

An abstract graphic consisting of several overlapping rectangular blocks in shades of blue and orange. One block is a solid orange rectangle, while others are in various shades of blue. The blocks are arranged in a way that they appear to be layered, with some overlapping others. The text "National Center for Real Estate Research" is overlaid on this graphic.

National Center for Real Estate Research



NATIONAL ASSOCIATION
OF REALTORS®

The Voice for Real Estate®

**Who are Your Future Tenants?
Office Employment in the United States
2004 – 2014**

**Report prepared for the
National Association of Realtors[®]**

by

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Executive Summary

In March 2006 the National Association of Realtors® issued a request for proposals to undertake research that would identify the primary drivers of the demand for office space. The request stipulated that analysis of office-using industries should be conducted at a low level of industry aggregation, using the North American Industry Classification System (NAICS). Short, medium, and long-term prospects for office demand should be investigated, including impacts of technological changes. Lastly, the research should examine specific geographic markets.

This report has been completed to fulfill that request. However, at the outset it was noted that the Bureau of Labor Statistics of the U.S. Department of Labor had just issued a complete enumeration of detailed occupations data for each industry in the nation for the base year of 2004 and projections for 2014. It was decided that use of data on occupations would provide a reasonably comprehensive enumeration of employment that takes place in offices. This research begins with a listing of all of the office-based occupations, which then produces data on the amount of office-based employment for each major industry category. The report concentrates on those major industries that consist of office-based employment that is above the national average of 41.5 percent of total employment. Each of these major industries is broken down into its component parts to see how the amount of office-based employment varies within the major industry categories. For example, the percentage of office-based employment is uniformly high in all parts of the Finance and Insurance industry, but this percentage varies a great deal within the Information industry category.

The Bureau of Labor Statistics projections for 2014 are used to make projections of office-based employment for 2014, and forecasts from Moody's Economy.com (2006) were used to project the intermediate year 2009. The basic projection is that office-based employment is to increase from 60.04 million in 2004 to 63.96 million in 2009 (an increase of 6.5 percent), and to 68.10 million in 2014 (a further increase of 6.5 percent). Total employment in the nation is projected to increase by 6.4 percent and 6.3 percent over these same five-year intervals, so office-based employment is not projected to increase much more rapidly than total employment. The basic reason for this outcome is that, while many office-based occupations will increase rapidly, the largest office-based occupation group is Office Support Staff, and these jobs are expected to increase relatively slowly because of technical change. The BLS projection for Office Support Staff is an increase of 5.8 percent over the ten years from 2004 to 2014. The shift of office occupations away from support staff towards higher-level occupations would suggest that the amount of office space per employee may increase. However, the trends towards more efficient use of office space and less space needed for storage of paper may offset this effect.

This report provides data on office employment by major industry category for the top 23 metropolitan areas in the nation for the base year 2004. The overall average for office-based employment in the 23 metropolitan areas is 42.6 percent, which is only slightly higher than the national average of 41.5 percent. This average varies from a high of 45.5 percent in metropolitan Tampa and 45.2 percent in the New York metropolitan area to a low of 40.7 percent in metropolitan Houston.

The final sections of the report contain the results of two small surveys that were conducted. One survey solicited the opinions of a select group of office industry experts regarding some of the findings of this research (and a few other questions), and the other survey is of some of the professional literature produced in the industry that pertains to the demand for office space. The survey of industry experts generally confirms the empirical findings of this research, while the examination of the professional literature indicates that the analysis of the demand for office space typically is confined to three major industry categories – Professional, Technical, and Scientific Services; Information; and Finance and Insurance. The findings in this report strongly suggest that a more comprehensive definition of office space demand may be useful.

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Chicago Office Employment, 2004
Baltimore Office Employment, 2004
Boston Office Employment, 2004
Detroit Office Employment, 2004
Minneapolis-St. Paul Office Employment, 2004
St. Louis Office Employment, 2004
New York Office Employment, 2004
Philadelphia Office Employment, 2004
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Introduction

This report examines office employment in the U.S. for the benchmark year of 2004, and provides projections for 2009 and 2014. It is generally agreed that the demand for office space depends primarily upon two variables – office employment and rent (occupancy cost). The purpose of this report is to implement a better method for projecting office employment. The basic method is to begin with an enumeration of the occupations that involve working in an office – rather than beginning with a list of industries which are thought to comprise the vast majority of office demand. A recent survey of the literature on the estimation of office market demand by Joseph Rabianski and Karen Gibler (to appear in the *Journal of Real Estate Literature*, Vol. 15, No. 1, 2007) concludes that the use of office occupations as the basis for demand analysis is the preferred method. This report is one of the first times the method will have been applied to both national office and local office markets.

Real estate professionals are aware that improved methods of office employment analysis are needed. A recent article by Monica Finnegan and Johanna Buurman of Trammell Crow Company in *Key Notes* (August, 2006), the newsletter of Lambda Alpha International, discusses “ghost workers” and the demand for office space. They state that:

“In our view (the) most important factor (that is not captured in traditional demand studies) is the increasing reliance on contingent workers. These ‘ghost workers’ are not employed by the firm whose site they work in – rather they may be traditional agency temp workers, independent contractors, or employees of

another firm that has contracted to fulfill certain technical or administrative functions on-site.”

They go on to state that:

“Importantly, independent contractors do not show up in the traditional (industry) employment statistics at all.”

The size of the discrepancy Finnegan and Buurman are describing in part can be enormous. The CoStar Group reports on office markets do a good job of enumerating the supply of office space, and also include charts showing office employment and office employment growth. Office employment is defined by CoStar Group as jobs in the Information, Financial Activities, and Professional and Business Services industries. The precise definitions of these industries are discussed below, but a basic comparison is illuminating. Total employment in the U. S. in these industries in 2004 was 27.6 million. In contrast, the total for office employment estimated for 2004 in this report is 60.0 million. By our estimate, the CoStar Group method enumerates only 46 percent of office employment. Furthermore, our occupational analysis suggests that only 69 percent of the workers in the Information, Financial Activities, and Professional and Business Services industries actually work in offices. As our data show, one major discrepancy is the omission of self-employed persons from the traditional industry studies.

The method used in this report, starting with occupations that involve work in offices, will capture these workers – whether they are temp workers sent by a temp service, employed by other firms, or are self-employed independent contractors.

The method used is as follows:

1. Use the occupation categories established by the U. S. Department of Labor, Bureau of Labor Statistics (BLS) to identify the people who work in offices.
2. Use the BLS occupation-industry matrix for 2004 to compute the percentage of employment in each industry that is office-based employment.
3. Use the BLS projection of employment by industry for 2014, coupled with the BLS projection of the occupation-industry matrix, to project office-based employment by industry for 2014.
4. Use the employment projection from Moody's Economy.com (2006) for 2009 to make office employment projections for this intermediate year.

Each of these steps is described in turn. The data are attached as spreadsheets.

This report also examines office employment in the top 23 metropolitan areas for 2004, and describes a method for making office demand projections at the metro level.

The next section is a reconciliation of estimated office employment with data by the CoStar Group on the stock of office space in metropolitan Chicago. The remaining sections of the report summarize the results of our survey of current professional reports on the state of the office market and present the results of our small survey of industry experts who were asked to comment on the basic empirical findings described herein.

This research project relies heavily on data provided by the Bureau of Labor Statistics of the U.S. Department of Labor. BLS is known chiefly for its official monthly reports on employment and unemployment and the monthly consumer price and producer price indexes. BLS provides very detailed monthly data on employment by industry for all states and metropolitan areas as well. BLS also provides detailed data on occupations

and makes employment projections for occupations that are published in the *Occupational Outlook Handbook*. Other BLS publications include *The Monthly Labor Review* and *Employment and Earnings* (also published monthly). The BLS web site is the electronic home for all who wish to track employment and employment conditions.

Office Occupations

The BLS occupation codes include over 700 detailed occupations. This list was reviewed carefully, and a list of office occupations was developed. This list is as follows:

Office Occupations

- 11. Management occupations
- 13. Business and financial operations occupations
- 15. Computer and mathematical science occupations
- 17. Architecture and engineering occupations
- 19. Life, physical, and social science occupations
- 21. Community and social services occupations
- 23. Legal occupations
- 25-1000 Post-secondary teachers
- 27-1020 Designers
- 27-3000 Media and communication occupations
- 29-1000 Health diagnosing and treating practitioners
- 41-3000 Sales representatives, services
- 41-4000 Sales representatives, wholesale and manufacturing
- 41-9020 Real estate brokers and sales agents
- 43. Office and administrative support occupations

These occupations vary in number of workers and in the extent to which they use office space. Managers use offices most of the time, while post-secondary teachers and sales representatives carry out their duties in other locations as well (i.e., classrooms and offices of clients, respectively). Nevertheless, it is important that the study of the demand for office space should begin with a reasonably complete accounting of office occupations.

The number of workers in each of these occupations is shown in the next table. In 2004 there were 60.035 million office workers in total, which was 41.2 percent of all employed persons. The largest occupational category by far was Office Support Occupations, with 23.907 million workers. The next-largest office occupations (in order) are Management Occupations, Business and Financial Operations Occupations, and Health Diagnosing and Treating Occupations.

Office Occupations

| Code | Occupation | 2004 (1000s) | 2014 (1000s) | Percent Change | Change (1000s) |
|-------------|------------------------------------|-------------------------|-------------------------|---------------------------|---------------------------|
| 11 | Management | 9155 | 10147 | 11.32 | 1032 |
| 13 | Business & Financial Operations | 5873 | 6996 | 19.12 | 1123 |
| 15 | Computer & Math | 3153 | 4120 | 30.67 | 967 |
| 17 | Architects & Engineers | 2520 | 2835 | 12.49 | 315 |
| 19 | Life, Physical, Social Science | 1316 | 1532 | 16.41 | 216 |

| Code | Occupation | 2004 (1000s) | 2014 (1000s) | Percent Change | Change (1000s) |
|---------------|--|-------------------------|-------------------------|---------------------------|---------------------------|
| 21 | Social Services | 2317 | 2800 | 20.85 | 483 |
| 23 | Legal Services | 1220 | 1414 | 15.90 | 194 |
| 25-1000 | Post-Secondary. Teachers | 1628 | 2153 | 32.25 | 525 |
| 27-1020 | Designers | 572 | 645 | 12.93 | 74 |
| 27-3000 | Media & Communication | 710 | 821 | 15.58 | 111 |
| 29-1000 | Health diagnosing & treating | 4190 | 5330 | 27.21 | 1140 |
| 41-3000 | Sales Rep, Services | 1318 | 1467 | 11.27 | 149 |
| 41-4000 | Sales Rep, Wholesale & Manufacturing | 1851 | 2095 | 13.20 | 244 |
| 41-9020 | Real Estate Brokers | 460 | 520 | 13.03 | 60 |
| 43 | Office Support | 23907 | 25287 | 5.77 | 1380 |
| Total, office | | 60035 | 68097 | 13.43 | 8062 |
| Total, all | | 145612 | 164540 | 13.00 | 18928 |

The table also displays the BLS projections for these occupations for the year 2014. Total employment is projected to increase by 13.00 percent from 2004 to 2014.

The total for employment in office occupations is projected to increase by 13.43 percent (8.062 million workers) in ten years. However, the occupational projections vary widely. Post-Secondary Teachers and Computer and Mathematical Science Occupations are both projected to increase by over 30 percent, while Office Support Occupations are projected to increase by only 5.77 percent in ten years. Indeed, this latter projection is an important consideration in projecting the demand for office space. BLS is expecting that the demand for Office Support Occupations will grow significantly more slowly than total employment or total office employment. This projection reflects the increasing use of computer and internet technology in the office.

The Bureau of Labor Statistics Projections

It is important to understand the basic methods used by BLS to make the employment projections. The methods are described in detail in the November 2005 issue of the *Monthly Labor Review*. This section is a brief summary of their procedures.

BLS begins the task of employment projections on the supply side by projecting the size of the labor force. The civilian labor force is projected to increase by 9.97 percent from 2004 to 2014, an increase that is less than the 12.5 percent growth that was recorded for the previous ten years (1994 to 2004). The projected labor force growth is affected by the aging of the baby-boom generation, the persons born from 1946 to 1964. Baby boomers were age 40 to 58 in 2004, and will be age 50 to 68 in 2014. In this age range the labor-force participation rates decline as people age. Many of the boomers will be retired by 2014, although a critical factor for future projections is the extent to which they actually do retire. Is retirement obsolete? No, but it may become less prevalent.

The aging of the baby-boom generation means that the composition of the labor force by age will change. The share of workers aged 55 and over is expected to increase from 15.6 percent in 2004 to 21.2 percent in 2014, while the shares of younger workers (age 16 to 24) and prime-age workers (age 25 to 54) will decline. The share of younger workers is expected to fall from 15.1 percent to 13.7 percent, and prime-age workers will decline from 69.3 percent to 65.2 percent. Designers of office space (and other facilities for workers) will need to keep these trends in mind.

The number of women in the labor force is projected to increase by 10.9 percent, which is faster than the 9.1 percent growth projected for men. The share of women in the labor force is expected to increase from 46.4 percent to 46.8 percent from 2004 to 2014.

BLS uses a long-run macroeconomic model of the economy to project the demand for workers. Economic growth is expected to be strong, but it will be constrained by the growth of the labor force. As noted above, BLS projects that total employment will increase by 13 percent, while projecting that the labor force will grow by only 10 percent. BLS is suggesting therefore that there may be some shortages of labor in the long run.

Office Employment by Industries

The next step is to compile office employment in each industry. The results of this work are shown in Table 1, the first attached spreadsheet table, for the major industry categories. The top employers of office workers, in terms of the percentage of employment that is office-based, are:

| | |
|-----------------------|--------------|
| Finance and Insurance | 96.3 percent |
| Professional Services | 89.0 percent |

| | |
|-----------------------------------|--------------|
| Management of Enterprises | 83.9 percent |
| Information | 67.3 percent |
| Wholesale Trade | 58.8 percent |
| Educational Services (private) | 56.5 percent |
| Health Care and Social Assistance | 48.9 percent |
| Real Estate and Leasing | 46.2 percent |

The top industries on this list are no surprise, but perhaps the appearance of Wholesale Trade as number five on this list is a bit unexpected.

The largest employers of office workers in absolute terms are:

| | |
|-----------------------------------|---------------|
| Government | 9.499 million |
| Health Care and Social Assistance | 6.939 million |
| Professional Services | 6.105 million |
| Finance and Insurance | 5.747 million |
| Self Employment | 5.313 million |

It is no surprise that Government employs a large number of office workers. Government also houses many of them in public office buildings, but many government office workers are located in rental space as well. The major surprise on this list is Self Employment. Self Employment numbered 12.134 million in 2004, and 5.313 million of that was in office occupations. The self-employed are a major component of the demand for office space.

The above two lists of industries contain the ten major industries that are the major employers of office workers (including Self Employment). Total employment and office employment in each of these ten industries are broken down to the four-digit

NAICS level in Tables 2 – 9, the accompanying spreadsheet tables. The “office-intensity” of employment can vary widely within a major industry category. For example, while the overall average for office employment in Wholesale Trade is 58.8 percent in 2004, that percentage varies from a high of 75.8 percent in Drugs and Sundries to a low of 36.1 percent in Farm Product Raw Materials. On the other hand, the “office intensity” of employment in Finance and Insurance is uniformly high. All sectors within this major industry are close to the overall average of 96.3 percent. The tables for the ten industries make it clear that disaggregation can produce greater accuracy if a particular market’s composition of the sector differs from the national average. We observe the following:

- 4200 Wholesale Trade: The office intensities of wholesalers of durable goods and wholesalers of nondurable good are the same, but there is variation within these two broad categories. Disaggregation is more useful the larger is the Wholesale Trade sector.
- 5100 Information: This sector is highly office intensive, except for Motion Picture, Video, and Sound Recording. Disaggregation is needed if this industry is a large part of the Information sector.
- 5200 Finance and Insurance: All portions of this major industry are highly office intensive, so no disaggregation appears to be needed.
- 5300 Real Estate and Rental and Leasing: Real Estate is office intensive, but Rental and Leasing is not. Disaggregation is useful here.

- 5400 Professional, Scientific, and Technical Services: All sectors within this major industry are office intensive, so disaggregation may not be necessary here.
- 6100 Private Educational Services: The main distinction is between Elementary and Secondary Schools and Colleges and Universities. The former is not office intensive, and the latter is office intensive.
- 6200 Health Care and Social Assistance: Office intensity varies within this very large major industry. The main distinction is between Ambulatory Health Care and Hospitals (office intensive) versus Nursing and Residential Care and Social Assistance (less office intensive).
- 9900 Government: Federal Government and State Government are office intensive, but Local Government is not (except for Hospitals) – mainly because school teachers generally do not have their own offices.

Further disaggregation cannot be done for 5500, Management of Companies and Enterprises and 0067, Self Employment.

Office Employment Projections by Industry for the U. S.

BLS projections for office occupations for 2014 are displayed above. This section describes the office employment projections by industry.

The BLS projections for the major (two-digit) industries are shown in Table 1 below. Total employment is projected to increase by 13 percent from 2004 to 2014, and office employment is projected to increase by 13.4 percent – just slightly more than total employment. As noted above, this result for office employment is a combination of

relatively rapid employment growth in several office occupations, which is offset by relatively slow growth in Office Support Occupations. The industries with the largest absolute increases in office employment are projected to be:

| | |
|--|-----------|
| 6200 Health Care and Social Assistance | 1,925,000 |
| 5400 Professional Services | 1,721,000 |
| 9900 Government | 981,000 |
| 5600 Administration and Support | 884,000 |
| 6100 Educational Services | 514,000 |
| 5200 Finance, Insurance | 479,000 |
| 5100 Information | 315,000 |

The projections are broken down to the four-digit level in Tables 2 – 9. The main facts to note from these tables are as follows:

Table 3, 5100 Information

The largest source of the increase in office employment is 5112 Software Publishing.

Table 4, 5200 Finance and Insurance

The largest source of office employment growth is in 5240 Insurance, especially 5242 Insurance Agencies and Brokers.

Table 6, 5400 Professional, Scientific, and Technical Services

Big increases in office employment are projected for

5411 Legal Services

5412 Accounting Services

5413 Architectural, Engineering Services

5415 Computer Systems Design Services

5416 Management Consulting

Table 7, 6100 Private Education Services

The big increase in office employment is in 6112-3 Colleges and Universities.

Table 8, 6200 Health Care and Social Assistance

This huge sector is expected to grow rapidly, and providing office space will be a major component of office growth. All sectors show increases in office employment, especially

6211-13 Offices of Health Practitioners

6216 Home Health Care Services

6221 General Medical, Surgical Hospitals

6233 Community Care, Elderly

6241 Individual and Family Services

Table 9, 9900 Government

Growth of office occupations is concentrated in 92611 State Educational Services (i.e., state colleges and universities).

Table 1 also includes projections by major industry for the intermediate year 2009. These projections are based on the employment projections for 2009 provided by Moody's Economy.com (2006). Their projection is that 48.66 percent of the employment increase from 2004 to 2014 will have occurred by 2009. This percentage has been used to move the employment figures for 2004 forward to 2009. For example, employment in

22 Utilities is projected to decline from 570,000 in 2004 to 563,000 in 2014, so employment for 2009 is projected to be 566,600; 48.66 percent of the change takes place from 2004 to 2009.

Top Twenty-Three Metropolitan Areas in 2004

BLS provides employment data for the metropolitan areas for broad industry categories in Employment and Earnings. These broad industry categories, the NAICS industries included, and the percentage of office employment for 2004 and 2014 are:

| Broad Industry Category | NAICS Codes | Office | |
|---------------------------------------|------------------------|--------|--------|
| | | 2004 | 2014 |
| Construction, | 23 | .20075 | .19505 |
| Manufacturing, | 31-33 | .29337 | .29831 |
| Trade, Transportation, and Utilities, | 42, 44, 45, 48, 49, 22 | .32545 | .31365 |
| Information, | 51 | .67336 | .69332 |
| Financial Activities, | 52, 53 | .83346 | .82476 |
| Professional and Business Services, | 54, 55, 56 | .62300 | .61883 |
| Education and Health Services | 61, 62 | .50156 | .49408 |
| Leisure and Hospitality Services, | 71, 72 | .08887 | .08929 |
| Other Services, | 81 | .40913 | .40126 |
| Government | 99 | .43940 | .44052 |

Employment and Earnings does not include Self Employment, so an estimate of Self Employment was computed from the Current Population Survey of the Census Bureau for 2003. This source provided a percentage of total employment that was Self Employment for each of the twenty-three metropolitan areas. This percentage was applied to the figure for total employees from Employment and Earnings to estimate the

total number of self-employed persons, and then multiplied by 0.43786, the fraction of self-employed persons who were in office occupations in 2004.

The percentages of office employment for each of the 23 largest metropolitan areas are computed in Table 10 (listed in state alphabetic order). The following table is a summary of these results. The top 23 metropolitan areas are listed in order by size. Obviously New York is at the top of the list. Office employment in the New York metropolitan area (including Northeast New Jersey) is estimated to be 4.04 million. New York is also a leader in the percentage of total employment that is office-based employment (45.21 percent). Only Tampa has a (slightly) higher percentage of 45.46 percent. The percentage of office employment varies from a low of 40.71 percent in Houston to the 45.46 percent in Tampa. The average for the top twenty metropolitan areas is 42.64, which is greater than the national average of 41.51 percent.

These benchmark figures for 2004 can serve as a base for making projections of office employment for these metropolitan areas. The first step is to obtain employment projections for the metropolitan area for the broad employment categories listed above. Such projections are available from commercial services such as Moody's Economy.com, or they can be made using conventional methods starting with national employment projections. The idea is to base the projection on the metropolitan area's share of national employment in each broad employment category, with an adjustment for the change in the share that is likely to take place over the projection period. This change in share could be based on the change in share from the recent past, for example. The next step is to apply the percentages of office employment in each broad employment category, starting with the percentages listed above for 2004. An adjustment in these

percentages should be made based on the changes projected by BLS shown in the table below.

| | Total Employment (1000s) | Office Employment (1000s) | Percent Office: 2004 |
|---------------------|-------------------------------------|--------------------------------------|---------------------------------|
| New York | 8944 | 4044 | 45.21 |
| Los Angeles | 7636 | 3206 | 41.99 |
| Chicago | 4833 | 2013 | 41.66 |
| Washington, DC | 3049 | 1368 | 44.86 |
| Philadelphia | 2922 | 1282 | 43.87 |
| Dallas – Fort Worth | 2877 | 1210 | 42.07 |
| Boston | 2604 | 1143 | 43.90 |
| Houston | 2471 | 1006 | 40.71 |
| Miami | 2460 | 1059 | 43.04 |
| Atlanta | 2416 | 1030 | 42.64 |
| Detroit | 2182 | 918 | 42.07 |
| San Fran - Oakland | 2186 | 952 | 43.05 |
| Minn. – St. Paul | 1899 | 811 | 42.69 |
| Phoenix | 1771 | 731 | 41.28 |
| Seattle | 1735 | 732 | 42.18 |
| St. Louis | 1408 | 579 | 41.15 |
| Baltimore | 1355 | 578 | 42.65 |
| San Diego | 1394 | 584 | 41.87 |
| Tampa | 1351 | 614 | 45.46 |
| Denver | 1266 | 546 | 43.11 |
| Cincinnati | 1100 | 453 | 41.15 |
| Cleveland | 1136 | 480 | 42.24 |
| Pittsburgh | 1121 | 511 | 41.82 |
| Average | | | 42.64 |

Table 10 also includes an index of the extent to which each local economy specializes in particular industry groups. The index used is called the location quotient, and it equals employment in the industry as a percentage of total employment in a local economy divided by the same percentage for that industry of total non-agricultural employment in the nation. The national percentages for each industry group for the nation are:

| | |
|----------------------------------|--------|
| Construction | .04851 |
| Manufacturing | .09983 |
| Trade, Transportation, Utilities | .17771 |
| Information | .02186 |
| Financial Activities | .05609 |
| Professional & Business Services | .11435 |
| Education & Health Services | .11810 |
| Leisure & Hospitality Services | .08693 |
| Other Services | .03783 |
| Government | .15060 |
| Self Employment | .08453 |

For example, the location quotient for manufacturing in Phoenix is computed as follows. There were 132,000 employees in manufacturing in 2004 out of a total of 1,771,000 workers, for a ratio of 0.07453. The national employment ratio for manufacturing is 0.09983, so the location quotient for manufacturing in Phoenix is $0.07453/0.09983 = 0.7466$, as shown in Table 10.

The industries in which each metropolitan area concentrates are shown in the next table. Industries are listed if the location quotient equals 1.2 or more, which means that the industry at the local level employs 20 percent more workers than it would if it were at the national average. Many of these large urban areas specialize in the same industries. Twelve specialize in Financial Activities, 11 in Professional and Business Services, and 9 in Information. Also, six specialize in Education and Health Services, and six specialize in Construction. Only two of the top 23 urban areas in the nation specialize in Manufacturing (Detroit and Cleveland). Given that the urban areas vary considerably in the degree to which they specialize in particular industries, it is perhaps somewhat surprising that they do not vary a great deal in the percentage of office workers (as shown

| Metropolitan Area | Industries of Specialization |
|--------------------------|--|
| New York | Information, Financial Activities, Professional & Business Services Education & Health Services |
| Los Angeles | Information |
| Chicago | Financial Activities, Professional & Business Services, Leisure & Hospitality Services |
| Washington, DC | Construction, Information, Professional & Business Services, Other Services, Government |
| Philadelphia | Financial Activities, Education & Health Services |
| Dallas – Fort Worth | Information, Financial Activities |
| Boston | Information, Financial Activities, Professional & Business Services, Education & Health Services |
| Houston | Construction |
| Miami | Financial Activities, Professional & Business Services |
| Atlanta | Trade, Transportation, Utilities Information, Professional & Business Services |
| Detroit | Manufacturing, Other Services |

| Metropolitan Area | Industries of Specialization |
|--------------------------|---|
| San Francisco - Oakland | Information, Financial Activities, Professional & Business Services |
| Minneapolis – St. Paul | Financial Activities |
| Phoenix | Construction, Financial Activities, Professional & Business Services |
| Seattle | Information |
| St. Louis | Construction |
| Baltimore | Construction, Education & Health Services |
| San Diego | Construction, Professional & Business Services Leisure & Hospitality Services |
| Tampa | Financial Activities, Professional & Business Services |
| Denver | Construction, Information, Financial Activities, Professional & Business Services |
| Cincinnati | (none) |
| Cleveland | Manufacturing, Financial Activities, Education & Health Services |
| Pittsburgh | Education & Health Services, Other Services |

in the previous table). As noted above, the percentage of office workers for the urban areas varies from a high of 45.46 in Tampa and 45.21 in New York to a low of 40.71 in Houston and 41.15 in St. Louis.

A simple projection of office employment for metropolitan Chicago can be made using an employment projection provided by Moody's Economy.com (2006). Total employment in metropolitan Chicago is projected to increase by 5.97 percent from 2004 to 2009. Total employment in 2004 was 4,833,000, so total employment is projected to increase by 288,500. Office employment in metropolitan Chicago is 41.66 percent of

total employment, so if this fraction does not change, the increase in office employment is projected to be 120,000 over this five-year period. If each office worker requires 250 square feet of office space, then the demand for office space is projected to increase by 30 million square feet.

Reconciliation with CoStar Group Office Supply Data

This report has provided what we believe are improved methods for estimating and projecting office employment. However, are the estimates of office employment generated consistent with what is known about the supply of office space?

The most complete enumeration of the stock of office space is provided by the CoStar Group, and their data for metropolitan Chicago can be used to compare demand with supply. CoStar Group covers all classes and sizes of buildings used for offices; office buildings, office condominiums, office lofts, and office medical. They include both multi-tenant and single-tenant buildings, including owner-occupied (including government) buildings. The CoStar Group estimate of the stock of office space in the Chicago metropolitan area (excluding the portions in Indiana and Wisconsin) for the second quarter of 2004 is 355.0 million square feet. Of this total, 296.9 million square feet were occupied at that time.

CoStar Group also provides reports on the supply of industrial and warehouse space. Their estimate for metropolitan Chicago for the second quarter of 2004 is 908.9 million square feet of industrial space. Of this total 813.4 million square feet were occupied (89.5 percent). Industrial and warehouse buildings contain office space. A study of 419 industrial buildings in metropolitan Chicago by McDonald and Yurova

(2006) found that 15.5 percent of the space in these buildings is devoted to office space. If this figure is used, then the amount of office space in these buildings in metropolitan Chicago is estimated to be 140.9 million square feet in 2004. If the same occupancy rate is used (89.5 percent), then the industrial and warehouse buildings contained 126.1 million square feet of occupied office space at that time.

The total for occupied office space in office buildings and industrial buildings is estimated to be 423.0 million square feet for metropolitan Chicago in 2004. However, this figure leaves out office space located in other types of buildings, such as home offices and offices in retail establishments, hotels, apartment buildings, hospitals, and other types of commercial structures other than office buildings or industrial and warehouse buildings. Therefore the figure from CoStar Group of 423 million square feet is very much a lower-bound estimate of the total amount of office space in metropolitan Chicago. The estimate for office employment in metropolitan Chicago (with the same geographic boundaries) in Table 10 is 2,013,000. If each office worker requires 225 square feet of gross space, then the total demand for office space is estimated to be 453 million square feet. This preliminary estimate suggests that the estimate of office employment in this report is approximately consistent with the estimate of office space provided by CoStar Group.

The Demand for Office Space in Professional Reports

A survey of literature, as represented by current reports prepared by major commercial industry research groups, was undertaken to determine the approaches to office space demand that are used by the professionals.

The most thorough reports were provided by Equity Office (2006), which currently owns 585 office buildings in twenty major markets. These office buildings contain 108.5 million square feet. Equity Office forecasts net absorption in each of the twenty markets using an econometric model that relates net absorption to the change in office jobs, measured as the change in employment in two industry categories – Finance and Insurance and Professional and Business Services. The correlation between these two variables for the total of the 20 markets is 0.84. However, since 2002 Equity Office has adjusted its projection of office space absorption upwards by 10 percent to account for the expansion of small firms that are not included in the BLS establishment survey.

Equity Office provided data on their lease distribution by size. A summary of that distribution is as follows:

| Square feet | Percentage of Total Occupied Space |
|----------------|------------------------------------|
| 0 – 5000 | 13.0% |
| 5001-10,000 | 11.9% |
| 10,001-20,000 | 14.9% |
| 20,001-40,000 | 15.6% |
| 40,001-60,000 | 9.6% |
| 60,001-100,000 | 9.9% |
| Over 100,000 | 25.0% |

Over one-third (34.9 %) of the space leased by Equity Office is occupied by the largest tenants (over 60,000 square feet), but smaller tenants are a major factor as well. Tenants who occupy 10,000 square feet or less lease 24.9% of the Equity Office portfolio.

Equity Office also tracks their tenants' industries. Those industries, and their shares of the Equity Office leased space are as follows:

| Industry | | Share of Leased Space |
|----------|--|-----------------------|
| 5400 | Prof., scientific and technical services | 33.9% |
| 5200 | Finance and insurance | 27.0% |
| 5100 | Information | 7.9% |
| 310-330 | Manufacturing | 4.8% |
| 9900 | Government | 4.2% |
| 5300 | Real estate | 2.6% |
| 6200 | Health care and social assistance | 1.6% |
| Other | | 18.0% |

The two major industries are Professional, Scientific, and Technical Services (5400) and Finance and Insurance (5200), and these two occupy 60.9% of the Equity Office portfolio of leased space. However, 29.1% percent of the leased space is occupied by firms in other industries (including government). Note that Health Care and Social Assistance is only 1.6% of the Equity Office leased space. This small figure for Health Care and Social Assistance is due to the nature of the property characteristics and locations of the Equity Office portfolio, which consists primarily of large multi-tenant buildings in major markets. The average size of the office building owned by Equity Office is 185,000 square feet.

Data on tenants' industries were also obtained for the nation from CoStar Group, Inc. (2006). CoStar Group surveys office buildings of all types and sizes in 45 metropolitan areas. CoStar Group includes 33.6 billion square feet of office space in 1.2

million properties – an average of 28,000 square feet per property. A summary of the CoStar Group tenant survey is as follows:

| Industry | Share of Total Square Feet |
|---|----------------------------|
| Prof., technical, and business services | 26.1% |
| Finance, insurance, real estate | 23.7% |
| Other services | 13.0% |
| Manufacturing | 11.4% |
| Government | 5.5% |
| Medical | 4.3% |
| Other office demand | 16.0% |

These data confirm that the same two major industry groups Professional, Technical, and Business Services and Finance, Insurance, and Real Estate occupy the bulk (49.8%) of the office space covered by CoStar Group. But this means that half (50.2%) of the office space is occupied by firms (including government) that are not in these two industry groups. Consequently, the data from the Equity Office tenant rosters and the CoStar Group tenant survey strongly suggest that projections based on employment in these two major industry groups may not capture the demand for office space as well as a more comprehensive approach to demand estimation, such as the one outlined in this report.

The CoStar Group (2006) tenant survey also provided data on square feet per employee by industry category. These data refer to total leased square feet, including conference rooms, storage rooms, and so on. The highest average is for law firms at 383 square feet per employee, and the overall average is 280 square feet per employee.

Other professional reports surveyed provide only brief comments on the demand for office space. Transwestern and Delta Associates (2006) use total employment growth figures to explain office market demand. ULI-the Urban Land Institute and PricewaterhouseCoopers LLP (2006) recommend investing in office buildings in higher job growth markets, but note that corporations continue to reduce space per employee. They also note that outsourcing to offshore firms dampens demand. Principal Real Estate Investors, Real Estate Research Corporation, and CBRE/Torto Wheaton Research (2006) use the Torto-Wheaton approach to demand, which consists of tracking employment in the two major industry categories – Professional, Technical, and Business Services and Finance and Insurance. They warn that job growth may be slowing down, and note that several of the major metropolitan areas have yet to reach or surpass their prior employment peaks in these industries. Grubb and Ellis (2007) is now making forecasts of office markets, both at the national and metropolitan levels. Their forecasts are based on “office-related jobs,” which are defined as a sort of office-intensive industries. This very brief survey of professional reports also suggests that a more comprehensive approach to office market demand is useful.

Survey of Real Estate Experts

A survey was conducted of a small number of highly qualified real expert experts – generally the leading researcher in a national firm. The respondents are listed in the acknowledgements. This section presents the survey questionnaire and representative responses to each question.

Survey Questionnaire

The National Association of Realtors® is seeking to develop improved methods for analyzing and forecasting the demand for office space. We are seeking your views about factors to include in an improved method.

Trends have been uncovered using data from the U. S. Department of Labor, Bureau of Labor Statistics on occupations and industries. We wish to know whether you are seeing the same trends – and whether you are seeing other trends that are important.

1. Office occupations are diverse. Big *increases* are expected in
Health care
Management
Business and financial operations
Computer science (e.g., programmers, systems analysts)

Also, the largest office occupation category is Office Support Occupations (e.g., secretaries, administrative support, customer service representatives, clerks). However, this category is expected to grow at a relatively *slow* rate.

Are you seeing these trends?

Yes.

Yes, however it may slow in 2007.

Yes, but IT growth has been uneven.

Do you agree or disagree?

Agree.

What do you think are the reasons for the trends?

Strong corporate profits. Outsourcing to smaller professional services companies.

High/low growth rates reflect changes in the broader economy.

Aging baby boomers need health care. Outsourcing.

What other office occupations are growing rapidly?

Legal and legal support staff. Telecom workers.

Professional services.

Consensus: The respondents basically agree with the trends we have identified.

2. All industries employ office workers – not just Finance and Insurance and Professional and Business Services. The biggest employers of office workers are:
Government
Health Care
Professional Services (legal, accounting, architectural & engineering, computer

systems design, advertising, R&D, market research)
Finance and Insurance
Self Employment (in any occupation)

Do you agree?

Yes.

What other industries are big employers of office workers?

Educational services (e.g., for-profit schools).

Residential real estate (but slowing down) and business support industries.

Information-software industry.

Temporary labor agencies and political parties (during campaigns).

Is government a big part of the office rental market?

Yes, in Washington, DC and state capitals.

Yes, also in LA, New York, Dallas.

Yes, mostly as owner-occupant, but also rental.

What are you seeing in health care regarding demand for office space?

Yes, extremely strong – mostly in medical office buildings but also in multi-tenant general office buildings.

Yes, support space for medical payment processing and vendors of medical supplies.

Modest growth.

Health care is not a big driver of the multi-tenant office market.

Mixing of doctor's offices with corporate users is generally not a good idea because of the differences in the types of visitors to these offices.

Are self-employed office workers a big factor?

Not really, except in smaller properties (10 to 20,000 square feet).

My guess is no.

No.

A huge factor; about 80% of our in-place leases are under 5000 square feet.

Consensus: Respondents think that government is an important component of office demand, but is still largely confined to owner-occupied buildings. Health care does rent some space in the multi-tenant market, but is still mostly located in specialty buildings. Self-employed people use small offices, and are a factor in that market.

3. The largest *increases* in office employment are projected in these *industries*
Health care
Professional Services (legal, accounting, and so on, defined above)

Government

Business support [such as employment services (including temporary workers), support services for buildings and other facilities, security services, telephone call centers, collection agencies, investigation agencies]

Education (private colleges, training programs)

Finance and Insurance

Information (e.g., publishing, telecommunications, internet services, broadcasting)

Do you agree with this assessment, or disagree?

Yes.

What other industries should be watched?

Mining and construction.

Computer/telecom/electronics and security services.

Biotech

Private equity firms driving up rents in markets such as New York.

Consensus: Respondents basically agree with our projections. Our more detailed projections include the additional industries that were mentioned.

4. Real estate professionals have noticed a phenomenon they call “ghost” office workers – workers who are employed by a variety of firms (or are self employed), but who actually work in the offices of other firms. For example, a firm may hire a consultant to work on computer technology, and that person will be housed in the firm’s office space – but will not be on the firm’s own payroll.

Are you seeing this trend?

Yes.

Hard to measure, only in certain industries.

Firms will use consultants and temporary workers as they expand.

Shortage of talent will continue this trend.

Is it a sizable factor?

No, not in the big picture.

No.

About 5% to 10% of office space is allocated to “ghost” employees.

Yes.

In what occupations and/or industries are you seeing this trend?

Information technology consulting.

Office support and training for large companies.

Management consulting and real estate.

Accounting, marketing, IT, office services.

Consensus: Respondents do not see that “ghost” employees are a huge factor, but they exist as, for example, IT consultants, trainers, and management consultants.

5. Now we wish to turn to office square foot standards. Our estimate is typical office space is 175 to 225 square feet per employee.

What is the typical square footage for an office worker in your area? How does it vary by the person’s occupation (e.g., support staff versus manager, and so on)?

Legal is 400 square feet, but the average is about 150 square feet.

Our estimate is 215 to 230 square feet.

On average, 150 square feet. It varies a lot. Law firms have the greatest square feet per employee. Managers have more space. Support staff are located in cubicles.

More like 225 than 175.

Have the standards for office space been changing?

Yes.

If so, how have they been changing?

The average is getting smaller. Cubicles and open office arrangements are more popular and acceptable than they used to be.

Better lighting, air quality and privacy.

Tenants need efficient space with ability to handle new technologies. Also, they desire flexible lease terms or are willing to pay a premium for short-term leases of 12 months or less.

With rents currently favorable for tenants, some companies are signing up for future expansion space that they intend to occupy within the next few years, but for now is vacant.

Is the “paperless” office becoming a reality, so that office workers require less space? Or is this really not happening?

Yes, but it is happening more slowly than some have predicted.

No, there is as much paper as ever.

Paper consumption is up, requiring more office space.

Electronic files are replacing storage space for paper, although legal documents still require paper documentation.

Not really, it will probably take another generation for it really to materialize.

Yes, many offices are adopting alternatives to the traditional office, allowing workers to work at home. Work stations are shared. Common areas are changing; accommodating more informal meetings and video conferences.

Consensus: Office space varies, but our average figure is reasonable. Standards for office space require greater efficiency and flexibility, and tenants are willing to pay for these features. The “paperless” office is not a reality, and change is coming more slowly than some had predicted.

6. Changes in technology are affecting the office-using sector, reducing the need for office space and support staff. For example, large libraries of documents (e.g., law libraries) partly can be replaced by access to electronic data bases. What do you think is the importance of these changes? What is the future likely to be in this regard?

We’re about 50% to 75% of the way there, so there will continue to be an impact.

This will continue to happen, but conversion will be slower than expected (by some).

With fewer support staff and more higher-level staff, the demand for office space increases.

Administrative support people now work with 20 or more employees, and libraries are becoming a thing of the past.

People are still using hard copies, so it will take a while for this trend to materialize.

Law libraries are declining, but law offices are getting bigger, and seeking trophy buildings.

Consensus: Decline in support staff clearly is happening, but the extent to which technology reduces the demand for space varies from very little to a large amount (i.e., no consensus).

7. From your perspective, what have we not discussed that is really important to know about the demand for office space?

Nothing I can think of. This is a great project that will benefit the industry in a big way.

New construction is on the rise in certain markets, and may begin to outpace demand (again). Excess supply and low rents mean that tenants will lease more space than otherwise.

Continued shift to a service economy means that the demand for office space will outpace overall employment growth.

Office demand continues to grow around the world because of employment growth. Supply of capital will spur new office development.

Consensus: Demand for office space continues to grow, and we like your project.

Conclusions and Suggestions for Further Research

This report develops a method for analyzing the demand for office space that is based on the occupations that take place in offices, in contrast to the standard method of beginning with a short list of key industries. This short list usually is specified as Professional, Scientific, and Technical Services and Finance and Insurance. The report documents the fact that this standard method captures only about one-half of office employment. Our estimate is that 41.5 percent of total employment in the nation takes place in offices.

The report provides national data for the base year of 2004, as well as projections for 2009 and 2014, for office employment by occupation and by industry. These projections indicate that future demand for office space will be driven by Health Care and Social Assistance, Government, and other industries in addition to Professional, Scientific, and Technical Services and Finance and Insurance.

The report also contains estimates for the base year 2004 of office employment by industry for the 23 largest metropolitan areas.

Additional research that can follow from this project perhaps falls into seven categories:

- Tests to determine whether the expanded enumeration of the demand for office space based on occupations provides a higher level of explanatory power (compared to standard demand models) for office space absorption, vacancy rates, rents, and office space development.
- Use of the baseline data for the year 2004 for the major metropolitan areas to develop forecasts of office space demand for those metropolitan areas.

- Research to determine whether marketing efforts by the multi-tenant commercial office industry to a wider range of potential tenants would be effective.
- Research to determine if office space design is, or should be, tailored to firms in industries other than Professional, Scientific, and Technical Services and Finance and Insurance.
- More systematic investigation of office space requirements by type of employee and by industry.
- Research on the impact of changes in technology on the demand for office space.
- Research of comparable nature (based on occupations) on the demand for industrial real estate.

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Table 3 5100 Information

Table 4 5200 Finance and Insurance

Table 5 5300 Real Estate and Rental and Leasing

Table 6 5400 Professional, Scientific, and Technical Services
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Table 10 Phoenix Office Employment, 2004
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Table 1

Total Employment in the United States (1000s)

| Code | Industry | 2004 | | | 2009 | | | 2014 | | |
|-------|-----------------------|--------------------|--------|-------------|--------------------|--------|-------------|--------------------|--------|-------------|
| | | Total | Office | Percent | Total | Office | Percent | Total | Office | Percent |
| 11 | Agriculture | 1081 | 283 | 0.261794635 | 1054 | 282 | 0.267552182 | 1025 | 280 | 0.273170732 |
| 21 | Mining | 523 | 152 | 0.290630975 | 501 | 145 | 0.289421158 | 477 | 137 | 0.28721174 |
| 22 | Utilities | 570 | 285 | 0.5 | 567 | 280 | 0.49382716 | 563 | 274 | 0.486678508 |
| 23 | Construction | 6964 | 1398 | 0.200746697 | 7350 | 1454 | 0.197823129 | 7757 | 1513 | 0.195049633 |
| 31-33 | Manufacturing | 14330 | 4204 | 0.293370551 | 13952 | 4126 | 0.295728211 | 13553 | 4043 | 0.298310337 |
| 42 | Wholesale | 5655 | 3326 | 0.588152078 | 5887 | 3401 | 0.577713606 | 6131 | 3480 | 0.567607242 |
| 44-45 | Retail | 15034 | 3543 | 0.235665824 | 15836 | 3686 | 0.232760798 | 16683 | 3836 | 0.229934664 |
| 48-49 | Transp, Wareh'se | 4250 | 1148 | 0.270117647 | 4496 | 1190 | 0.264679715 | 4756 | 1234 | 0.259461733 |
| 51 | Information | 3138 | 2113 | 0.673358827 | 3315 | 2266 | 0.683559578 | 3502 | 2428 | 0.693318104 |
| 52 | Finance, Insurance | 5966 | 5747 | 0.963291988 | 6207 | 5980 | 0.963428387 | 6462 | 6226 | 0.963478799 |
| 53 | Real est., leasing | 2086 | 964 | 0.462128476 | 2258 | 1038 | 0.459698849 | 2440 | 1116 | 0.457377049 |
| 54 | Professional serv | 6762 | 6015 | 0.889529725 | 7697 | 6852 | 0.890216968 | 8684 | 7736 | 0.890833717 |
| 55 | Management | 1718 | 1441 | 0.838766007 | 1807 | 1515 | 0.838406198 | 1900 | 1593 | 0.838421053 |
| 56 | Admin & support | 7934 | 2770 | 0.349130325 | 9132 | 3200 | 0.350416119 | 10396 | 3654 | 0.351481339 |
| 61 | Educational serv | 2766 | 1564 | 0.565437455 | 3203 | 1814 | 0.566344052 | 3664 | 2078 | 0.567139738 |
| 62 | Health & social ass't | 14187 | 6939 | 0.489109748 | 16277 | 7876 | 0.48387295 | 18482 | 8864 | 0.479601775 |
| 71 | Arts, entertainment | 1833 | 320 | 0.174577196 | 2057 | 355 | 0.172581429 | 2293 | 391 | 0.170518971 |
| 72 | Accomm & food serv | 10646 | 789 | 0.074112343 | 11500 | 853 | 0.074173913 | 12401 | 921 | 0.074268204 |
| 81 | Other services | 5431 | 2222 | 0.409132756 | 5802 | 2350 | 0.405032747 | 6193 | 2485 | 0.401259487 |
| 99 | Government | 21618 | 9499 | 0.43940235 | 22675 | 9976 | 0.439955899 | 23790 | 10480 | 0.440521227 |
| 67 | Self employment | 12134 | 5313 | 0.437860557 | 12286 | 5320 | 0.439955899 | 12446 | 5328 | 0.428089346 |
| | Total | 144626 | 60035 | 0.415105168 | 153859 | 63959 | 0.415698789 | 163598 | 68097 | 0.41624592 |
| | Growth | 2004-09 | | | 2009-14 | | | 2004-14 | | |
| | Total | 0.063840527 | | | 0.063298215 | | | 0.131179733 | | |
| | Office | 0.065361872 | | | 0.064697697 | | | 0.134288332 | | |

Table 2

| | | Employment (1000s) | | | 2014 | | |
|------|---------------------------------|--------------------|---------------|----------------|--------------|---------------|----------------|
| | | <u>Total</u> | <u>Office</u> | <u>Percent</u> | <u>Total</u> | <u>Office</u> | <u>Percent</u> |
| 4200 | Wholesale trade | 5651 | 3325 | 0.588391 | 6131 | 3478 | 0.567281 |
| 4230 | Wholesalers, durable goods | 2949 | 1823 | 0.618176 | 3268 | 1881 | 0.575581 |
| 4231 | Motor vehicles & parts | 340 | 138 | 0.405882 | 379 | 152 | 0.401055 |
| 4232 | Furniture | 110 | 67 | 0.609091 | 117 | 68 | 0.581197 |
| 4233 | Lumber | 240 | 107 | 0.445833 | 269 | 119 | 0.442379 |
| 4234 | Prof & comm. Equipment | 643 | 462 | 0.718507 | 746 | 540 | 0.723861 |
| 4235 | Metal & mineral | 121 | 55 | 0.454545 | 130 | 58 | 0.446154 |
| 4236 | Electrical & electronic | 340 | 240 | 0.705882 | 395 | 279 | 0.706329 |
| 4237 | Hardware, plumbing, heating | 234 | 141 | 0.602564 | 259 | 155 | 0.598456 |
| 4238 | Machinery & equipment | 652 | 343 | 0.526074 | 676 | 362 | 0.535503 |
| 4239 | Misc durable goods | 268 | 134 | 0.5 | 298 | 148 | 0.496644 |
| 4240 | Wholesalers, nondurable goods | 2007 | 1026 | 0.511211 | 2077 | 1061 | 0.510833 |
| 4241 | Paper & paper products | 150 | 98 | 0.653333 | 156 | 100 | 0.641026 |
| 4242 | Drugs & sundries | 219 | 166 | 0.757991 | 254 | 190 | 0.748031 |
| 4243 | Apparel, et al. | 146 | 94 | 0.643836 | 144 | 93 | 0.645833 |
| 4244 | Grocery | 688 | 273 | 0.396802 | 722 | 282 | 0.390582 |
| 4245 | Farm product raw material | 72 | 26 | 0.361111 | 54 | 18 | 0.333333 |
| 4246 | Chemical & allied products | 132 | 73 | 0.55303 | 146 | 80 | 0.547945 |
| 4247 | Petroleum & petrol products | 101 | 40 | 0.39604 | 70 | 27 | 0.385714 |
| 4248 | Beer, wine, alcoholic beverages | 143 | 71 | 0.496503 | 153 | 76 | 0.496732 |
| 4249 | Misc nondurable goods | 357 | 186 | 0.521008 | 378 | 194 | 0.513228 |
| 4250 | Wholesale electronic markets | 699 | 476 | 0.680973 | 785 | 536 | 0.682803 |
| 4251 | Wholesale electronic markets | 699 | 476 | 0.680973 | 785 | 536 | 0.682803 |

Table 3

| 5100 Information | Employment (1000s) | | | 2004 | | | 2014 | | |
|---------------------------------------|--------------------|--------|----------|-------|--------|----------|-------|--------|---------|
| | Total | Office | Percent | Total | Office | Percent | Total | Office | Percent |
| 5100 | 3138 | 2113 | 0.673359 | 3502 | 2428 | 0.693318 | | | |
| 5110 Publishing | 910 | 685 | 0.752747 | 1115 | 877 | 0.786547 | | | |
| 5111 Newspapers, books | 671 | 459 | 0.684054 | 715 | 496 | 0.693706 | | | |
| 5112 Software | 239 | 226 | 0.945607 | 400 | 380 | 0.95 | | | |
| 5120 Motion picture, video, sound | 389 | 98 | 0.251928 | 451 | 116 | 0.257206 | | | |
| 5121 Motion picture, video | 368 | 86 | 0.233696 | 430 | 104 | 0.24186 | | | |
| 5122 Sound recording | 21 | 12 | 0.571429 | 21 | 12 | 0.571429 | | | |
| 5150 Broadcasting | 327 | 220 | 0.672783 | 461 | 211 | 0.457701 | | | |
| 5151 Radio and TV | 241 | 169 | 0.701245 | 236 | 136 | 0.576271 | | | |
| 5152 Cable | 86 | 51 | 0.593023 | 125 | 75 | 0.6 | | | |
| 5160 Internet publ. & broadcast. | 31 | 30 | 0.967742 | 45 | 42 | 0.933333 | | | |
| 5161 Internet publ. & broadcast. | 31 | 30 | 0.967742 | 45 | 42 | 0.933333 | | | |
| 5170 Telecommunications | 1043 | 666 | 0.638543 | 975 | 623 | 0.638974 | | | |
| 5171 Wired telecom. Carriers | 548 | 348 | 0.635036 | 380 | 243 | 0.639474 | | | |
| 5172 Wireless | 189 | 149 | 0.78836 | 247 | 196 | 0.793522 | | | |
| 5173 Telecomm. Resellers | 150 | 98 | 0.653333 | 143 | 93 | 0.65035 | | | |
| 5175 Cable program distrib. | 130 | 71 | 0.546154 | 166 | 90 | 0.542169 | | | |
| 5180 Internet service providers, etc. | 388 | 367 | 0.945876 | 496 | 471 | 0.949597 | | | |
| 5181 Internet service providers | 118 | 109 | 0.923729 | 136 | 128 | 0.941176 | | | |
| 5182 Data process., hosting | 270 | 257 | 0.951852 | 360 | 343 | 0.952778 | | | |
| 5190 Other information serv. | 51 | 32 | 0.627451 | 59 | 31 | 0.525424 | | | |
| 5191 Other information serv. | 51 | 32 | 0.627451 | 59 | 31 | 0.525424 | | | |

Table 4

| 5200 Finance and Insurance | | Employment (1000s) | | | 2014 | | |
|----------------------------|------------------------------|--------------------|---------------|----------------|--------------|---------------|----------------|
| | | <u>Total</u> | <u>Office</u> | <u>Percent</u> | <u>Total</u> | <u>Office</u> | <u>Percent</u> |
| 5200 | | 5966 | 5747 | 0.963292 | 6462 | 6226 | 0.963479 |
| 5210 | Monetary authorities | 22 | 19 | 0.863636 | 20 | 17 | 0.85 |
| 5211 | Monetary authorities | 22 | 19 | 0.863636 | 20 | 17 | 0.85 |
| 5220 | Credit intermediation | 2832 | 2708 | 0.956215 | 2986 | 2853 | 0.955459 |
| 5221 | Depository credit int | 1761 | 1728 | 0.981261 | 1732 | 1700 | 0.981524 |
| 5222 | Nondepository credit int | 768 | 699 | 0.910156 | 877 | 801 | 0.913341 |
| 5223 | Activities related to cr int | 303 | 281 | 0.927393 | 377 | 351 | 0.931034 |
| 5230 | Securities, investments | 767 | 745 | 0.971317 | 888 | 863 | 0.971847 |
| 5240 | Insurance | 2260 | 2193 | 0.970354 | 2476 | 2404 | 0.970921 |
| 5241 | Insurance carriers | 1403 | 1360 | 0.969351 | 1452 | 1407 | 0.969008 |
| 5242 | Agencies, brokerages | 857 | 834 | 0.973162 | 1024 | 996 | 0.972656 |
| 5250 | Funds, trusts | 85 | 80 | 0.941176 | 93 | 88 | 0.946237 |
| 5251 | Insurance, empl benefit | 46 | 44 | 0.956522 | 51 | 49 | 0.960784 |
| 5259 | Other investment pools | 38 | 36 | 0.947368 | 42 | 40 | 0.952381 |

Table 5

| | Employment (1000s) | | | | | |
|---|--------------------|---------------|----------------|--------------|---------------|----------------|
| | 2004 | | | 2014 | | |
| | <u>Total</u> | <u>Office</u> | <u>Percent</u> | <u>Total</u> | <u>Office</u> | <u>Percent</u> |
| 5300 Real estate and rental and leasing | 2086 | 964 | 0.462128 | 2440 | 1116 | 0.457377 |
| 5310 Real estate | 1417 | 793 | 0.559633 | 1675 | 926 | 0.552836 |
| 5311 Lessors of real estate | 601 | 240 | 0.399334 | 690 | 274 | 0.397101 |
| 5312 Agents and brokers | 332 | 268 | 0.807229 | 345 | 276 | 0.8 |
| 5313 Activities related to re | 485 | 285 | 0.587629 | 640 | 376 | 0.5875 |
| 5320 Rental & leasing serv | 644 | 147 | 0.228261 | 737 | 165 | 0.223881 |
| 5321 Auto, equipment rental | 198 | 42 | 0.212121 | 230 | 48 | 0.208696 |
| 5322 Consumer goods rental | 281 | 53 | 0.188612 | 311 | 57 | 0.18328 |
| 5323 General rental centers | 60 | 15 | 0.25 | 67 | 16 | 0.238806 |
| 5324 Commercial, indust equip rental | 105 | 37 | 0.352381 | 129 | 44 | 0.341085 |
| 5330 Lessors of intangible assets | 25 | 21 | 0.84 | 28 | 23 | 0.821429 |
| 5331 Lessors of intangible assets | 25 | 21 | 0.84 | 28 | 23 | 0.821429 |

Table 6

| | | Employment (1000s) | | | 2014 | | |
|--|----------------------------|--------------------|---------------|----------------|--------------|---------------|----------------|
| | | <u>Total</u> | <u>Office</u> | <u>Percent</u> | <u>Total</u> | <u>Office</u> | <u>Percent</u> |
| 5400 Professional, scientific, and technical services | | | | | | | |
| 5400 | | 6762 | 6015 | 0.88953 | 8684 | 7736 | 0.890834 |
| 5410 | | 6762 | 6015 | 0.88953 | 8684 | 7736 | 0.890834 |
| 5411 | Legal services | 1162 | 1148 | 0.987952 | 1340 | 1323 | 0.987313 |
| 5412 | Accounting services | 816 | 761 | 0.932598 | 1100 | 1026 | 0.932727 |
| 5413 | Architectural, engineering | 1261 | 1134 | 0.899286 | 1460 | 1313 | 0.899315 |
| 5414 | Specialized design serv | 121 | 93 | 0.768595 | 155 | 119 | 0.767742 |
| 5415 | Computer systems serv | 1147 | 1091 | 0.951177 | 1600 | 1526 | 0.95375 |
| 5416 | Mgmt, consulting serv | 779 | 682 | 0.875481 | 1250 | 1098 | 0.8784 |
| 5417 | Scientific research serv | 548 | 488 | 0.890511 | 613 | 549 | 0.895595 |
| 5418 | Advertising | 425 | 330 | 0.776471 | 520 | 404 | 0.776923 |
| 5419 | Other | 503 | 286 | 0.568588 | 646 | 375 | 0.580495 |
| 5500 Management of companies and enterprises | | | | | | | |
| | | <u>Total</u> | <u>Office</u> | <u>Percent</u> | <u>Total</u> | <u>Office</u> | <u>Percent</u> |
| 5500 | | 1718 | 1441 | 0.838766 | 1900 | 1593 | 0.838421 |
| 5511 | | 1718 | 1441 | 0.838766 | 1900 | 1593 | 0.838421 |
| 0067 Self employed | | | | | | | |
| | | <u>Total</u> | <u>Office</u> | <u>Percent</u> | <u>Total</u> | <u>Office</u> | <u>Percent</u> |
| 0067 | | 12134 | 5304 | 0.437119 | 12446 | 5319 | 0.427366 |

Table 7

| | Employment (1000s) | | | 2014 | | |
|---------|--------------------|---------------|----------------|--------------|---------------|----------------|
| | <u>Total</u> | <u>Office</u> | <u>Percent</u> | <u>Total</u> | <u>Office</u> | <u>Percent</u> |
| 6200 | 14187 | 6938 | 0.489039 | 18482 | 8864 | 0.479602 |
| 6210 | 4946 | 2896 | 0.585524 | 7031 | 3922 | 0.557815 |
| 6211-13 | 3337 | 2144 | 0.642493 | 4561 | 2825 | 0.619382 |
| 6214 | 446 | 319 | 0.715247 | 643 | 459 | 0.713841 |
| 6215 | 189 | 102 | 0.539683 | 240 | 122 | 0.508333 |
| 6216 | 773 | 265 | 0.34282 | 1310 | 426 | 0.325191 |
| 6219 | 201 | 66 | 0.328358 | 277 | 90 | 0.32491 |
| 6220 | 4294 | 2573 | 0.599208 | 4982 | 3011 | 0.604376 |
| 6221 | 4051 | 2426 | 0.598864 | 4699 | 2838 | 0.603958 |
| 6222 | 92 | 53 | 0.576087 | 78 | 44 | 0.564103 |
| 6223 | 150 | 94 | 0.626667 | 205 | 129 | 0.629268 |
| 6230 | 2815 | 672 | 0.238721 | 3597 | 880 | 0.244648 |
| 6231 | 1575 | 308 | 0.195556 | 1756 | 356 | 0.202733 |
| 6232 | 491 | 189 | 0.384929 | 727 | 276 | 0.379642 |
| 6233 | 583 | 103 | 0.176672 | 902 | 159 | 0.176275 |
| 6239 | 166 | 72 | 0.433735 | 211 | 89 | 0.416114 |
| 6240 | 2132 | 811 | 0.380394 | 2872 | 1064 | 0.370474 |
| 6241 | 853 | 437 | 0.512309 | 1160 | 584 | 0.503448 |
| 6242 | 131 | 88 | 0.671756 | 160 | 108 | 0.675 |
| 6243 | 381 | 184 | 0.48294 | 490 | 236 | 0.481633 |
| 6244 | 767 | 102 | 0.132986 | 1062 | 136 | 0.12806 |

Table 8

| | | Employment (1000s) | | | | | |
|--------|--------------------------------|--------------------|---------------|----------------|--------------|---------------|----------------|
| | | 2004 | | | 2014 | | |
| | | <u>Total</u> | <u>Office</u> | <u>Percent</u> | <u>Total</u> | <u>Office</u> | <u>Percent</u> |
| 9900 | | 21618 | 9499 | 0.439402 | 23790 | 10480 | 0.440521 |
| 919999 | Federal (excl. postal service) | 1943 | 1428 | 0.734946 | 1993 | 1453 | 0.729052 |
| 9200 | State government | 4985 | 3473 | 0.69669 | 5534 | 4133 | 0.746838 |
| 92611 | State education serv | 2249 | 1717 | 0.76345 | 2691 | 2306 | 0.856931 |
| 92622 | State gov't hospitals | 350 | 191 | 0.545714 | 326 | 181 | 0.555215 |
| 9292 | Other state gov't | 2386 | 1565 | 0.655909 | 2517 | 1646 | 0.653953 |
| 9300 | Local government | 13906 | 3889 | 0.279663 | 15485 | 4191 | 0.270649 |
| 93611 | Local education serv | 7763 | 1310 | 0.168749 | 8546 | 1347 | 0.157618 |
| 93622 | Local gov't hospitals | 657 | 373 | 0.567732 | 690 | 397 | 0.575362 |
| 9393 | Other local gov't | 5486 | 2206 | 0.402114 | 6249 | 2447 | 0.391583 |

Table 9

| | | Employment (1000s) | | | | | |
|--------|-------------------------------|--------------------|---------------|--------------|---------------|----------------|----------------|
| | | 2004 | | 2014 | | | |
| | | <u>Total</u> | <u>Office</u> | <u>Total</u> | <u>Office</u> | <u>Percent</u> | <u>Percent</u> |
| 6100 | | 2766 | 1564 | 3664 | 2078 | 0.565437 | 0.56714 |
| 6110 | | 2766 | 1564 | 3664 | 2078 | 0.565437 | 0.56714 |
| 6111 | Elementary, secondary schools | 829 | 160 | 1050 | 192 | 0.193004 | 0.182857 |
| 6112-3 | Colleges, universities | 1462 | 1169 | 1965 | 1576 | 0.79959 | 0.802036 |
| 6114-7 | Other educational services | 475 | 233 | 650 | 310 | 0.490526 | 0.476923 |

Table 10

Phoenix

Office Employment, 2004 (1000s)

| | <u>Total</u> | <u>Office</u> | <u>Percent</u> | <u>Location Quotient</u> |
|----------------------------------|--------------|---------------|----------------|--------------------------|
| Total Employees | 1660 | 682 | 0.410843 | |
| Construction | 141 | 40.97883 | | 1.641239 |
| Manufacturing | 132 | 26.499 | | 0.746615 |
| Trade, Transportation, Utilities | 338 | 99.15906 | | 1.073962 |
| Information | 36 | 11.71634 | | 0.9299 |
| Financial Activities | 138 | 115.0171 | | 1.389241 |
| Professional & Business Services | 272 | 169.456 | | 1.343126 |
| Education & Health Services | 173 | 88.32775 | | 0.827142 |
| Leisure & Hospitality Services | 159 | 14.13033 | | 1.032789 |
| Other Services | 64 | 26.18451 | | 0.955273 |
| Government | 206 | 90.5164 | | 0.772371 |
| Self Employment | 111.9898 | 49.03583 | | 69.72906 |
| Total Workers | 1770.99 | 731.0212 | 0.412776 | |

Los Angeles

Office Employment, 2004 (1000s)

| | <u>Total</u> | <u>Office</u> | <u>Percent</u> | <u>Location Quotient</u> |
|----------------------------------|--------------|---------------|----------------|--------------------------|
| Total Employees | 6915 | 2887 | 0.417498 | |
| Construction | 361 | 72.47075 | | 0.974618 |
| Manufacturing | 833 | 244.3772 | | 1.092804 |
| Trade, Transportation, Utilities | 1345 | 437.7356 | | 0.991217 |
| Information | 259 | 174.4002 | | 1.551701 |
| Financial Activities | 444 | 370.0562 | | 1.036707 |
| Professional & Business Services | 983 | 612.409 | | 1.125838 |
| Education & Health Services | 740 | 371.1544 | | 0.820616 |
| Leisure & Hospitality Services | 689 | 61.23143 | | 1.038025 |
| Other Services | 244 | 99.82772 | | 0.844718 |
| Government | 1010 | 443.794 | | 0.878324 |
| Self Employment | 727.5729 | 318.5751 | | 1.12726 |
| Total Workers | 7635.573 | 3206.032 | 0.419881 | |

San Diego**Office Employment, 2004 (1000s)**

| | <u>Total</u> | <u>Office</u> | <u>Percent</u> | <u>Location Quotient</u> |
|----------------------------------|--------------|---------------|----------------|------------------------------|
| Total Employees | 1269 | 529 | 0.416864 | |
| Construction | 88 | 17.666 | | 1.301148 |
| Manufacturing | 105 | 30.80385 | | 0.754403 |
| Trade, Transportation, Utilities | 214 | 69.64716 | | 0.863728 |
| Information | 36 | 24.24096 | | 1.181211 |
| Financial Activities | 82 | 68.34372 | | 1.048585 |
| Professional & Business Services | 205 | 127.715 | | 1.285858 |
| Education & Health Services | 123 | 61.69188 | | 0.747017 |
| Leisure & Hospitality Services | 150 | 13.3305 | | 1.237647 |
| Other Services | 48 | 19.63824 | | 0.910081 |
| Government | 218 | 95.7892 | | 1.038261 |
| Self Employment | 125.1991 | 54.81967 | | 1.062345 |
| Total Workers | 1394.199 | 583.6862 | 0.418653 | |

San Francisco-Oakland**Office Employment, 2004 (1000s)**

| | <u>Total</u> | <u>Office</u> | <u>Percent</u> | <u>Location Quotient</u> |
|----------------------------------|--------------|---------------|----------------|------------------------------|
| Total Employees | 1969 | 856 | 0.434738 | |
| Construction | 112 | 22.484 | | 1.056415 |
| Manufacturing | 144 | 42.24528 | | 0.660008 |
| Trade, Transportation, Utilities | 357 | 116.1871 | | 0.919187 |
| Information | 75 | 50.502 | | 1.569852 |
| Financial Activities | 155 | 129.1863 | | 1.264428 |
| Professional & Business Services | 323 | 201.229 | | 1.292451 |
| Education & Health Services | 217 | 108.8385 | | 0.840732 |
| Leisure & Hospitality Services | 197 | 17.50739 | | 1.036918 |
| Other Services | 74 | 30.27562 | | 0.895041 |
| Government | 312 | 137.0928 | | 0.947932 |
| Self Employment | 219.5073 | 96.11346 | | 1.18819 |
| Total Workers | 2185.507 | 951.6614 | 0.435442 | |

Denver**Office Employment, 2004 (1000s)**

| | <u>Total</u> | <u>Office</u> | <u>Percent</u> | <u>Location Quotient</u> |
|----------------------------------|--------------|---------------|----------------|--------------------------|
| Total Employees | 1180 | 508 | 0.430508 | |
| Construction | 88 | 17.666 | | 1.43326 |
| Manufacturing | 72 | 21.12264 | | 0.56983 |
| Trade, Transportation, Utilities | 233 | 75.83078 | | 1.0359 |
| Information | 52 | 35.01472 | | 1.879433 |
| Financial Activities | 99 | 82.51254 | | 1.394516 |
| Professional & Business Services | 186 | 115.878 | | 1.28514 |
| Education & Health Services | 116 | 58.18096 | | 0.776036 |
| Leisure & Hospitality Services | 124 | 11.01988 | | 1.127005 |
| Other Services | 45 | 18.41085 | | 0.939831 |
| Government | 165 | 72.501 | | 0.865631 |
| Self Employment | 85.68701 | 37.51891 | | 0.800899 |
| Total Workers | 1265.687 | 545.6563 | 0.431115 | |

Washington, DC**Office Employment, 2004 (1000s)**

| | <u>Total</u> | <u>Office</u> | <u>Percent</u> | <u>Location Quotient</u> |
|----------------------------------|--------------|---------------|----------------|--------------------------|
| Total Employees | 2877 | 1292 | 0.449079 | |
| Construction | 180 | 36.135 | | 1.21715 |
| Manufacturing | 66 | 19.36242 | | 0.216863 |
| Trade, Transportation, Utilities | 402 | 130.8325 | | 0.742022 |
| Information | 109 | 73.39624 | | 1.635607 |
| Financial Activities | 158 | 131.6867 | | 0.924005 |
| Professional & Business Services | 619 | 385.637 | | 1.775649 |
| Education & Health Services | 299 | 149.9664 | | 0.83047 |
| Leisure & Hospitality Services | 252 | 22.39524 | | 0.950897 |
| Other Services | 166 | 67.91558 | | 1.439377 |
| Government | 624 | 274.1856 | | 1.359134 |
| Self Employment | 173.5779 | 76.00281 | | 0.673575 |
| Total Workers | 3048.578 | 1367.516 | 0.448575 | |

Miami**Office Employment, 2004 (1000s)**

| | <u>Total</u> | <u>Office</u> | <u>Percent</u> | <u>Location Quotient</u> |
|----------------------------------|--------------|---------------|----------------|------------------------------|
| Total Employees | 2291 | 985 | 0.429943 | |
| Construction | 128 | 25.696 | | 1.072638 |
| Manufacturing | 102 | 29.92374 | | 0.415349 |
| Trade, Transportation, Utilities | 511 | 166.307 | | 1.168916 |
| Information | 58 | 39.05488 | | 1.07858 |
| Financial Activities | 170 | 141.6882 | | 1.232077 |
| Professional & Business Services | 381 | 237.363 | | 1.354451 |
| Education & Health Services | 292 | 146.4555 | | 1.005096 |
| Leisure & Hospitality Services | 239 | 21.23993 | | 1.117642 |
| Other Services | 99 | 40.50387 | | 1.063833 |
| Government | 312 | 137.0928 | | 0.842178 |
| Self Employment | 167.946 | 73.53684 | | 0.807669 |
| Total Workers | 2459.946 | 1058.862 | 0.430441 | |

Tampa**Office Employment, 2004 (1000s)**

| | <u>Total</u> | <u>Office</u> | <u>Percent</u> | <u>Location Quotient</u> |
|----------------------------------|--------------|---------------|----------------|------------------------------|
| Total Employees | 1267 | 578 | 0.456196 | |
| Construction | 72 | 14.454 | | 1.098243 |
| Manufacturing | 73 | 21.41601 | | 0.541077 |
| Trade, Transportation, Utilities | 221 | 71.92445 | | 0.920191 |
| Information | 33 | 22.22088 | | 1.11702 |
| Financial Activities | 95 | 79.1787 | | 1.253244 |
| Professional & Business Services | 327 | 203.721 | | 2.115967 |
| Education & Health Services | 148 | 74.23088 | | 0.582197 |
| Leisure & Hospitality Services | 112 | 9.95344 | | 0.953335 |
| Other Services | 49 | 20.04737 | | 0.958423 |
| Government | 138 | 60.6372 | | 0.678034 |
| Self Employment | 83.45832 | 36.54306 | | 0.73056 |
| Total Workers | 1351.458 | 614.327 | 0.454566 | |

Atlanta**Office Employment, 2004 (1000s)**

| | <u>Total</u> | <u>Office</u> | <u>Percent</u> | <u>Location Quotient</u> |
|----------------------------------|--------------|---------------|----------------|--------------------------|
| Total Employees | 2263 | 963 | 0.425541 | |
| Construction | 127 | 25.49525 | | 1.083402 |
| Manufacturing | 178 | 52.21986 | | 0.737864 |
| Trade, Transportation, Utilities | 516 | 167.9343 | | 1.201587 |
| Information | 93 | 62.62248 | | 1.760557 |
| Financial Activities | 152 | 126.6859 | | 1.121439 |
| Professional & Business Services | 370 | 230.51 | | 1.339007 |
| Education & Health Services | 220 | 110.3432 | | 0.770886 |
| Leisure & Hospitality Services | 218 | 19.37366 | | 1.037777 |
| Other Services | 94 | 38.45822 | | 1.028274 |
| Government | 294 | 129.1836 | | 0.807867 |
| Self Employment | 154.4768 | 67.6392 | | 0.756257 |
| Total Workers | 2416.477 | 1030.466 | 0.426433 | |

Chicago**Office Employment, 2004 (1000s)**

| | <u>Total</u> | <u>Office</u> | <u>Percent</u> | <u>Location Quotient</u> |
|----------------------------------|--------------|---------------|----------------|--------------------------|
| Total Employees | 4588 | 1906 | 0.415432 | |
| Construction | 222 | 44.5665 | | 0.946895 |
| Manufacturing | 505 | 148.1519 | | 1.046671 |
| Trade, Transportation, Utilities | 911 | 296.4886 | | 1.060685 |
| Information | 96 | 64.64256 | | 0.908659 |
| Financial Activities | 327 | 272.5414 | | 1.206264 |
| Professional & Business Services | 690 | 429.87 | | 1.248513 |
| Education & Health Services | 544 | 272.8486 | | 0.953079 |
| Leisure & Hospitality Services | 528 | 46.92336 | | 1.256737 |
| Other Services | 199 | 81.41687 | | 1.088421 |
| Government | 566 | 248.7004 | | 0.777627 |
| Self Employment | 245.0349 | 107.291 | | 0.599787 |
| Total Workers | 4833.035 | 2013.441 | 0.4166 | |

Baltimore**Office Employment, 2004 (1000s)**

| | <u>Total</u> | <u>Office</u> | <u>Percent</u> | <u>Location Quotient</u> |
|----------------------------------|--------------|---------------|----------------|--------------------------|
| Total Employees | 1276 | 544 | 0.426332 | |
| Construction | 81 | 16.26075 | | 1.232308 |
| Manufacturing | 77 | 22.58949 | | 0.56924 |
| Trade, Transportation, Utilities | 244 | 79.41078 | | 1.013313 |
| Information | 22 | 14.81392 | | 0.742742 |
| Financial Activities | 82 | 68.34372 | | 1.078932 |
| Professional & Business Services | 181 | 112.763 | | 1.168175 |
| Education & Health Services | 204 | 102.3182 | | 1.274811 |
| Leisure & Hospitality Services | 116 | 10.30892 | | 0.984813 |
| Other Services | 55 | 22.50215 | | 1.072981 |
| Government | 216 | 94.9104 | | 1.058508 |
| Self Employment | 76.98484 | 33.70858 | | 0.67214 |
| Total Workers | 1354.985 | 577.9299 | 0.426521 | |

Boston**Office Employment, 2004 (1000s)**

| | <u>Total</u> | <u>Office</u> | <u>Percent</u> | <u>Location Quotient</u> |
|----------------------------------|--------------|---------------|----------------|--------------------------|
| Total Employees | 2421 | 1062 | 0.438662 | |
| Construction | 106 | 21.2795 | | 0.839039 |
| Manufacturing | 233 | 68.35521 | | 0.896195 |
| Trade, Transportation, Utilities | 426 | 138.6434 | | 0.920461 |
| Information | 73 | 49.15528 | | 1.282272 |
| Financial Activities | 185 | 154.1901 | | 1.266467 |
| Professional & Business Services | 379 | 236.117 | | 1.272655 |
| Education & Health Services | 420 | 210.6552 | | 1.365548 |
| Leisure & Hospitality Services | 217 | 19.28479 | | 0.958512 |
| Other Services | 86 | 35.18518 | | 0.87291 |
| Government | 294 | 129.1836 | | 0.749601 |
| Self Employment | 185.3085 | 81.1392 | | 0.841767 |
| Total Workers | 2604.309 | 1143.188 | 0.43896 | |

Detroit**Office Employment, 2004 (1000s)**

| | <u>Total</u> | <u>Office</u> | <u>Percent</u> | <u>Location Quotient</u> |
|----------------------------------|--------------|---------------|----------------|--------------------------|
| Total Employees | 2080 | 873 | 0.419712 | |
| Construction | 91 | 18.26825 | | 0.859758 |
| Manufacturing | 298 | 87.42426 | | 1.368111 |
| Trade, Transportation, Utilities | 386 | 125.6252 | | 0.995501 |
| Information | 37 | 24.91432 | | 0.775743 |
| Financial Activities | 119 | 99.18174 | | 0.972362 |
| Professional & Business Services | 364 | 226.772 | | 1.45892 |
| Education & Health Services | 256 | 128.3994 | | 0.993474 |
| Leisure & Hospitality Services | 190 | 16.8853 | | 1.001729 |
| Other Services | 100 | 40.913 | | 1.211518 |
| Government | 239 | 105.0166 | | 0.727343 |
| Self Employment | 101.8945 | 44.61551 | | 0.552467 |
| Total Workers | 2181.894 | 918.0156 | 0.420742 | |

Minneapolis - St. Paul**Office Employment, 2004 (1000s)**

| | <u>Total</u> | <u>Office</u> | <u>Percent</u> | <u>Location Quotient</u> |
|----------------------------------|--------------|---------------|----------------|--------------------------|
| Total Employees | 1766 | 752 | 0.425821 | |
| Construction | 89 | 17.86675 | | 0.966164 |
| Manufacturing | 204 | 59.84748 | | 1.076122 |
| Trade, Transportation, Utilities | 339 | 110.3289 | | 1.00457 |
| Information | 44 | 29.62784 | | 1.059973 |
| Financial Activities | 141 | 117.5179 | | 1.323811 |
| Professional & Business Services | 250 | 155.75 | | 1.15132 |
| Education & Health Services | 216 | 108.337 | | 0.963155 |
| Leisure & Hospitality Services | 162 | 14.39694 | | 0.981381 |
| Other Services | 77 | 31.50301 | | 1.071881 |
| Government | 244 | 107.2136 | | 0.853212 |
| Self Employment | 132.9247 | 58.20242 | | 0.828108 |
| Total Workers | 1898.925 | 810.5918 | 0.426869 | |

St. Louis**Office Employment, 2004 (1000s)**

| | <u>Total</u> | <u>Office</u> | <u>Percent</u> | <u>Location Quotient</u> |
|----------------------------------|--------------|---------------|----------------|--------------------------|
| Total Employees | 1337 | 549 | 0.410621 | |
| Construction | 83 | 16.66225 | | 1.215351 |
| Manufacturing | 146 | 42.83202 | | 1.038836 |
| Trade, Transportation, Utilities | 253 | 82.33986 | | 1.011262 |
| Information | 30 | 20.2008 | | 0.974824 |
| Financial Activities | 78 | 65.00988 | | 0.987789 |
| Professional & Business Services | 182 | 113.386 | | 1.130551 |
| Education & Health Services | 195 | 97.8042 | | 1.172843 |
| Leisure & Hospitality Services | 144 | 12.79728 | | 1.176651 |
| Other Services | 59 | 24.13867 | | 1.107824 |
| Government | 167 | 73.3798 | | 0.787674 |
| Self Employment | 70.81299 | 30.7885 | | 0.595055 |
| Total Workers | 1407.813 | 579.3393 | 0.411517 | |

New York**Office Employment, 2004 (1000s)**

| | <u>Total</u> | <u>Office</u> | <u>Percent</u> | <u>Location Quotient</u> |
|----------------------------------|--------------|---------------|----------------|--------------------------|
| Total Employees | 8364 | 3790 | 0.453132 | |
| Construction | 339 | 68.05425 | | 0.78137 |
| Manufacturing | 505 | 148.1519 | | 0.565612 |
| Trade, Transportation, Utilities | 1590 | 517.4719 | | 1.0004 |
| Information | 291 | 195.9478 | | 1.488439 |
| Financial Activities | 773 | 644.2646 | | 1.540928 |
| Professional & Business Services | 1237 | 770.651 | | 1.209545 |
| Education & Health Services | 1354 | 679.1122 | | 1.323948 |
| Leisure & Hospitality Services | 636 | 56.52132 | | 0.602137 |
| Other Services | 350 | 143.1955 | | 0.450181 |
| Government | 1290 | 566.826 | | 0.957752 |
| Self Employment | 578.5853 | 253.3393 | | 0.765323 |
| Total Workers | 8943.585 | 4043.536 | 0.452116 | |

Philadelphia**Office Employment, 2004 (1000s)**

| | <u>Total</u> | <u>Office</u> | <u>Percent</u> | <u>Location Quotient</u> |
|----------------------------------|--------------|---------------|----------------|--------------------------|
| Total Employees | 2766 | 1213 | 0.438539 | |
| Construction | 127 | 25.49525 | | 0.895862 |
| Manufacturing | 239 | 70.11543 | | 0.819229 |
| Trade, Transportation, Utilities | 532 | 173.1415 | | 1.024397 |
| Information | 56 | 37.70816 | | 0.87661 |
| Financial Activities | 221 | 184.1947 | | 1.348265 |
| Professional & Business Services | 406 | 252.938 | | 1.21495 |
| Education & Health Services | 484 | 242.755 | | 1.402374 |
| Leisure & Hospitality Services | 220 | 19.5514 | | 0.866007 |
| Other Services | 124 | 50.73212 | | 1.121641 |
| Government | 357 | 156.8658 | | 0.81117 |
| Self Employment | 156.3455 | 68.45743 | | 0.632911 |
| Total Workers | 2922.345 | 1281.955 | 0.438673 | |

Dallas - Fort Worth**Office Employment, 2004 (1000s)**

| | <u>Total</u> | <u>Office</u> | <u>Percent</u> | <u>Location Quotient</u> |
|----------------------------------|--------------|---------------|----------------|--------------------------|
| Total Employees | 2700 | 1133 | 0.41963 | |
| Construction | 159 | 31.91925 | | 1.139385 |
| Manufacturing | 295 | 86.54415 | | 1.027225 |
| Trade, Transportation, Utilities | 589 | 191.6924 | | 1.152147 |
| Information | 95 | 63.9692 | | 1.510699 |
| Financial Activities | 215 | 179.1939 | | 1.33247 |
| Professional & Business Services | 368 | 229.264 | | 1.118707 |
| Education & Health Services | 272 | 136.4243 | | 0.800615 |
| Leisure & Hospitality Services | 257 | 22.83959 | | 1.027704 |
| Other Services | 109 | 44.59517 | | 1.001601 |
| Government | 342 | 146.8548 | | 0.789416 |
| Self Employment | 175.7056 | 76.93446 | | 0.722569 |
| Total Workers | 2876.706 | 1210.231 | 0.4207 | |

Houston**Office Employment, 2004 (1000s)**

| | <u>Total</u> | <u>Office</u> | <u>Percent</u> | <u>Location Quotient</u> |
|----------------------------------|---------------------|----------------------|-----------------------|---------------------------------|
| Total Employees | 2296 | 929 | 0.404617 | |
| Construction | 232 | 46.574 | | 1.935454 |
| Manufacturing | 209 | 61.31433 | | 0.847249 |
| Trade, Transportation, Utilities | 472 | 153.6143 | | 1.074871 |
| Information | 38 | 25.58768 | | 0.703493 |
| Financial Activities | 138 | 115.0175 | | 0.99568 |
| Professional & Business Services | 314 | 195.622 | | 1.11127 |
| Education & Health Services | 252 | 126.3931 | | 0.863529 |
| Leisure & Hospitality Services | 210 | 18.6627 | | 0.977633 |
| Other Services | 97 | 39.68561 | | 1.037675 |
| Government | 333 | 146.3202 | | 0.89484 |
| Self Employment | 176.0069 | 77.06638 | | 0.842645 |
| Total Workers | 2471.007 | 1005.858 | 0.407064 | |

Seattle**Office Employment, 2004 (1000s)**

| | <u>Total</u> | <u>Office</u> | <u>Percent</u> | <u>Location Quotient</u> |
|----------------------------------|---------------------|----------------------|-----------------------|---------------------------------|
| Total Employees | 1602 | 673 | 0.4201 | |
| Construction | 96 | 19.272 | | 1.140852 |
| Manufacturing | 164 | 48.11268 | | 0.947049 |
| Trade, Transportation, Utilities | 309 | 100.5653 | | 1.002389 |
| Information | 76 | 51.17536 | | 2.004255 |
| Financial Activities | 104 | 86.67984 | | 1.068901 |
| Professional & Business Services | 204 | 127.092 | | 1.028451 |
| Education & Health Services | 177 | 88.77612 | | 0.863998 |
| Leisure & Hospitality Services | 153 | 13.59711 | | 1.014638 |
| Other Services | 62 | 25.36606 | | 0.944811 |
| Government | 256 | 112.4864 | | 0.979951 |
| Self Employment | 133.6446 | 58.51764 | | 0.911444 |
| Total Workers | 1734.645 | 731.6405 | 0.421781 | |

Cincinnati**Office Employment, 2004 (1000s)**

| | <u>Total</u> | <u>Office</u> | <u>Percent</u> | <u>Location Quotient</u> |
|----------------------------------|--------------|---------------|----------------|--------------------------|
| Total Employees | 1034 | 424 | 0.410058 | |
| Construction | 55 | 11.04125 | | 1.030545 |
| Manufacturing | 126 | 36.96462 | | 1.147216 |
| Trade, Transportation, Utilities | 209 | 68.01989 | | 1.068981 |
| Information | 16 | 10.77376 | | 0.665282 |
| Financial Activities | 66 | 55.00836 | | 1.069533 |
| Professional & Business Services | 146 | 90.958 | | 1.160519 |
| Education & Health Services | 130 | 65.2028 | | 1.000528 |
| Leisure & Hospitality Services | 110 | 9.7757 | | 1.150161 |
| Other Services | 44 | 18.00172 | | 1.057187 |
| Government | 133 | 58.4402 | | 0.802717 |
| Self Employment | 65.18146 | 28.54035 | | 0.700888 |
| Total Workers | 1100.181 | 452.7267 | 0.411502 | |

Cleveland**Office Employment, 2004 (1000s)**

| | <u>Total</u> | <u>Office</u> | <u>Percent</u> | <u>Location Quotient</u> |
|----------------------------------|--------------|---------------|----------------|--------------------------|
| Total Employees | 1083 | 457 | 0.421976 | |
| Construction | 47 | 9.43525 | | 0.852572 |
| Manufacturing | 152 | 44.59224 | | 1.339822 |
| Trade, Transportation, Utilities | 200 | 65.0908 | | 0.990336 |
| Information | 20 | 13.4672 | | 0.80509 |
| Financial Activities | 82 | 68.34372 | | 1.28645 |
| Professional & Business Services | 136 | 84.728 | | 1.046567 |
| Education & Health Services | 162 | 81.25272 | | 1.207062 |
| Leisure & Hospitality Services | 96 | 8.53152 | | 0.971776 |
| Other Services | 45 | 18.41085 | | 1.046744 |
| Government | 143 | 62.8342 | | 0.835556 |
| Self Employment | 53.41133 | 23.38669 | | 0.556016 |
| Total Workers | 1136.411 | 480.0732 | 0.422447 | |

Pittsburgh**Office Employment, 2004 (1000s)**

| | <u>Total</u> | <u>Office</u> | <u>Percent</u> | <u>Location Quotient</u> |
|----------------------------------|---------------------|----------------------|-----------------------|---------------------------------|
| Total Employees | 1153 | 480 | 0.416305 | |
| Construction | 63 | 12.64725 | | 1.063485 |
| Manufacturing | 104 | 30.51048 | | 0.853089 |
| Trade, Transportation, Utilities | 235 | 76.48169 | | 1.082874 |
| Information | 24 | 16.16064 | | 0.899049 |
| Financial Activities | 70 | 58.3422 | | 1.021962 |
| Professional & Business Services | 141 | 87.843 | | 1.009729 |
| Education & Health Services | 212 | 106.3307 | | 1.469968 |
| Leisure & Hospitality Services | 112 | 9.95344 | | 1.055044 |
| Other Services | 60 | 24.5478 | | 1.298784 |
| Government | 131 | 57.5614 | | 0.712309 |
| Self Employment | 69.17511 | 30.28901 | | 0.670133 |
| Total Workers | 1221.175 | 510.6676 | 0.418177 | |

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