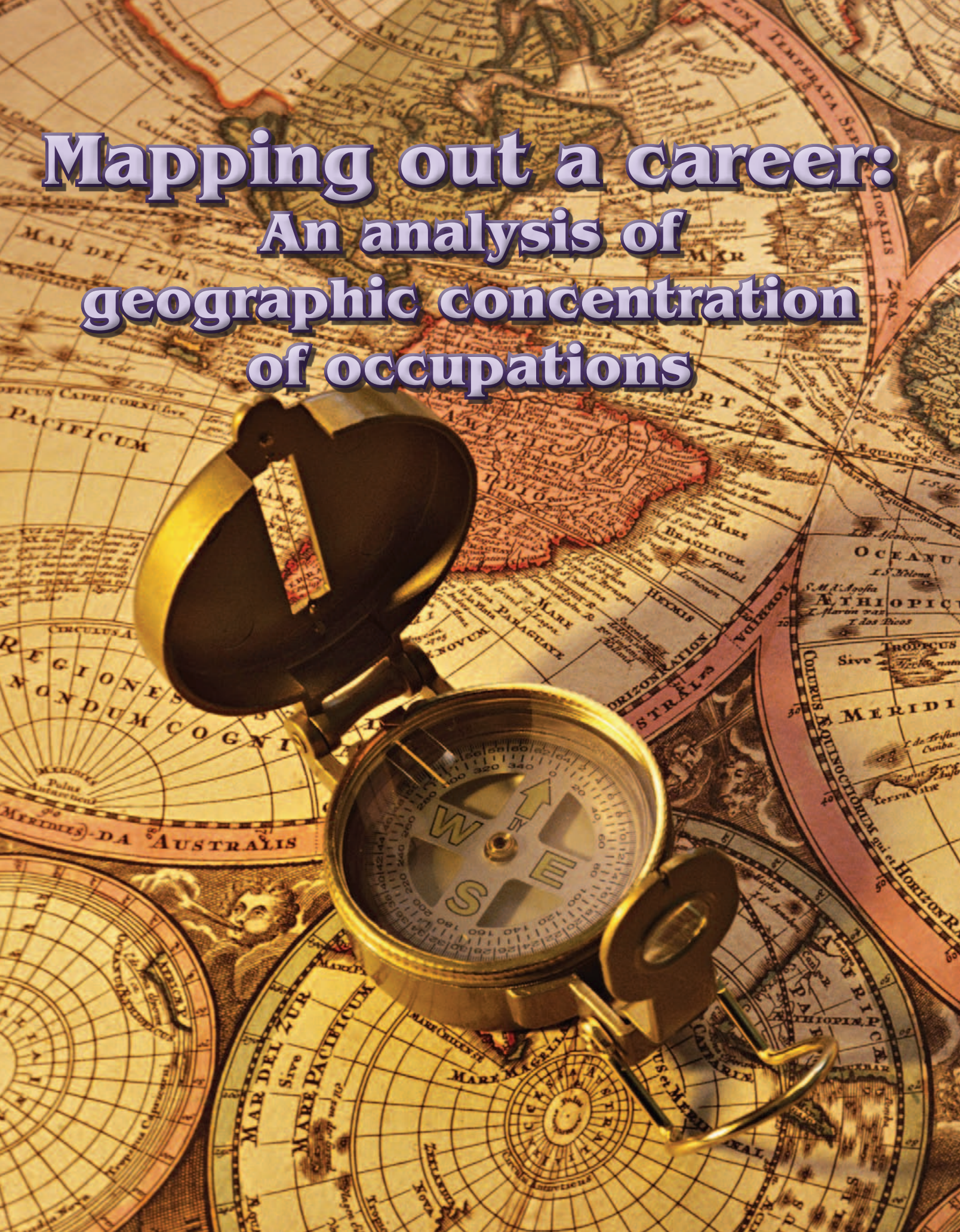
Mapping out a career:

An analysis of geographic concentration of occupations



Do you thrive on the excitement of a big city, or do you enjoy waking up to a quiet country morning? Do you anticipate relocating frequently, finding a new job each time you move? Do you really love New York—or Orlando? If these types of lifestyle considerations are important to you, then the location of jobs might affect your career choice.

Not all occupations are created equal when it comes to geographic distribution. Some occupations are concentrated in relatively few geographic areas; others are spread more evenly across the United States. Specific occupations might be clustered in particular types of geographic settings, such as large urban areas or small rural ones. And some locations are especially likely to have a specific occupation—even areas that have relatively low overall employment.

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This article examines the geographic concentration of occupations. The first section discusses occupations that are geographically concentrated, or not. The second section highlights occupations for which employment is concentrated in large, mid-sized, and small areas. The next section identifies smaller areas that are among the largest employers of specific occupations. The fourth section explains why studying geographic concentration is important in career planning. The final section suggests sources of additional information.

Understanding geographic concentration

This article measures occupations' geographic concentrations using 2009 data from the U.S. Bureau of Labor Statistics (BLS) Occupational Employment Statistics (OES) program. The geographic concentration was determined by analyzing the percentage of occupational employment in the 10 locations in which employment was highest for that occupation. These locations are known as metropolitan statistical areas, geographic entities defined by the U.S. Office of Management and Budget for use by BLS and other Federal statistical agencies in collecting, tabulating, and publishing Federal statistics, and as OES-defined nonmetropolitan areas.

Among the occupations selected, those designated as highly concentrated had more than 65 percent of their employment in their top 10 areas. Occupations with low geographic concentration had 20 percent or less of their total employment in their top 10 areas.

Occupations with high geographic concentration

Some occupations are more likely than others to be concentrated in specific areas. For example, 89 percent of political scientists worked in just a few areas in 2009—including more than two-thirds in the Washington, D.C., metropolitan area.

The main reasons for occupational concentration are population density, location of natural resources or features, and a particular type of work that is distinct to an area. Selected occupations with high geographic

concentrations in 2009 are shown in Table 1.

Population. Occupational concentration often corresponds to population. Sometimes, this concentration results from demands that are unique to large populations.

For example, the more people who live and work in densely populated areas, the greater the need for public transportation. And because transit systems are in and around major cities, that's where occupations associated with such systems are clustered: nearly all subway and streetcar operators—96 percent—were employed in just 10 areas in 2009.

Natural resources or features. The natural resources or physical features of a locale can also determine occupational concentration. For example, mining is an activity that is concentrated in a specific area—in this case, one where minerals are located. As a result, among the most concentrated occupations in 2009 were several mining-related ones. These occupations are limited geographically by the need to be near the natural resource deposits being mined.

Similarly, several occupations associated with water transportation are concentrated in areas near waterways and coasts, such as Seattle, Virginia Beach, and New Orleans. Some examples include marine engineers and naval architects, ship engineers, and sailors.

Type of work performed. Some occupations are highly concentrated because they are associated with industries in which related

TABLE 1

Selected occupations with high geographic concentrations, May 2009

Occupation	Total U.S. employment	Percent of occupational employment in 10 areas with highest employment of occupation
Subway and streetcar operators[1]	6,050	95.9
Political scientists[1]	3,970	89.2
Fashion designers[1]	15,780	78.0
Shuttle car operators[2]	3,520	77.0
Roof bolters, mining	5,470	75.7
Fabric and apparel patternmakers	6,640	68.8
Marine engineers and naval architects	5,270	68.7
Agents and business managers of artists, performers, and athletes[1]	11,700	68.4
Loading machine operators, underground mining[2]	3,570	68.4
Ship engineers	10,850	66.3

[1] This occupation is also in Table 4 because it is concentrated in large metropolitan areas.
[2] This occupation is also in Table 3 because it is concentrated in nonmetropolitan areas.

businesses benefit from locating near one another. The San Francisco Bay area attracted high-tech workers, for example, and that locale eventually became known as Silicon Valley because of the large cluster of technology companies there.

Other occupations with high geographic concentrations include those related to fashion and entertainment. In 2009, New York and Los Angeles, two areas with high concentrations of apparel- and entertainment-related industries, had the highest employment of fashion designers, fabric and apparel patternmakers, and agents and business managers of artists, performers, and athletes.

Occupations with low geographic concentrations

In contrast with occupations that are highly concentrated geographically, some occupations are widely dispersed. These are primarily occupations involving workers who are needed everywhere, such as postmasters, or workers whose jobs focus on rural or sparsely populated areas, such as foresters.

Occupations with low geographic concentrations in 2009 are shown in Table 2.

But total employment also matters in determining which occupations have low geographic concentrations. Large occupations—including retail salespersons, cashiers, and general office clerks, each with 2009 total employment of at least 2.8 million—are likely to appear in significant numbers in many areas, even if their geographic concentrations are somewhat higher than those of the occupations in the table.

Services needed everywhere. Residents in all types of areas need basic services (such as mail delivery, highway maintenance, and utilities), and several occupations with

Table 2

Selected occupations with low geographic concentrations, May 2009

Occupation	Total U.S. employment	Percent of occupational employment in 10 areas with highest employment of occupation
Postmasters and mail superintendents*	24,890	11.9
Agricultural inspectors	14,030	15.0
Highway maintenance workers	139,490	15.6
Foresters	10,230	15.9
Electrical power-line installers and repairers	108,980	16.1
Correctional officers and jailers	455,350	16.7
Water and liquid waste treatment plant and system operators	109,090	16.9
Farm equipment mechanics*	30,250	17.3
Cooks, institution and cafeteria	383,540	18.0
Legislators	65,750	18.3

*This occupation is also in Table 3 because it is concentrated in nonmetropolitan areas.

low geographic concentrations in 2009 are related to providing such services. These occupations include postmasters and mail superintendents, highway maintenance workers, and electrical power-line installers and repairers.

Schools, nursing homes, retirement communities, and hospitals are spread out geographically—and these facilities need workers to prepare food for their students, residents, and patients. Consequently, institution and cafeteria cooks were more widely dispersed in 2009 than other food service occupations, most of which were employed primarily in restaurants and other eating places that benefit from having numerous customers living and working nearby.

And correctional officers and their supervisors are geographically widespread. These occupations were among those with the lowest geographic concentrations in 2009.

Rural settings. Some occupations with low geographic concentrations exist, in part, because the nature of their work involves little residential population and a large area of land. These occupations are related to agriculture or natural resource conservation, such as agricultural inspectors, farm equipment mechanics, foresters, conservation scientists, and fish and game wardens.

Does metro size matter?

Areas with the highest overall employment usually have the highest employment of most occupations. But not all metropolitan areas are alike in the types and numbers of occupations that are likely to be clustered together. Large, medium, and small metropolitan areas have different occupational concentrations.

Nonmetropolitan areas accounted for less than 14 percent of total U.S. employment in 2009 but contained the majority of employment in some occupations. (See Table 3.) As discussed previously, occupations found primarily in nonmetropolitan areas can be highly concentrated geographically because their job tasks are associated with natural resources (such as mining), or they can have low geographic concentrations because the

TABLE 3

Selected occupations concentrated in nonmetropolitan areas

Occupation	Total U.S. employment	Percent of employment in nonmetropolitan areas
Shuttle car operators[1]	3,520	77.2
Loading machine operators, underground mining[1]	3,570	74.3
Continuous mining machine operators	11,230	71.1
Fallers	6,480	69.6
Logging equipment operators	23,630	68.9
Log graders and scalers	2,940	60.8
Forest and conservation technicians	31,440	57.9
Postmasters and mail superintendents[2]	24,890	56.2
Slaughterers and meat packers	97,530	55.5
Farm equipment mechanics[2]	30,250	52.1
Percent of all employment in nonmetropolitan areas		**13.5**

[1] This occupation is also in Table 1 because it is highly concentrated geographically.
[2] This occupation is also in Table 2 because it has low geographic concentration.

services they provide are needed everywhere (such as mail delivery).

Large metro areas

The largest metropolitan areas—those with employment of 1 million or more—made up about 42 percent of total employment in 2009. However, some occupations are even more likely to be concentrated in large metropolitan areas, such as New York, Los Angeles, and Chicago. Some occupations that had two-thirds or more of their 2009 employment in the largest metropolitan areas are shown in Table 4.

Several of these occupations also appeared among the most geographically concentrated occupations in Table 1. These occupations were not only geographically concentrated, they were concentrated precisely because they're mainly in a small number of large urban areas.

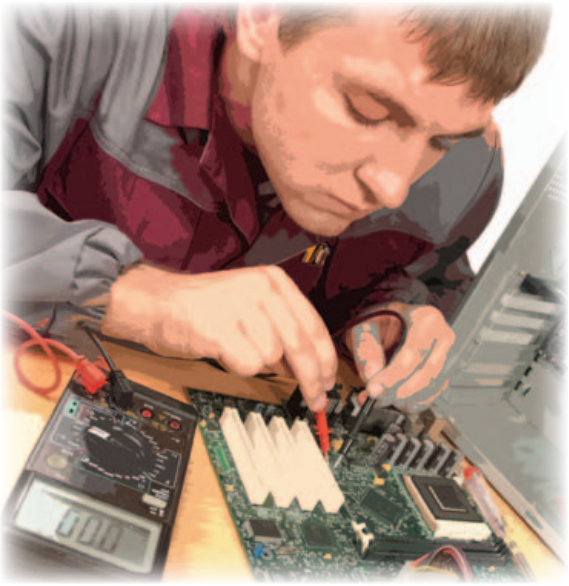
Some of the occupations found primarily in these large areas are related to arts and entertainment. These include film and video editors, multi-media artists and animators, sound engineering technicians, producers

Table 4

Selected occupations concentrated in large metropolitan areas (employment ≥ 1 million), May 2009

Occupation	Total U.S. employment	Percent of employment in large metropolitan areas
Subway and streetcar operators*	6,050	86.3
Political scientists*	3,970	85.8
Flight attendants	95,810	83.7
Fashion designers*	15,780	75.8
Airline pilots, copilots, and flight engineers	74,420	73.6
Shampooers	16,170	70.9
Agents and business managers of artists, performers, and athletes*	11,700	69.9
Film and video editors	17,550	68.9
Brokerage clerks	62,470	66.8
Financial analysts	235,240	66.7
Percent of all employment in large metropolitan areas		**41.6**

* This occupation is also in Table 1 because it is highly concentrated geographically.



and directors, and actors. New York and Los Angeles had the highest employment of most of these occupations in 2009.

Metropolitan areas often serve as busy hubs for air transportation. As a result, nearly 74 percent of airline pilots, copilots, and flight engineers and 84 percent of flight attendants were employed in the largest of these areas in 2009. New York City is a center of financial activity, so it is not surprising that brokerage clerks and financial analysts were particularly concentrated in that metropolitan area.

Two specialized personal care occupations, shampooers and manicurists and pedicurists, also had two-thirds or more of their 2009 employment in the largest metropolitan areas. Although these workers are employed throughout the country, their jobs are more likely to be specialized where larger populations are served; in smaller areas, these workers' tasks are often combined with duties of other personal care workers, such as hairstylists, hairdressers, and cosmetologists.

Medium-sized metro areas

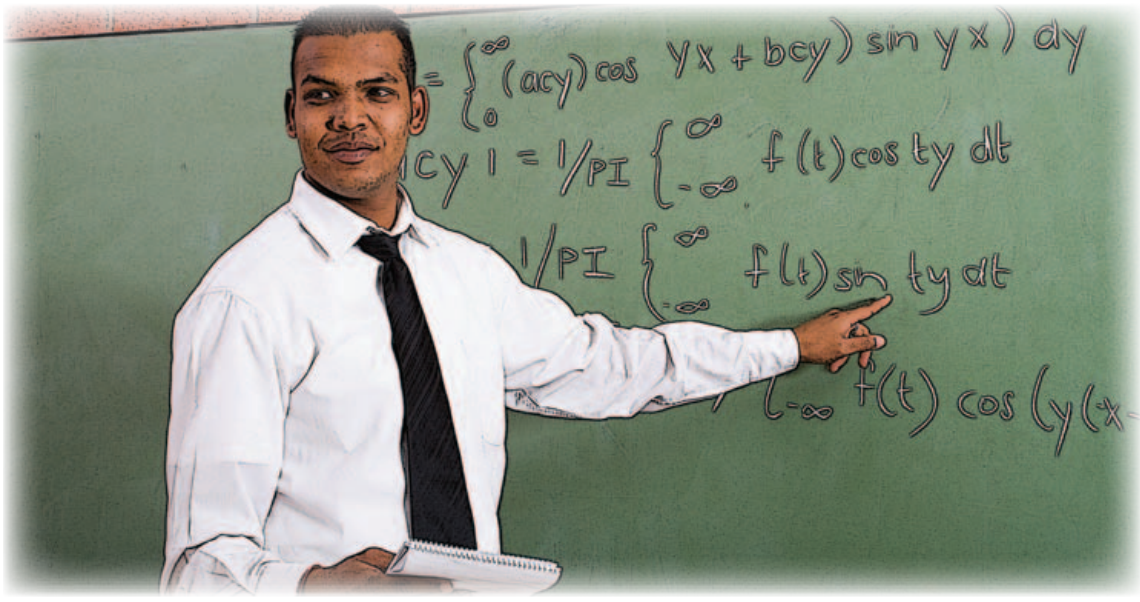
Metropolitan areas with employment between 250,000 and 999,999 accounted for about 24 percent of overall U.S. employment in 2009. (See Table 5.) However, concentration patterns in medium-sized metro areas are not as pronounced as those in large metro areas.

Computer hardware engineers, nuclear engineers, and aerospace engineering and operations technicians are likely to be employed in medium-sized areas. And several occupations common in the insurance industry—insurance underwriters, correspondence

TABLE 5

Selected occupations concentrated in medium-sized metropolitan areas (250,000 ≤ employment < 1 million), May 2009

Occupation	Total U.S. employment	Percent of employment in medium-sized metropolitan areas
Semiconductor processors	25,750	47.4
Gaming supervisors	24,760	37.4
Bookbinders	6,430	35.0
Aerospace engineering and operations technicians	7,940	34.7
Medical appliance technicians	13,760	34.4
Tax examiners, collectors, and revenue agents	69,500	33.9
Gaming dealers	86,900	33.6
Computer hardware engineers	65,410	33.4
Nuclear engineers	16,710	32.3
Insurance underwriters	98,430	31.8
Percent of all employment in medium-sized metropolitan areas		**23.9**



clerks, and insurance claims and policy processing clerks—had 30 percent or more of their employment in medium-sized metropolitan areas in 2009.

Small metro areas

Small metropolitan areas with employment of less than 250,000 made up about 20 percent of overall U.S. employment in 2009. (See Table 6.) As with occupations in medium-sized areas, geographic concentration patterns in small metro areas are not as pronounced as those in large metro areas.

For some of these occupations, possible reasons for geographic concentration in small metro areas may be more obvious. For example, nearly 55 percent of postsecondary forest and conservation science teachers worked

Table 6

Selected occupations concentrated in small metropolitan areas (employment < 250,000), May 2009

Occupation	Total U.S. employment	Percent of employment in small metropolitan areas
Forest and conservation science teachers, postsecondary	2,380	54.6
Tire builders	17,820	48.1
Agricultural sciences teachers, postsecondary	10,230	44.3
Home economics teachers, postsecondary	4,800	36.2
Textile winding, twisting, and drawing out machine setters, operators, and tenders	30,530	35.3
Atmospheric and space scientists	8,320	35.2
Textile knitting and weaving machine setters, operators, and tenders	24,530	33.1
Animal scientists	2,190	33.0
Agricultural and food science technicians	18,490	32.1
Library science teachers, postsecondary	3,940	32.0
Percent of all employment in small metropolitan areas		**20.4**

in small metropolitan areas in 2009—likely because of the occupations' need to be near rural areas. Similarly, two science occupations related to agriculture and animal production—animal scientists and agriculture and food science technicians—had 30 percent or more of their 2009 employment in small metropolitan areas.

But with other occupations, the reasons for concentration in small metro areas are not as apparent. For example, two occupations associated with textile and yarn production—textile winding, twisting, and drawing out machine setters, operators, and tenders; and textile knitting and weaving machine setters, operators, and tenders—each had one-third or more of their employment in small metro areas in 2009. Because of increased competition arising from globalization, U.S. textile manufacturers remain primarily in small metro areas in the South, which often have lower labor costs than other areas.

Small area, high employment

Some relatively small metropolitan areas were among the largest employers of individual occupations in 2009. In many cases, this employment concentration results from unique circumstances for an occupation in its geographic location.

For example, popular vacation destinations may be smaller cities but have higher-than-average employment of occupations related to tourism and traveler accommodation. Honolulu, Hawaii, had one of the highest employment levels of tour guides in 2009. And Orlando-Kissimmee, Florida, had some of the highest 2009 employment of baggage porters and bellhops; travel agents; and hotel, motel, and resort desk clerks.

State capitals are not always in large metropolitan areas, but they often have high numbers of workers in public service or government-related occupations. For example, California's State capital, Sacramento, had more tax examiners, tax collectors, and revenue agents in 2009 than Philadelphia and Cincinnati—two larger metropolitan areas that are not State capitals. Some other State capitals, including Albany, New York; Little Rock, Arkansas; and Harrisburg, Pennsylvania, also had relatively high 2009 employment of tax collectors.

In 2009, Nashville, Tennessee, had some of the highest employment of musicians and singers and agents and business managers of artists, performers, and athletes. As a percent of total employment, the share of sound recording industries in Nashville was 18 times as high as in the United States as a whole in 2009, and the share of musical groups and artists was 9 times as high, according to BLS. So, although the New York and Los Angeles metropolitan areas had the highest employment of these two occupations in 2009, Nashville had a larger employment share of both occupations because of its high concentration of music-related industries.

Geographic concentration and career planning

When planning a career, it's important to determine whether a desired occupation is geographically concentrated—especially for people who have strong preferences about where they want to live. An aspiring subway operator who craves country living needs to reconcile those conflicting interests, for example, just as forestry may not be the ideal career choice for an avowed urbanite.

BLS data on geographic concentration of occupations are useful for making an informed career decision. These data show which occupations are clustered in urban areas of various size; they also show the occupations most likely to be found in rural areas. And, although large metro areas may offer a wider variety of occupational options than small or nonmetro areas do, data on the previous pages have shown that a specific occupation's geographic location might depend on more than city size.

The data also show occupational size, which is sometimes a key to job mobility: large occupations spread across multiple areas may offer more opportunity for relocating than highly concentrated occupations do. Some of the most concentrated occupations also have the lowest overall employment, simply because these small occupations aren't likely to be in many areas. Such information may be helpful for people who hope to move frequently throughout their careers—or for those who prefer to stay put.

Choice of occupation only partially determines where people live, and choice of location only partially determines the occupations that are available in an area. Occupation and location need not be mutually exclusive, of course; plenty of commuters live outside urban areas but commute into them—and vice versa. But studying geographic concentration of occupations can help jobseekers balance what they want to do with where they want to live.

For more information

Geographic location is just one thing to consider when deciding on a career. Wages, job duties, education or training requirements, and employment outlook are among other significant factors. And BLS offers more detailed information online.

This article explained some of the ways in which geographic distribution of specific occupations may differ from that of employment in general. Detailed occupational employment and wage data for States, metropolitan areas, and nonmetropolitan areas are available from the OES program at **www.bls.gov/oes**. In addition to overall employment levels, the OES metropolitan and nonmetropolitan area downloadable files include data on employment concentrations, expressed as employment per 1,000 area jobs.

To learn more about the job duties, education or training requirements (including certifications and licensure, which may affect geographic mobility), and employment outlook for hundreds of occupations, see the *Occupational Outlook Handbook* online at **www.bls.gov/ooh**. The *Handbook* is also available in hard copy in many libraries and offices of career counselors.