

Open ArcGIS. Bring in the following two files:

- 1) *S:\teff\450\arcview\States.shp* This layer outlines each state. It's mainly used in this assignment to help us see where Economic Areas are located.
- 2) *S:\teff\450\arcview\EA from CS.shp* This shapefile outlines each Economic Area, modified somewhat to be congruent with county areas used by the Equal Employment Opportunity Commission in disseminating their occupational data. There are 179 EAs, but my modification results in some consolidation, so that there are 176 EAs depicted.

This week we will look at the pattern of specialization of regions within the United States. There are two main theoretical perspectives explaining how and why regions specialize:

- **Export base theory:** Each region has a comparative advantage in a set of resources or factors of production, and produces goods heavily using these inputs, exporting to the rest of the world.
- **Central place theory:** Each region is arrayed in a hierarchical network, acting as a central place for more isolated regions, and itself relying on a more central region. A region's comparative advantage is mostly based on its place in the hierarchy, and trade is mostly conducted up and down the hierarchy, rather than with all other regions.

Specialization can be seen both by looking at industries and at occupations. We will look at occupations here, using a formula called a **location quotient**:

$$LQ_i = \frac{\left(\frac{X_i^r}{X^r}\right)}{\left(\frac{X_i^{US}}{X^{US}}\right)} = \frac{\left(\frac{\text{Employment in occupation } i \text{ in region } r}{\text{Total employment in region } r}\right)}{\left(\frac{\text{Employment in occupation } i \text{ in the US}}{\text{Total employment in the US}}\right)}$$

Copy the file *S:\TEFF\450\Arcview\Assignment 5.xls* to your computer. This file gives employment by occupation for 176 Economic Areas, both for 1990 and for 2000.

Calculate location quotients for every EA, placing the location quotients for 1990 on one worksheet, and for 2000 on another. Save these as values, and join each of these location quotient worksheets to your *EA from CS.shp* layer.

Here is your assignment: Try to visualize the hierarchy of central places in the United States in terms of the occupations. Which occupations are the best measures of high rank, and which are indicative of low rank? Which economic areas rank at the top? About where does Nashville (EA=116) fall in the ranking? Can you say something about how the regional division of labor changed between 1990 and 2000?

Produce at least four maps that succinctly present some insight into the regional division of labor. Next Monday, be prepared to give a group presentation to the class (no more than 5 minutes long), using these maps.

Occupational Codes

eeo	title
1	Chief Executives
5	Marketing and Sales Managers
12	Financial Managers
13	Human Resources Managers
21	Farmers and Ranchers
23	Education Administrators
31	Food Service Managers
41	Property, Real Estate, and Community Association Managers
43	Managers, All Other
54	Claims Adjusters, Appraisers, Examiners, and Investigators
62	Human Resources, Training, and Labor Relations Specialists
80	Accountants and Auditors
100	Computer Scientists and Systems Analysts
101	Computer Programmers
153	Miscellaneous Engineers, Including Agricultural and Biomedical
155	Engineering Technicians, Except Drafters
196	Miscellaneous Life, Physical, and Social Science Technicians, Including Social Science Research Assistants & Nuclear Technicians
200	Counselors
201	Social Workers
204	Clergy
210	Lawyers
220	Postsecondary Teachers
231	Elementary and Middle School Teachers
232	Secondary School Teachers
234	Other Teachers and Instructors
254	Teacher Assistants
263	Designers
306	Physicians and Surgeons
313	Registered Nurses
350	Licensed Practical and Licensed Vocational Nurses
360	Nursing, Psychiatric, and Home Health Aides
365	Medical Assistants and Other Healthcare Support Occupations
385	Police and Sheriff's Patrol Officers
392	Security Guards and Gaming Surveillance Officers
401	First-Line Supervisors/Managers of Food Preparation and Serving Workers
402	Cooks
403	Food Preparation Workers
404	Bartenders
411	Waiters and Waitresses
413	Dining Room and Cafeteria Attendants and Bartender Helpers
422	Janitors and Building Cleaners
423	Maids and Housekeeping Cleaners
425	Grounds Maintenance Workers
451	Hairdressers, Hairstylists, and Cosmetologists
460	Child Care Workers
470	First-Line Supervisors/Managers of Retail Sales Workers
471	First-Line Supervisors/Managers of Non-Retail Sales Workers
472	Cashiers
476	Retail Salespersons
481	Insurance Sales Agents
484	Sales Representatives, Services, All Other
485	Sales Representatives, Wholesale and Manufacturing

eeo	title
492	Real Estate Brokers and Sales Agents
496	Sales and Related Workers, All Other
500	First-Line Supervisors/Managers of Office and Administrative Support Workers
511	Billing and Posting Clerks and Machine Operators
512	Bookkeeping, Accounting, and Auditing Clerks
516	Tellers
524	Customer Service Representatives
526	File Clerks
540	Receptionists and Information Clerks
555	Postal Service Mail Carriers
560	Production, Planning, and Expediting Clerks
561	Shipping, Receiving, and Traffic Clerks
562	Stock Clerks and Order Fillers
570	Secretaries and Administrative Assistants
580	Computer Operators
581	Data Entry Keyers
582	Word Processors and Typists
586	Office Clerks, General
593	Office and Administrative Support Workers, All Other
605	Miscellaneous Agricultural Workers
620	First-Line Supervisors/Managers of Construction Trades and Extraction Workers
623	Carpenters
626	Construction Laborers
632	Operating Engineers and Other Construction Equipment Operators
635	Electricians
642	Painters, Construction and Maintenance
644	Pipelayers, Plumbers, Pipefitters, and Steamfitters
700	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers
720	Automotive Service Technicians and Mechanics
733	Industrial and Refractory Machinery Mechanics
734	Maintenance and Repair Workers, General
770	First-Line Supervisors/Managers of Production and Operating Workers
772	Electrical, Electronics, and Electromechanical Assemblers
775	Miscellaneous Assemblers and Fabricators
781	Butchers and Other Meat, Poultry, and Fish Processing Workers
803	Machinists
814	Welding, Soldering, and Brazing Workers
822	Metalworkers and Plastic Workers, All Other
832	Sewing Machine Operators
874	Inspectors, Testers, Sorters, Samplers, and Weighers
896	Production Workers, All Other
900	Supervisors, Transportation and Material Moving Workers
912	Bus Drivers
913	Driver/Sales Workers and Truck Drivers
960	Industrial Truck and Tractor Operators
961	Cleaners of Vehicles and Equipment
962	Laborers and Freight, Stock, and Material Movers, Hand
964	Packers and Packagers, Hand