it is the middle of the night in India. So call center employees in India typically work all night.

In MDCs, most people work in such places as shops, offices, restaurants, universities, and hospitals. These are examples of the tertiary or service sector of the economy. A service is any activity that fulfills a human want or need and returns money to those who provide it. A smaller number of people work in factories or farms, the primary and secondary sectors.

In sorting out where services are distributed in space, geographers see a close link between services and settlements, because services are located in settlements. A settlement is a permanent collection of buildings where people reside, work, and obtain services. Settlements range in size from tiny rural villages with barely a hundred inhabitants to teeming metropolitan areas with 20 million people. They occupy a very small percentage of Earth’s surface, well under 1 percent, but settlements are home to nearly all humans, because few people live in isolation.

Explaining why services are clustered in settlements is at one level straightforward for geographers. In geographic terms, only one locational factor is critical for a service—proximity to the market. The optimal location of industry, described in the last chapter, requires balancing a number of site and situation factors, but the optimal location for a service is simply near its customers.

On the other hand, locating a service calls for far more precise geographic skills than locating a factory. The optimal location for a factory may be an area of several hundred square kilometers—such as GM’s Saturn factory, described in the Contemporary Geographic Tools box in Chapter 11—whereas the optimal location for a service may be a very specific place, such as a street corner. Service providers often say that the three critical factors in selecting a suitable site are “location, location, and location.” Although geographically precise, the expression is a way for nongeographers to appreciate that a successful service must carefully select its precise location.

Industries can locate in remote areas, confident that workers, water, and highways will be brought to the location if necessary. The distribution of services must follow to a large extent the distribution of where people live, within a city,
country, or world **region.** However, if services were located merely where people lived, then China and India would have the most, rather than the United States and other MDCs. Services cluster in MDCs because more people able to buy services live there. Within MDCs, larger cities offer a larger **scale** of services than do small towns, because more customers reside there.

As in other economic and cultural features, geographers observe trends toward both globalization and local diversity in the distribution of services. In terms of **globalization,** the provision of services is increasingly uniform from one urban settlement to another, especially within MDCs. Every urban settlement in the United States above a certain size has a branch of a large retail chain, such as a McDonald’s restaurant, and the larger cities have several. In England every city above a certain size has a Tesco supermarket, and the larger cities have several. In an MDC, the demand for many types of services produces regular **connections** among settlements.

Despite the strong globalization trend so clearly visible on the landscape, **local diversity** is alive and well in the provision of services. Within MDCs, fast-food restaurants may be located in every settlement, but other services cluster in particular locations. A settlement may offer a service such as a medical clinic, an advertising agency, or a film studio not found in other settlements of comparable size. And every place—more developed or less developed countries alike—offers distinctive services that attract tourists and visitors.

**KEY ISSUE 1**

**Where Did Services Originate?**

- Types of services
- Origin of services
- Services in contemporary rural settlements

Services are provided in all societies, but in MDCs a majority of workers are engaged in the provision of services. In North America three-fourths of workers are in services. The percentage of service workers varies widely in LDCs but is typically less than one-fourth. One reason for the wide variation is that in a number of LDCs, workers engaged in agriculture or manufacturing are counted in the service sector because they are employed by the government.

Services generate more than two-thirds of GDP in most MDCs, compared to less than one-half in most LDCs (Figure 12-1). Logically, the distribution of service workers is opposite that of percent primary workers (see Figure 10-3).

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**FIGURE 12-1** Percentage of gross domestic product (GDP) from services, 2005. Services contribute more than two-thirds of GDP in more developed countries (MDCs), compared to less than one-half in less developed countries (LDCs).
Types of Services

The service sector of the economy is subdivided into three types—consumer services, business services, and public services. Each of these sectors is divided into several major subsectors (Figure 12-2).

Consumer Services

The principal purpose of consumer services is to provide services to individual consumers who desire them and can afford to pay for them. Nearly one-half of all jobs in the United States are in consumer services. Four main types of consumer services are retail, education, health, and leisure.

Retail and Wholesale Services. About 11 percent of all jobs in the United States are in retail services, which provide goods for sale to consumers. Department stores, grocers, and motor vehicle sales and service each account for nearly one-fifth of all retail services; building materials and clothing another one-tenth each. In addition, 4 percent of all jobs are in wholesale services that provide retailers their merchandise.

Education Services. About 11 percent of all jobs in the United States are in education. Two-thirds of educators are employed in public schools, the other one-third in private schools. In Figure 12-2, educators at public schools are counted in public-sector employment.

Health Services. About 10 percent of all jobs in the United States are in health care, primarily hospitals, doctors' offices, and nursing homes.

Leisure and Hospitality Services. About 10 percent of all jobs in the United States are in leisure and hospitality. Three-fourths of these jobs are in restaurants and bars; the other one-fourth is divided evenly among lodging and entertainment.

Business Services

The principal purpose of business services is to facilitate other businesses. One-fourth of all jobs in the United States are in business services. Professional services, financial services, and transportation services are the three main types of business services.

Financial Services. About 6 percent of all U.S. jobs are in this sector, which is often called “FIRE,” an acronym for finance, insurance, and real estate. One-half of the financial services jobs are in banks and other financial institutions, one-third in insurance companies, and the remainder in real estate.

Professional Services. About 13 percent of all U.S. jobs are classified as professional services. One-tenth of the jobs found in this sector are in management positions. Two-fifths are in technical services, including law, accounting, architecture, engineering, design, and consulting. The remaining one-half of this sector is in support services, such as clerical, secretarial, and custodial work.

Transportation and Similar Services. Businesses that diffuse and distribute services are grouped as transportation and information services. In the United States about 6 percent of all jobs are in this group of services. One-half of these services are in transportation, primarily trucking. The other half are in information services such as publishing and broadcasting, as well as utilities such as water and electricity.

Public Services

The purpose of public services is to provide security and protection for citizens and businesses. About 16 percent of all U.S. jobs are in the public sector; 9 percent if public school employees were excluded from the total and counted instead under education (consumer) services. Excluding educators, one-sixth of public-sector employees work for the Federal Government, one-fourth for one of the 50 state governments, and three-fifths for one of the tens of thousands of local governments. When educators are
counted, the percentages for state and local governments would be higher.

The distinction among services is not absolute. For example, individual consumers use business services, such as consulting lawyers and keeping money in banks, and businesses use consumer services, such as purchasing stationery and staying in hotels. A public service worker at a national park may provide the same service as a consumer service worker at Disneyland. Geographers find the classification useful, because the various types of services have different distributions, and different factors influence locational decisions.

Changes in Number of Employees

Figure 12–2 shows changes in employment in the United States between 1972 and 2006. A government change in classifying jobs makes comparison with earlier time periods difficult. The figure shows that all of the growth in employment in the United States has been in services, whereas employment in primary- and secondary-sector activities has declined. Consumer and business services increased their share of all U.S. jobs from one-half in 1972 to two-thirds in 2006.

Within the service sector, employment grew more rapidly in some services than in others. Within business services, jobs expanded in professional services (such as engineering, management, and law), data processing, advertising, and temporary employment agencies. Jobs grew more slowly in finance and transportation services, because of improved efficiency—fewer workers are needed to run trains and answer phones, for example.

On the consumer services side, the most rapid increase has been in the provision of health care, including hospital staff, clinics, nursing homes, and home health-care programs. Other large increases have been recorded in recreation and entertainment. The share of jobs in retailing has not increased—more stores are opening all the time, but they don’t need as many employees as in the past.

The share of employment in public services has declined during the past two decades. The number of federal government jobs has been reduced from 3.3 million in 1990 to 3.0 million in 2000 and 2.7 million in 2006. State and local government employment has expanded from 15.3 million in 1980 to 19.3 million in 2006, in part to offset the federal decline.

Origin of Services

Services are clustered in settlements. To understand why, picture conditions before the establishment of permanent settlements as places that provided services. People lived as nomads, migrating in small groups across the landscape in search of food and water (see Chapter 10). They gathered wild berries and roots or killed wild animals for food.

At some point, groups decided to build permanent settlements. Several families clustered together in a rural settlement and obtained food in the surrounding area. What services would these nomads require? Why would they establish permanent settlements to provide these services?

No one knows the precise sequence of events through which settlements were established to provide services. Based on archaeological research, settlements probably originated to provide consumer and public services. Business services came later.

Early Consumer Services

The early permanent settlements may have been established to offer consumer services, specifically places to bury the dead. Perhaps nomadic groups had rituals honoring the deceased, including ceremonies commemorating the anniversary of a death. Having established a permanent resting place for the dead, the group might then install priests at the site to perform the service of saying prayers for the deceased.

This would have encouraged the building of structures—places for ceremonies and dwellings. By the time recorded history began about 5,000 years ago, many settlements existed, and some featured a temple. In fact, until the invention of skyscrapers in the late nineteenth century, religious buildings were often the tallest structures in a community.

Settlements also may have been places to house families, permitting unburdened males to travel farther and faster in their search for food. Women kept “home and hearth,” making household objects, such as pots, tools, and clothing, as well as educating the children. These household-based services evolved over thousands of years into schools, libraries, theaters, museums, and other institutions that create and store a group’s values and heritage and transmit them from one generation to the next.

People also needed tools, clothing, shelter, containers, fuel, and other material goods. Settlements therefore became manufacturing centers. Men gathered the materials needed to make a variety of objects, including stones for tools and weapons, grass for containers and matting, animal hair for clothing, and wood for shelter and heat. Women used these materials to manufacture household objects and maintain their dwellings.

The variety of consumer services expanded as people began to specialize. One person could be skilled at repairing tools, another at training horses. People could then trade these services with one another. Settlements took on a retail-service function.

Early Public Services

Public services probably followed the religious activities into early permanent settlements. The group’s political leaders also chose to live permanently in the settlement, which may have been located for strategic reasons, to protect the group’s land claims. Everyone in a settlement was vulnerable to attack from other groups, so for protection, some members became soldiers, stationed in the settlement. The settlement likely was a good base from which the group could defend nearby food sources against competitors.

For defense, the group might surround the settlement with a wall. Defenders were stationed at small openings or atop the wall, giving them a great advantage over attackers. Thus settlements became citadels—centers of military power. Walls proved an extremely effective defense for thousands of years, until warfare was revolutionized by the introduction of gunpowder in Europe in the fourteenth century.
GLOBAL FORCES, LOCAL IMPACTS
Tourism in Latin America

A rapidly growing sector of consumer services is tourism, especially in MDCs where people have enough money and “time off” work to take holidays in other places. Global tourism is a multitrillion dollar industry that generates several hundred million jobs. Tourism is especially important in Latin America, especially for the Caribbean islands close to the United States, which is the source of many of the world’s tourists.

Caribbean islands attract tourists because of their natural features—wide sandy beaches, balmy weather, and exotic vegetation. Caribbean islands also have a long tradition of serving the needs of consumers in MDCs—most were colonies until recently, and many still are.

Tourism brings consumer service jobs to local residents. These include personal service jobs such as cleaning rooms and leading tour groups, as well as retail service jobs such as operating restaurants and souvenir shops. The economic benefit of tourism is unclear, because wages are low and most of the profits are exported to the transnational corporations that own the resorts. Tourism is also vulnerable to “out-of-control” uncertainties such as bad weather and terrorism threats.

Geographers are especially concerned with the adverse impact of tourism on local culture and environment. The arrival of a large number of foreigners from MDCs can overwhelm the capacity of the local environment to provide water and handle waste. Foreign tourists may demand familiar foods and standards of comfort that cannot be accommodated in the local environment. Environmentally sensitive sites may be damaged by trampling visitors.

Local cultural traditions such as dances and clothing become tourist attractions, and once-sacred rites are performed for the amusement of tourists. Local women can earn more money as prostitutes for Western tourists than as room cleaners.

Ecotourism is promoted as a way to bring economic benefits while not causing social and environmental damage. Under ecotourism, facilities are constructed to minimize environmental damage and are marketed to tourists seeking to learn about and support environmental sensitivity.

Although modern settlements no longer have walls, their military and political services continue to be important. The largest structure in the U.S. capital—the Pentagon—houses the U.S. Department of Defense. Similarly, Russian military leaders work in the Kremlin, which is the medieval walled area of central Moscow.

Early Business Services
Everyone in settlements needed food, which was supplied by the group through hunting or gathering. At some point, someone probably wondered, why not bring in extra food for hard times, such as drought or conflict? This perhaps was the origin of transportation services.

Not every group had access to the same resources, because of the varied distribution of vegetation, animals, fuelwood, and mineral resources across the landscape. People brought objects and materials they collected or produced into the settlement and exchanged them for items brought by others. Settlements became warehousing centers to store the extra food.

The settlement served as neutral ground where several groups could safely come together to trade goods and services. To facilitate this trade, officials in the settlement provided...
producer services, such as regulating the terms of transactions, setting fair prices, keeping records, and creating a currency system.

Services in Contemporary Rural Settlements

Through centuries of experiments and accidents, residents of early settlements realized that some of the wild vegetation they had gathered could generate food if deliberately placed in the ground and nursed to maturity—in other words, agriculture, as described in Chapter 10. Settlements were surrounded by fields, where people produced most of their food by planting seeds and raising animals rather than by hunting and gathering.

Most people in the world still live in rural settlements that have changed little in purpose since ancient times. They are known as clustered rural settlements, where a number of families live in close proximity to each other, with fields surrounding the collection of houses and farm buildings. Dispersed rural settlements, characteristic of the contemporary North American rural landscape, are characterized by farmers living on individual farms isolated from neighbors rather than alongside other farmers in settlements.

Clustered Rural Settlements

A clustered rural settlement typically includes homes, barns, tool sheds, and other farm structures, plus consumer services, such as religious structures, schools, and shops. A handful of public and business services may also be present in the clustered rural settlement. In common language such a settlement is called a hamlet or village.

Each person living in a clustered rural settlement is allocated strips of land in the surrounding fields. The fields must be accessible to the farmers and are thus generally limited to a radius of 1 or 2 kilometers (1/2 to 1 mile) from the buildings. The strips of land are allocated in different ways. In some places, individual farmers own or rent the land; in other places, the land is owned collectively by the settlement or by a lord, and farmers do not control the choice of crops or use of the output.

Parcels of land surrounding the settlement may be allocated to specific agricultural activities, either because of land characteristics or because of decisions made by the inhabitants. Consequently, farmers typically own, or have responsibility for, a collection of scattered parcels in several fields. This pattern of controlling several fragmented parcels of land has encouraged living in a clustered rural settlement to minimize travel time to the various fields.

Traditionally, when the population of a settlement grew too large for the capacity of the surrounding fields, new settlements were established nearby. This was possible because not all land was under cultivation.

The establishment of satellite settlements is often reflected in place names. For example, the parish of Offley, in Hertfordshire, England, contains the rural settlements of Great Offley (the largest), Little Offley, Offley Grange (barn), Offley Cross, Offley Bottom, Offley Place, Offley Hoo (house), and Offley Hole (Figure 12-3). All are within a few kilometers of each other. The name “Offley” means the wooded clearing of Offa, who was a ruler of Mercia (see Figure 5-3) during the eighth century and is said to have died at the site of the settlement.

Homes, public buildings, and fields in a clustered rural settlement are arranged according to local cultural and physical characteristics. Clustered rural settlements are often arranged in one of two types of patterns—circular or linear.

CIRCULAR RURAL SETTLEMENTS. The circular form consists of a central open space surrounded by structures (Figure 12-4). The kraal villages in southern Africa have enclosures for livestock in the center, surrounded by a ring of houses (compare our English word corral). In East Africa the Masai people, who are pastoral nomads, built kraal settlements as camps; women had principal responsibility for constructing them.

The German Gewandorf settlement consisted of a core of houses, barns, and churches, encircled by different types of agricultural activities. Small garden plots were located in the first ring surrounding the village, with cultivated land, pastures, and woodlands in successive rings. Von Thünen observed this circular rural pattern in his landmark agricultural studies in the early nineteenth century (see Chapter 10 and refer to Figure 10-13).

LINEAR RURAL SETTLEMENTS. Linear rural settlements feature buildings clustered along a road, river, or dike to facilitate communications. The fields extend behind the buildings in long, narrow strips. Today, in North America, linear rural settlements exist in areas settled by the French. The French settlement pattern, called long-lot or seigneurial, was commonly used along the St. Lawrence River in Québec and the lower Mississippi River (Figure 12-4).
In the French long-lot system, houses were erected along a river, which was the principal water source and means of communication. Narrow lots from 5 to 100 kilometers deep (3 to 60 miles) were established perpendicular to the river, so that each original settler had river access. This created a linear settlement along the river.

These long, narrow lots eventually were subdivided. French law required that each son inherit an equal portion of an estate, so the heirs established separate farms in each division. Roads were constructed parallel to the river for access to inland farms. In this way, a new linear settlement emerged along each road, parallel to the original riverfront settlement.

**COLONIAL AMERICAN CLUSTERED SETTLEMENTS.** The first European colonists settled along the East Coast in three regions—New England, the Southeast, and the Middle Atlantic. New England colonists built clustered settlements centered on an open area called a common. Settlers grouped their homes and public buildings, such as the church and school, around the common. In addition to their houses, each settler had a home lot of 1 to 5 acres (1/2 to 2 hectares), which contained a barn, garden, and enclosures for feeding livestock.

Clustered settlements were favored by New England colonists for a number of reasons. Typically, they traveled to the American colonies in a group. The English government granted the group an area of land in New England perhaps 4 to 10 square miles (10 to 25 square kilometers). Members then traveled to America to settle the land. The settlement was usually built near the center of the land grant.

New England settlements were also clustered to reinforce common cultural and religious values. Most members of the group came from the same English village and belonged to the same church. Many of the early New England colonists left England in the 1600s to gain religious freedom. The settlement's leader was often an official of the Puritan Church, and the church played a central role in daily activities. Colonists also favored clustered settlements for defense against Indian attacks.

Outsiders could obtain land in the settlement only by permission of the town's residents. Land was not sold, but rather was awarded to an individual after the town's residents felt confident that the recipient would work hard. Each villager owned several discontinuous parcels on the periphery of the settlement, to provide the variety of land types needed for different crops. Beyond the fields the town held pastures and woodland for the common use of all residents.

Settlements accommodated a growing population by establishing new settlements nearby. As in the older settlements, the newer ones contained central commons surrounded by houses and public buildings, home lots, and outer fields.
The contemporary New England landscape contains remnants of the old clustered rural settlement pattern. Many New England towns still have a central common surrounded by the church, school, and various houses. However, quaint New England towns are little more than picturesque shells of clustered rural settlements, because today’s residents work in factories, shops, and offices rather than on farms.

The southeastern colonies were first settled in the 1600s with small, dispersed farms. Then a different style emerged, called a plantation, a large farm that used many workers to produce tobacco and cotton for sale in Europe and the northern colonies. Plantations grew more profitable in the 1700s when the tobacco and cotton markets expanded and two large sources of labor were identified. These included indentured whites, who were legally bound to work for the plantation for a period of time, and black slaves forcibly transported from Africa and sold to the plantation owner.

The plantation’s wealthy owner lived in a large mansion, frequently fronting on a body of water. Surrounding the mansion were service buildings, including a laundry, kitchen, dairy, and bakery. Other buildings on the estate included a flour mill, carpenter shop, stables, coach house, and living quarters for the slaves.

### Dispersed Rural Settlements

Dispersed rural settlements have become more common in the past 200 years, especially in Anglo-America and the United Kingdom, because in more developed societies they are generally considered more efficient than clustered settlements.

### DISPERSED RURAL SETTLEMENTS IN THE UNITED STATES.

The Middle Atlantic colonies were settled by a more heterogeneous group of people. In addition to the English, they included immigrants from Germany, Holland, Ireland, Scotland, and Sweden. Further, most Middle Atlantic colonists came as individuals rather than as members of a cohesive religious or cultural group. Some bought tracts of land from speculators. Others acquired land directly from individuals who had been given large land grants by the British government, including William Penn (Pennsylvania), Lord Baltimore (Maryland), and Sir George Carteret (the Carolinas).

Dispersed settlement patterns dominated in the American Midwest in part because the early settlers came primarily from the Middle Atlantic colonies. The pioneers crossed the Appalachian Mountains and established dispersed farms on the frontier. Land was plentiful and cheap, and people bought as much as they could manage.

In New England a dispersed distribution began to replace the clustered settlements in the eighteenth century. In part, the cultural bonds that had created clustered rural settlements had weakened. Descendants of the original settlers grew less interested in the religious and cultural values that had unified the original immigrants. They permitted people to buy land regardless of their religious affiliation.

Owning several discontinuous fields had several disadvantages: farmers lost time moving between fields, villagers had to build more roads to connect the small lots, and farmers had been restricted in what they could plant. Eventually people bought, sold, and exchanged land to create large, continuous holdings instead of several isolated pieces.

The clustered rural settlement pattern worked when the population was low, but settlements had no spare land to meet the needs of a population that was growing through natural increase and net in-migration. A shortage of land eventually forced immigrants and children to strike out alone and claim farmland on the frontier.

### ENCLOSURE MOVEMENT.

To improve agricultural production, a number of European countries converted their rural landscapes from clustered settlements to dispersed patterns. A prominent example was the enclosure movement in Great Britain, between 1750 and 1850. The British government transformed the rural landscape by consolidating individually owned strips of land surrounding a village into a single large farm, owned by an individual. When necessary, the government forced people to give up their former holdings.

The benefit of enclosure was greater agricultural efficiency, because a farmer did not have to waste time scurrying among discontinuous fields. With the introduction of farm machinery, farms operated more efficiently at a larger scale. Because the enclosure movement coincided with the Industrial Revolution, villagers who were displaced from farming moved to urban settlements and became workers in factories and services.

The enclosure movement brought greater agricultural efficiency, but it destroyed the self-contained world of village life. Village populations declined drastically as displaced farmers moved to urban settlements. Some villages became the centers of the new, larger farms, but villages that were not centrally located to a new farm's extensive land holdings were abandoned and replaced with entirely new farmsteads at more strategic locations. As a result,
the isolated, dispersed farmstead, unknown in medieval England, is now a common feature of that country’s rural landscape.

**KEY ISSUE 2**

**Why Are Consumer Services Distributed in a Regular Pattern?**

- Central place theory
- Market-area analysis
- Hierarchy of services and settlements

Within MDCs, consumer services and business services do not have the same distributions. Shown in this key issue is how consumer services generally follow a regular pattern based on size of settlements, with larger settlements offering more consumer services than smaller ones. In the next section of the chapter, business services will be seen to cluster in specific settlements, creating a specialized pattern.

Selecting the right location for a new shop is probably the single most important factor in the profitability of a consumer service. Central place theory helps to explain how the most profitable location can be identified.

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**Central Place Theory**

A **central place** is a market center for the exchange of goods and services by people attracted from the surrounding area. The central place is so called because it is centrally located to maximize accessibility from the surrounding region. Central places compete against each other to serve as markets for goods and services. This competition creates a regular pattern of settlements, according to central place theory.

The geographic concept of **central place theory** explains how services are distributed and why a regular pattern of settlements exists—at least in MDCs such as the United States. Central place theory was first proposed in the 1930s by German geographer Walter Christaller, based on his studies of southern Germany. August Lösch in Germany and Brian Berry and others in the United States further developed the concept during the 1950s. The theory applies most clearly in regions such as the Great Plains, which are neither heavily industrialized nor interrupted by major physical features such as rivers or mountain ranges.

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**Market Area of a Service**

The area surrounding a service from which customers are attracted is the **market area** or **hinterland**. A market area is a good example of a nodal region—a region with a core where the characteristic is most intense. To establish the market area, a circle is drawn around the node of service on a map. The territory inside the circle is its market area.

Because most people prefer to get services from the nearest location, consumers near the center of the circle obtain services from local establishments. The closer to the periphery of the circle, the greater is the percentage of consumers who will choose to obtain services from other nodes. People on the circumference of the market-area circle are equally likely to use the service, or go elsewhere.

Circles can be drawn to designate market areas of entire urban settlements, not just individual services. But circles cause a geometric problem. When drawn to represent adjacent market areas, they either overlap or have gaps between them (Figure 12-5[a]). Neither pattern is consistent with the theory that people usually go to the nearest sources.

An arrangement of circles that leaves gaps indicates that people living in the gaps are outside the market area of any service, which is obviously not true. On the other hand, overlapping circles are unsatisfactory, for one service or another will be closer, and people will tend to patronize it. Therefore, market areas must be separated by a line that does not overlap territories.

Central place theory requires a geometric shape without gaps or overlaps, so circles are out. Squares fit without gaps, but there is a different problem with their use. If the market area is a circle, the radius—the distance from the center to the edge—can be measured, because every point around a circle is the same distance from the center. But in a square the distance from the center varies among points along a square (Figure 12-5[b]).

Therefore, to represent a market area, the hexagon is the best compromise between circles and squares (Figure 12-5[c]). Like squares, hexagons nest without gaps. Although all points along the hexagon are not the same distance from the center, the variation is less than with a square. Consequently, geographers draw hexagons around settlements to indicate market areas.

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**Size of Market Area**

The market area of every service varies. To determine the extent of a market area, geographers need two pieces of information about a service—its range and its threshold.

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**FIGURE 12-5** Why hexagons are used in theory to delineate market areas: (a) Circles are equidistant from center to edge, but they overlap or leave gaps. (b) Squares nest together without gaps, but their sides are not equidistant from the center. (c) Geographers use hexagons to depict the market area of a good or service, because hexagons offer a compromise between the geometric properties of circles and squares.
RANGE OF A SERVICE. How far are you willing to drive for a pizza? To see a doctor for a serious problem? To watch a ballpark game? The range is the maximum distance people are willing to travel to use a service. The range is the radius of the circle drawn to delineate a service’s market area.

People are willing to go only a short distance for everyday consumer services, like groceries, laundromats, or video rentals. But they will travel a long distance for other services, such as a major league baseball game or concert. Thus a convenience store has a small range, whereas a stadium has a large range. In a metropolitan area, for example, the range of a fast-food franchise like McDonald’s is roughly 5 kilometers (3 miles), a casual dining chain like Steak’n’Shake roughly 8 kilometer (5 miles).

If firms at other locations compete by providing the service, the range must be modified. As a rule, people tend to go to the nearest available service: someone in the mood for a McDonald’s hamburger is likely to go to the nearest McDonald’s. Therefore, the range of a service must be determined from the radius of a circle that is irregularly shaped rather than perfectly round. The irregularly shaped circle takes in the territory for which the proposed site is closer than the competitors’ sites.

For example, on a map of Dayton, Ohio, we can indicate the location of all Kroger supermarkets and draw irregularly shaped circles around each of them (refer ahead to Figure 12–8, left, on page 411). The radius of each circle shows the range for each store. The median radius for Kroger supermarkets in Dayton is approximately 2 kilometers (1.2 miles).

Most people go to the nearest provider of the service, but some travel to a more distant location. Consequently, the range of a service is not the distance traveled by the most remote customer but rather the maximum distance that most of the customers are willing to travel. Retailers typically define their range as the maximum distance that two-thirds to three-fourths of their customers are willing to travel (see Contemporary Geographic Tools box).

The range must be modified further because most people think of distance in terms of time, rather than in terms of a linear measure like kilometers or miles. If you ask people how far they are willing to travel to a restaurant or a baseball game, they are more likely to answer in minutes or hours than in distance. If the range of a good or service is expressed in travel time, then the irregularly shaped circle must be drawn to acknowledge that travel time varies with road conditions. “One hour” may translate into traveling 90 kilometers (60 miles) while driving on an expressway but only 50 kilometers (30 miles) driving congested city streets.

THRESHOLD OF A SERVICE. The second piece of geographic information needed to compute a market area is the threshold, which is the minimum number of people needed to support the service. Every enterprise has a minimum number of customers required to generate enough sales to make a profit. Once the range has been determined, a service provider must determine whether a location is suitable by counting the potential customers inside the irregularly shaped circle. For example, the median threshold needed to support a Kroger supermarket in Dayton is about 30,000 people. Census data help us determine the population within the circle.

How potential consumers inside the range are counted depends on the product. Convenience stores and fast-food restaurants appeal to nearly everyone, whereas other goods and services appeal primarily to certain consumer groups. Movie theaters attract younger people; chiropractors attract older folks. Poorer people are drawn to thrift stores; wealthier ones might frequent upscale department stores. Amusement parks attract families with children, but nightclubs appeal to singles. If a good or service appeals to certain customers, then only the type of good or service that appeals to them should be counted inside the range.

Developers of shopping malls, department stores, and large supermarkets typically count only higher-income people, perhaps those whose annual incomes exceed $50,000. Even though the stores may attract individuals of all incomes, higher-income people are likely to spend more and purchase items that carry higher profit margins for the retailer. Hence, in the Dayton area, Kroger operates more supermarkets in the southern part, where higher-income people are clustered, and fewer in the western part, a lower-income area.

Market-Area Analysis

Retailers and other service providers make use of market-area studies to determine if locating in the market would be profitable and where within the market area the best location would be.

Profitability of a Location

The range and threshold together determine whether a good or service can be profitable in a particular location. To illustrate, consider this: Would a convenience store be profitable in your community? First, compute the range—the maximum distance people are willing to travel. You might survey local residents and determine that people are generally willing to travel up to 15 minutes to reach a convenience store.

Then, compute the threshold. Suppose a convenience store must sell at least $10,000 worth of goods per week to make a profit, and the average customer spends $2 a week. The store needs at least 5,000 customers each week, spending $2 each, to achieve the break-even sales level of $10,000. If the average customer goes to a convenience store once a week, the threshold in this example would be 5,000.

Finally, on a map, draw a circle around your community with a 15-minute travel radius, adjusting the boundaries to account for any competitors. Count the number of people within the irregularly shaped circle. If more than 5,000 people are within the radius, then the threshold may be high enough to justify locating the new convenience store in your community. However, your store may need a larger threshold and range to attract some of the available customers if competitors are located nearby.

Optimal Location Within a Market

Having determined that the threshold and range justify providing a particular service, the next geographic question is: Where should the service be located within the market area to maximize profit? According to geographers, the best location is the one that minimizes the distance to the service for the largest number of people.
Major U.S. department store chains, mail developers, and other large retailers employ geographers to determine the best locations to build new stores. A large retailer has many locations to choose from when deciding to build new stores. A suitable site is one with the potential for generating enough sales to justify using the company’s scarce capital to build it. The role of the geographer is to forecast the sales expected at a proposed new store.

The first step in forecasting sales for a proposed new retail outlet is to define the market or trade area where the store would derive most of its sales. Analysis relies heavily on the company’s records of their customers’ credit-card transactions at existing stores. What are the zip codes of customers who paid by credit card? The market area of a department store is typically defined as the zip codes where two-thirds to three-fourths of the customers live.

Based on the zip codes of credit-card customers, geographers estimate that the range for a typical midpriced department store is about a 15-minute driving time. Upscale department stores, such as Nordstrom’s and Lord & Taylor, define a larger range, because customers are willing to travel farther to shop there.

In terms of population, the threshold for a typical department store is about 250,000. In other words, a typical department store needs about 250,000 people living within the 15-minute range. For threshold, the amount of money available in the area to spend in department stores is more important than simply the number of people. If a potential site has enough customers with enough money within the market area, then the geographic analysis proceeds to the second step in estimating sales—market share. The proposed new department store will have to share customers with competitors’ department stores. Geographers typically predict market share through the so-called analog method. One or more existing stores are identified in locations that the geographer judges to be comparable to the location of the proposed store. The market share of the comparable stores is applied to the proposed new store.

Information about the viability of a proposed new store is depicted through GIS. One layer of the GIS depicts the trade area of the proposed store. Other layers display characteristics of the people living in the area, such as distribution of households, average income, and competitors’ stores. A simplified example in Figure 12–1.1 shows the location of Elder-Beerman department stores in the Dayton, Ohio, metropolitan area, compared to average income. The market areas are smaller in higher-income areas and larger in lower-income areas.

The ability of the retail geographer is judged on the accuracy of the forecasts. After a new store is open for several years, how close to the actual sales were the forecasts that the geographer made several years earlier?

![Figure 12–1.1 Market areas, ranges, and thresholds for Elder-Beerman department stores in the Dayton, Ohio, metropolitan area. Stores are closer together in areas with higher incomes.](image)

**BEST LOCATION IN A LINEAR SETTLEMENT.** Suppose that you want to establish your hot business idea, Geographers’ Pizza, in your community. Where is the best place to build it? Assume for a moment that you are seeking the optimal location for your business in an elongated community such as Miami Beach, Florida; Atlantic City, New Jersey; or Ocean City, Maryland. The community has only one major north–south street and a number of short east–west streets that are numbered consecutively.

The best location will be the one that minimizes the distance your van must travel to deliver to all potential customers. It corresponds to the median, which mathematically is the middle point in any series of observations. In a linear community such as an Atlantic Ocean resort, the service should be located where half of the customers are to the north and half are to the south (Figure 12–6).

What if a different number of customers live at each block of the city? What if the buildings are apartments, each housing a different number of families? To compute the optimal location in these cases, geographers have adapted the gravity model from physics. The gravity model predicts that the optimal location of a service is directly related to the number of people in the area and inversely related to the distance people must travel to access it.

According to the gravity model, consumer behavior reflects two patterns. First, the greater the number of people living in a particular place, the greater is the number of potential customers for a service. A city block or apartment building that
Hierarchy of Services and Settlements

Small settlements are limited to consumer services that have small thresholds, short ranges, and small market areas, because too few people live in small settlements to support many services. A large department store or specialty store cannot survive in a small settlement, because the minimum number of people needed exceeds the population within range of the settlement.

Larger settlements provide consumer services having larger thresholds, ranges, and market areas. However, neighborhoods within large settlements also provide services having small thresholds and ranges. Services patronized by a small number of locals can coexist in a neighborhood ("mom-and-pop stores") along with services that attract many from throughout the settlement. This difference is vividly demonstrated by comparing the yellow pages for a small settlement with one for a major city. The major city's yellow pages are thick with more services, and diverse headings show widely varied services unavailable in small settlements.

We spend as little time and effort as possible in obtaining consumer services and thus go to the nearest place that fulfills our needs. There is no point in traveling to a distant department store if the same merchandise is available at a nearby one. We travel greater distances only if the price is much lower or if the item is unavailable locally.

Nesting of Services and Settlements

According to central place theory, market areas across an MDC would be a series of hexagons of various sizes, unless interrupted by physical features such as mountains and bodies of water. MDCs have numerous small settlements with small thresholds and ranges, and far fewer large settlements with large thresholds and ranges.

The nesting pattern can be illustrated with overlapping hexagons of different sizes. Four different levels of market area—for hamlet, village, town, and city—are shown in Figure 12-7. Hamlets with very small market areas are represented by the
smallest contiguous hexagons. Larger hexagons represent the market areas of larger settlements and are overlaid on the smaller hexagons, because consumers from smaller settlements shop for some goods and services in larger settlements.

In his original study, Walter Christaller showed that the distances between settlements in southern Germany followed a regular pattern. He identified seven sizes of settlements (market hamlet, township center, county seat, district city, small state capital, provincial head capital, and regional capital city). For example, the smallest (market hamlet) had an average population of 800 and a market area of 45 square kilometers (17 square miles). The average distance between market hamlets was 7 kilometers (4.4 miles). The figures were higher for the average settlement at each increasing level in the hierarchy. Brian Berry has documented a similar hierarchy of settlements in parts of the U.S. Midwest.

The principle of nesting market areas also works at the scale of services within cities. For example, compare the market areas within Dayton, Ohio, of United Dairy Farmers (UDF) and Kroger (Figure 12–8). The UDF convenience stores are more numerous than Krogers and have smaller thresholds, ranges, and market areas.

**Rank-Size Distribution of Settlements**

In many MDCs, geographers observe that ranking settlements from largest to smallest (population) produces a regular pattern or hierarchy. This is the rank-size rule, in which the country’s nth-largest settlement is 1/n the population of the largest settlement. In other words, the second-largest city is one-half the size of the largest, the fourth-largest city is one-fourth the size of the largest, and so on. When plotted on logarithmic paper, the rank-size distribution forms a fairly straight line. The distribution of settlements closely follows the rank-size rule in the United States and a handful of other countries (Figure 12–9, upper line).

If the settlement hierarchy does not graph as a straight line, then the society does not have a rank-size distribution of settlements. Several MDCs in Europe follow the rank-size distribution among smaller settlements but not among the largest ones (Figure 12–9, lower line). Instead, the largest settlement in
these countries follows the **primate city rule**. According to the primate city rule, the largest settlement has more than twice as many people as the second-ranking settlement. In this distribution, the country’s largest city is called the **primate city**.

In Denmark, for example, Köbenhavn (Copenhagen) is a primate city, because it has 1 million inhabitants, whereas the second-largest urban area, Århus, has only 200,000, instead of the 500,000 that the rank-size rule predicts. The primate city in the United Kingdom—London—has 8 million, whereas Birmingham—the second-largest—has only 2 million inhabitants.

Many LDCs also follow the primate-city rule. However, in these countries, the rank-size rule tends to fail at lower levels in the hierarchy as well. In Romania, for example, the largest city, Bucharest, has nearly 2 million inhabitants, and the second largest, Iași, has 320,000. Romania also has fewer than expected settlements with population between 1,000 and 10,000.

The existence of a rank-size distribution of settlements is not merely a mathematical curiosity. It has a real impact on the quality of life for a country’s inhabitants. A regular hierarchy—as in the United States—indicates that the society is sufficiently wealthy to justify the provision of goods and services to consumers throughout the country.

Conversely, the absence of the rank-size distribution in an LDC indicates that there is not enough wealth in the society to pay for a full variety of services. In Romania, the absence of settlements between 320,000 and 2 million inhabitants, and between 1,000 and 10,000, constitutes a hardship for people who must travel long distances to reach an urban settlement with shops and such services as hospitals. Because most Romanians do not have cars, the government must provide bus service for citizens to reach larger towns. A trip to a shop or a doctor that takes a few minutes in the United States could take several hours in Romania.

Recognizing the absence of a regular hierarchy of settlements by size, as found in MDCs, the government of Romania for a number of years had a policy of improving the rank-size distribution of their settlements. Restrictions were placed on the growth of Bucharest, and people needed a permit to move there. The government built new apartments and shops in cities such as Iași.

At the other end of the spectrum, rural Romanian settlements were designated for upgrading to small urban settlements. Government policy called for increasing the population of these small settlements from a few hundred to several thousand
inhabitants. New apartments, schools, hospitals, and shops were planned, as well as electricity, paved roads, and sanitation. In this way, families living in rural areas would have greater access to the services essential for achieving a higher standard of living.

Romanian government planners formulated the policy for what they saw as logical economic geography reasons. But Nicolae Ceaucescu, Romania’s longtime leader, turned the policy into a nightmare for many people. Population was controlled in the center of Bucharest by razing entire historic neighborhoods. Eastern Orthodox churches and individual homes were demolished and replaced with apartment buildings, as well as massive squares and monuments honoring Ceaucescu and his family.

Believing that rural residents did not wholeheartedly support his programs for modernizing Romania, Ceaucescu ordered small villages to be destroyed, not expanded. Ironically, because of the isolation of many rural villages, Ceaucescu’s policies could not be fully implemented. Typically, rural village leaders demolished only a small number of buildings to show visiting government officials that they had done something to implement Ceaucescu’s policy.

After Ceaucescu was overthrown in 1989, the new Romanian government terminated the policy of indiscriminate demolition. But the challenge remained to bring electricity, paved roads, and other improvements to rural settlements and to integrate them into a market-oriented economy.

**Periodic Markets**

Services at the lower end of the central place hierarchy may be provided at a periodic market, which is a collection of individual vendors who come together to offer goods and services in a location on specified days. The periodic market typically is set up in a street or other public space early in the morning, taken down at the end of the day, and set up in another location the next day.

A periodic market provides goods to residents of LDCs, as well as rural areas in MDCs, where sparse populations and low incomes produce purchasing power too low to support full-time retailing. A periodic market makes services available in more villages than would otherwise be possible, at least on a part-time basis. In urban areas, periodic markets offer residents fresh food brought in that morning from the countryside.

Many of the vendors in periodic markets are mobile, driving their trucks from farm to market, back to the farm to restock, then to another market. Other vendors, especially local residents who cannot or prefer not to travel to other villages, operate on a part-time basis, perhaps only a few times a year. Other part-time vendors are individuals who are capable of producing only a small quantity of food or handicrafts.

The frequency of periodic markets varies by culture. In Muslim countries, periodic markets typically conform to the weekly calendar—once a week in each of six cities and no market on Friday, the Muslim day of rest. In rural China, G. William Skinner found a three-city ten-day cycle of periodic markets. The market operates in a central market on days 1, 4, and 7; in a second location on days 2, 5, and 8; in a third location on days 3, 6, and 9; and no market on the tenth day. Three 10-day cycles fit in a lunar month. In Korea two 15-day cycles fit in a lunar month. In Africa, the cycle can range from three to seven days. Variations in the cycle stem from ethnic differences.

**KEY ISSUE 3**

**Why Do Business Services Locate in Large Settlements?**

- World cities
- Hierarchy of business services
- Economic base of settlements

Every settlement in an MDC such as the United States provides consumer services to people in a surrounding hinterland of varying area, but not every settlement of a given size has the same number and types of business services. Business services disproportionately cluster in a handful of settlements, and individual settlements specialize in particular business services.

**World Cities**

Prior to modern times, virtually all settlements were rural, because the economy was based on the agriculture of the surrounding fields. Providers of consumer services met most of the needs of farmers living in the village. Even in ancient times, a handful of urban settlements provided business and public services, as well as some consumer services with large market areas.

**Ancient World Cities**

Urban settlements date from the beginning of documented history in the Middle East and Asia. They may have originated in Mesopotamia, part of the Fertile Crescent of the Middle East (see Figure 8–3), and diffused at an early date to Egypt, China, and South Asia’s Indus Valley. Or they may have originated independently in each of the four hearths. In any case, from these four hearths, the concept of urban settlements diffused to the rest of the world.

**EARLIEST URBAN SETTLEMENTS.** Among the oldest well-documented urban settlements is Ur in Mesopotamia (present-day Iraq). Ur, which means “fire,” was where Abraham lived prior to his journey to Canaan in approximately 1900 B.C., according to the Bible. Archaeologists have unearthed ruins in Ur that date from approximately 3000 B.C. (Figure 12–10).

Ancient Ur was compact, perhaps covering 100 hectares (250 acres), and was surrounded by a wall. The most prominent structure was a temple, known as a ziggurat, the command center for the ancient settlement and surrounding hinterland. The ziggurat was originally a three-story structure with a base that was 64 by 46 meters (210 by 150 feet) and the upper stories stepped back. Four more stories were added in the sixth century B.C. Surrounding the ziggurat were residential areas containing a dense network of narrow winding streets and courtyards.

Recent evidence unearthed at Titris Hoyuk, in present-day Turkey, from about 2500 B.C. suggests that early urban settlements were well-planned communities. Houses were arranged in a regular pattern, because walls and streets were apparently