ACCESSING EMPLOYMENT DATA FOR COUNTIES AND SMALLER GEOGRAPHIES

Much of the labor force and employment data available are limited to large geographies, such as the state, metropolitan statistical areas (MSAs), and counties. Smaller geographies need labor force and employment data just as much as larger geographic areas, especially in a state that is less populated than most. Because of this need, this article seeks to provide information on how to gather labor force and employment data for less populated and smaller geographies and highlights particular limitations and issues related to accessing and using such data. The information provided should serve as a resource and guide to local governments, nonprofits, and other entities that use labor force and employment data for their individual purposes.

This article provides information on select sources for labor force and employment data and uses Eddy County as an example and case study for how to complete analysis on small geographies using these sources. The information and case study seek to serve as a guide that will assist you in completing similar analysis on specific geographies of your interest. General and case study geographies analyzed include:

- **County**
  - Case Study Geographies: Eddy County

- **Micropolitan Statistical Area** (as defined by the Office of Management and Budget, or OMB)—an area containing an urban core of at least 10,000 (but less than 50,000) population. In the case of New Mexico, all micropolitan statistical areas are equivalent to the county in which it is located.
  - Case Study Geographies: Carlsbad City, Artesia City, Loving Village, and Hope Village Incorporated Places

- **Census County Division** (CCD, as defined by the U.S. Census Bureau)—an area delineated in cooperation with state, tribal, and local officials for statistical purposes. CCDs have no legal function and are not governmental units. CCD boundaries usually follow visible features and usually coincide with census tract boundaries. The name of each CCD is based on a place, county, or well-known local name that identifies its location.
  - Case Study Geographies: Loco Hills and Loving CCDs

- **Incorporated Place**—a place established to provide governmental functions for a concentration of people as opposed to a minor civil division, which generally is created to provide services or administer an area without regard, necessarily, to population. Places always are within a single state or equivalent entity, but may extend across county and county subdivision boundaries. An incorporated place usually is a city, town, village, or borough, but can have other legal descriptions.
  - Case Study Geographies: Carlsbad City, Artesia City, Loving Village, and Hope Village Incorporated Places

- **Census Designated Place** (CDP, as designated by the U.S. Census Bureau)—statistical counterparts of incorporated places are delineated to provide data for settled concentrations of population that are identifiable by name but are not legally incorporated under the laws of the state in which they are located. The boundaries usually are defined in cooperation with local or tribal officials and generally updated prior to each decennial census. These boundaries, which usually coincide with visible features or the boundary of an adjacent incorporated place or another legal entity boundary, have no legal status, nor do these places have officials elected to serve traditional municipal functions. CDPs must be contained within a single state and may not extend into an incorporated place.
  - Case Study Geographies: Atoka, Happy Valley, La Huerta, Livingston Wheeler, Loco Hills, Malaga, Morningside, and Whites City CDPs.
  
  (Note that Happy Valley, La Huerta, and Livingston Wheeler CDPs are in direct proximity to Carlsbad. The Atoka CDP is in close proximity to Artesia, and the Morningside CDP is in direct proximity to Artesia.)
These areas are not manually combined, but are reported, by definition, as part of the larger CCD geographies. (See map below.)

- Zip Codes (based on the data source, specifically Census Bureau for this analysis)—a system of postal codes used by the United States Postal Service (USPS) since 1963.
  - Case Study Geographies: 88250 (Hope Village, extending into Chaves County), 88254 (Lakewood and Seven Rivers), 88263 (Malaga), 88268 (Whites City), 88253 (Lake Arthur, saddling the borders of Eddy and Chaves counties), 88255 (Loco Hills), 88256 (Loving, extending into Lea County), 88210 (Artesia, Atoka, and Morningside), 88220 (Carlsbad, La Huerta, Carlsbad Caverns, Happy Valley, and Livingston Wheeler), 88221 (P.O. Box only in Carlsbad, no physical location), 88211, (P.O. Box only in Artesia, no physical location)

This article also presents critical information on a variety of limitations and issues related to accessing and analyzing data.

**ANALYSIS TIP: ANALYZING THE LABOR FORCE AND EMPLOYMENT IN COUNTIES AND CITIES**

Whenever you gather data for your county or city/town, keep in mind that it is always helpful to compare your area to other areas, particularly those that are neighbors, similar in size, and/or have similar economic and demographic characteristics.
NMDWS’s Economic Research and Analysis Bureau (ER&A) produces a variety of data on employment and unemployment in New Mexico and its substate areas. The data produced are part of a cooperative agreement with the U.S. Bureau of Labor Statistics (BLS) and are collected using standard methods for all states in the U.S. ER&A also gathers and disseminates data from other resources, particularly the U.S. Census Bureau, including demographic and economic data related to the labor market and economy. Examples of data ER&A collects and analyzes include:

- Demographic data (age, sex, race, ethnicity, poverty)
- Household data (building permits, unit counts)
- Income and wage data (per capita personal income, average household income, industry and occupational wage data)
- Employment and unemployment data (counts, estimates, rate, industry and occupational employment)
- Commuting patterns data
- Tax revenue data

Labor market and workforce data are key indicators of the condition of the U.S. and New Mexico economies. Information is used by a wide variety of groups for many purposes including the following:

- Local and state government planning and budgeting;
- Local and statewide education, workforce, and social program policy development;
- Allocation of funds under federal programs;
- Research by private industry for business decisions;
- Research on labor market developments and development of employment projections and forecasts; and
- Media reporting and analysis.

For small geographies, this is most often due to methods of gathering and reporting data. For example, many of the data programs rely on surveys for data collection, making it difficult to avoid significant measures of error for smaller geographies. In a less populated state such as New Mexico, this means that standard data sources for labor force estimates and employment can be very limited for rural counties, cities, and towns. Error, distortion, and reliability issues are addressed individually for each source in the text and specific Analysis Tips included through the article. It is important to be familiar with this information and utilize it when completing your own analysis. When necessary, visit the data source websites (also included) for additional information.
LABOR FORCE AND UNEMPLOYMENT DATA

Labor force data measures the number of people employed or unemployed and actively looking for work. The Local Area Unemployment Statistics (LAUS) program is the data source for counties. Data for incorporated areas with a population of 25,000 or more are also available from the LAUS program. The U.S. Census Bureau is the data source for incorporated places with fewer than 25,000 residents or any other geography smaller than the county.

LAUS and Knowing When to Use It

LAUS publishes estimates of the labor force, total employment, unemployment, and the unemployment rate every month using concepts and definitions that are consistent with those of the Current Population Survey (CPS), also known as the household survey. LAUS data measure the labor force, the employed, and the unemployed by place of residence. LAUS labor force data can also be used to measure the labor force participation rate, although this measurement is only available for larger geographies (statewide, MSAs, and select large geographies, such as metropolitan divisions and New England city and town areas (NECTAs)).

You should always use LAUS if your geographies allow and if (a) you are measuring labor force in your analysis, (b) you are measuring unemployment in your analysis, and/or (c) when you don’t need data at the industry level. LAUS is also the most comprehensive measure of the labor force and employment. If you’re just wanting to measure employment, you may consider other sources, which are discussed in the following sections.

The LAUS program defines the civilian labor force as all persons in the civilian noninstitutional population classified as either employed or unemployed. Employed persons are those that, during the reference week (the week including the 12th day of the month), (a) did any work as paid employees, worked in their own business or profession or on their own farm, or worked 15 hours or more as unpaid workers in an enterprise operated by a member of their family, or (b) were not working but who had jobs from which they were temporarily absent because of vacation, illness, bad weather, childcare problems, maternity or paternity leave, labor-management dispute job training, or other family or personal reasons, whether or not they were paid for the time off or were seeking other jobs. Each employed person is counted only once, even if he or she holds more than one job. Unemployed persons are all persons who had no employment during the reference week, were available for work, except for temporary illness, and had made specific efforts to find employment sometime during the 4 week-period ending with the reference week. Persons who were waiting to be recalled to a job from which they had been laid off need not have been looking for work to be classified as unemployed. (Source: BLS)

As mentioned previously, you should use LAUS

ANALYSIS TIP: NOT SEASONALLY ADJUSTED DATA

Sometimes monthly data are available seasonally adjusted and not seasonally adjusted. Seasonally adjusted data have been adjusted to take into account fluctuations from seasonal impacts. Seasonally adjusted data are not available for geographies smaller than the MSA.
employment data if you are also measuring labor force and/or unemployment. Exhibit 2 illustrates historical employment from LAUS for Eddy County and the City of Carlsbad, while Exhibit 3 illustrates the historical unemployment rate (including a comparison with the state).

ACCESSING LAUS DATA

LAUS data are produced monthly, with statewide data available back to 1976, and substate data available back to 1990, on a monthly and annual basis. Each month, and once during the beginning of the calendar year, LAUS measures are benchmarked as updated inputs to the models become available. You can extract LAUS data through NMDWS’s interactive data website—LASER, www.jobs.state.nm.us/analyzer—or through the BLS data tool website—www.bls.gov/data.

CASE STUDY EXAMPLE: LABOR FORCE DATA FROM LAUS

Exhibits 1 through 3 present LAUS data for Eddy County and the City of Carlsbad, including labor force estimates, employment estimates, and the unemployment rate from January 2005 to February 2015. The data presented can also be shown for New Mexico, the MSAs, and the other 32 counties for the purposes of comparison.

Key Analysis Points

- Eddy County’s labor force generally grew more quickly
than that of Carlsbad over the period (note that the sharp drop in 2010 was the result of a series break in the LAUS program).

- Employment has grown more quickly in Eddy County than in Carlsbad City over the 10-year period.
- Unemployment rates in Eddy County and the City of Carlsbad have nearly been the same over the ten-year period.
- In the summer of 2007, the unemployment rate for New Mexico began to increase more quickly than in Eddy County and the City of Carlsbad. The two substate areas have also seen their unemployment rates decline more quickly than New Mexico during the recovery.

Census and Knowing When to Use It

The U.S. Census Bureau's American Community Survey (ACS) collects information on employment status, including the number of persons in the labor force, the number employed, and the number unemployed for the population 16 years of age and older. Data are reported in Table S2301: Employment Status.

The series of questions on employment status was designed to identify, in this sequence: (1) people who worked at any time during the reference week; (2) people on temporary layoff who were available for work; (3) people who did not work during the reference week but who had jobs or businesses from which they were temporarily absent (excluding layoff); (4) people who did not work during the reference week, but who were looking for work during the last four weeks and were available for work during the reference week; and (5) people not in the labor force. The reference week represents the calendar week preceding the date on which the respondents completed their questionnaires or were interviewed and is not the same for all respondents, as interviewing was conducted over a 12-month period. (Source: U.S. Census Bureau)

In cases of small geographies, it is likely that Census data will be the only source for which data are available. Census data are reliable and are based on a large survey sample size. You should use Census data if it is the only source for one or more of your geographies. The corresponding analysis tips are included to assist you in learning about key considerations when using Census data for small geographies.

ACCESSING CENSUS ACS DATA

ACS data are available on the American Fact Finder website — http://factfinder.census.gov. Data are available beginning in 2005, with some 1990 and 2000 decennial census data also available on the Fact Finder website. For information on data and documentation, visit www.census.gov/acs/www/data_documentation/documentation_main.

ANALYSIS TIP: AMERICAN COMMUNITY SURVEY AND 1-YEAR, 3-YEAR, AND 5-YEAR ESTIMATES

The ACS samples approximately three million people and produces 1-year, 3-year, and 5-year estimates. The 1-year estimates, with the smallest sample size, are the least reliable but provide the most current data. These estimates are produced for areas with populations of 65,000 or more. The 5-year estimates, with the largest sample size, are the most reliable, but provide the least current data, as information is collected over a 60-month period. These estimates are produced for all areas. For information on the differences between the three estimates, visit www.census.gov/acs/www/guidance_for_data_users/estimates.

When gathering ACS data for small geographies, 5-year estimates will likely be the only estimates available and will be those you’ll want to use because they are the most reliable and will have the smallest margins of error.
CASE STUDY EXAMPLE: LABOR FORCE DATA FROM THE CENSUS

Exhibit 4 presents the percentage of the population 16 years old and older in the labor force, the percentage employed, and the unemployment rate in New Mexico, Eddy County, and several sub-county areas.

Note that the LAUS and Census measurements are not the same because both programs differ in data collection and analysis methodology. For more information on these differences, visit www.bls.gov/lau/acsqa.htm. That being said, the data will be reliable as long as consistency is maintained in the source used (the source is the same) across geographies and margins of error are of acceptable size (see Analysis Tip).

<table>
<thead>
<tr>
<th>Labor Force, Employment, and Unemployment for New Mexico, Eddy County, and Select Sub-County Areas, 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Percent in Labor Force</strong></td>
</tr>
<tr>
<td>New Mexico: 61%</td>
</tr>
<tr>
<td>Eddy County: 64%</td>
</tr>
<tr>
<td>Artesia CCD: 59%</td>
</tr>
<tr>
<td>Carlsbad CCD: 70%</td>
</tr>
<tr>
<td>Loving CCD: 62%</td>
</tr>
<tr>
<td><strong>Percent Employed</strong></td>
</tr>
<tr>
<td>New Mexico: 54%</td>
</tr>
<tr>
<td>Eddy County: 59%</td>
</tr>
<tr>
<td>Artesia CCD: 59%</td>
</tr>
<tr>
<td>Carlsbad CCD: 58%</td>
</tr>
<tr>
<td>Loving CCD: 51%</td>
</tr>
<tr>
<td><strong>Unemployment Rate</strong></td>
</tr>
<tr>
<td>New Mexico: 9.1%</td>
</tr>
<tr>
<td>Eddy County: 8.4%</td>
</tr>
<tr>
<td>Artesia City: 9.1%</td>
</tr>
<tr>
<td>Carlsbad City: 8.1%</td>
</tr>
<tr>
<td>Loving Village: 8.1%</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau, 2009-2013 5-Year ACS, Table S2301: Employment Status Note: Hope Village, Loco Hills CCD, and the Happy Valley, Loco Hills, Magala, Morningside, and Whites City CDPs, along with unemployment rates for several areas (--), are not included due to high margins of error (error is equal to or greater than 30% of estimate).

ANALYSIS TIP: BE AWARE OF MARGINS OF ERROR WHEN USING CENSUS DATA

Any time data is gathered from a survey, there is a certain amount of error introduced because the survey samples only a portion of the population. A margin of error is a measurement of how far off the survey results may be from true results if the entire population was surveyed. For example, if ACS reports that 60.7 percent of New Mexicans are in the labor force and that the margin of error is +/-0.3, that means that you could expect the true estimate to range between 60.4 percent and 61.0 percent. In the case of the Census, you could be 90 percent confident that the true value falls within the range.

It’s imperative to be aware of margins of error when collecting Census data for small geographies. The smaller the geography, the larger the margin of error. If a geography’s margin of error is large, you might consider not reporting the data due to unreliability. For example, if the Census reports that 35 percent of the population 16 and older in the Magala CDP is in the labor force, but the margin of error is +/-62.1, your confidence in the data’s reliability should be very low. The margin of error is so large in this example, that the range of confidence is not even feasible (a negative labor force rate), hence the extreme unreliability of the data.
Key Analysis Points

- As of 2013, Eddy County’s unemployment situation was, overall, brighter than that of the state.
- All of the geographies shown had larger percentages of people in the labor force than the state, apart from the Loving CCD. The Artesia CCD had the highest labor force participation of the CCDs. Artesia City and Carlsbad City had the highest participation of the incorporated places, while the Atoka and Livingston Wheeler CDPs had, by far, the highest labor force participation of the CDPs with reportable data.
- The percentage of persons employed was higher in most of Eddy County’s geographies than in the state as a whole. The exceptions include the Loving CCD and Loving Village, along with the La Huerta CDP.
- Eddy County and the Carlsbad CCD and City of Carlsbad are the only geographies for which the 2013 unemployment rate meets reporting requirements established for this article (margin of error is equal to or less than 30 percent of the estimate). All three areas had lower unemployment rates than the state.

ANALYSIS TIP: COMPARING CENSUS DATA ACROSS TIME

One of the main benefits of non-Census data sources for labor force and employment data is the ease of comparing measurements across time. Many Census measurements can be compared over periods of time, but some issues that are not easily identified or controlled can arise based on the measurement. The ability to analyze Census data historically should be researched on a measurement-by-measurement basis. For information on each Census measurement and comparability issues, visit: www.census.gov/acs/www/guidance_for_data_users/comparing_data/

It can be somewhat difficult to gather historical data. The ACS has produced annual data back to 2005, with other Census data typically available through the decennial censuses. Ease of data collection should be a factor to consider as you begin your analysis.

Employment status and employment and industry data (discussed later in the article) can be compared across time with caution. Reporting and industry coding issues exist that are described in the resources available at the link above. These issues, combined with statistical limitations of small geographies, drive the decision to not include historical Census data in this article.
EMPLYMENT DATA

LAUS and ACS are the key data sources for labor force and unemployment data. These should be used for employment estimates, as well, if labor force and/or unemployment data are being analyzed in conjunction with employment. When employment data alone is being analyzed, there is another source to use—the Quarterly Census of Employment and Wages (QCEW). The U.S. Census Bureau is also a critical source for employment data of smaller geographies.

QCEW and Knowing When to Use It

The QCEW program publishes a quarterly census of establishments, employment, and wages by industry, as reported by New Mexico employers, covering 97 percent of nonfarm wage and salary workers. What makes QCEW so powerful is that it represents an actual count of establishments and employment, as opposed to measuring estimates via a survey. Employment data are collected for workers covered by unemployment insurance (UI) and refer to persons on establishment payrolls who worked or received pay for any part of the pay period that includes the 12th day of the month. Employment data are based on place of work as opposed to place of residence, and data are not seasonally adjusted.

QCEW employment counts are not as comprehensive as LAUS estimates (QCEW counts exclude some sets of workers, such as those that are self-employed and/or on family leave) but are the preferred source for employment when labor force or unemployment are not analyzed. QCEW also provides data for industries, which is discussed further in the next section. The smallest geographies for which QCEW data are available are the MSA and county. This limits the use of QCEW data to analysis at the county level or above. For small geographies Census data can be used.

ACCESSING QCEW DATA

QCEW data are published six months after the end of each quarter. The timeframe of QCEW data availability is impacted by the switch from the Standard Industry Classification (SIC) to North American Industry Classification System (NAICS) that was implemented in the QCEW program in 2005. Data are available for all geographies and industries as far back as 2005 on the NMDWS LASER website—www.jobs.state.nm.us/analyzer. BLS has reconstructed SIC-based data to be NAICS-based for all geographies and industries for 1990 through 2005 and for total employment (only) by ownership type for states and counties going back to 1975. Reconstructed data are available on the BLS website at http://www.bls.gov/cew/.

CASE STUDY EXAMPLE: EMPLOYMENT DATA FROM QCEW

Exhibit 5 presents QCEW employment data for New Mexico and Eddy County from 2003 through 2013. (Note that establishment and wage data are also available but are not shown in this analysis.)

Key Analysis Points

- Eddy County’s employment growth trended upward over the 10-year period, with some stagnation between 2008 and 2009.
- New Mexico’s employment grew rapidly between 2003 and 2008 before dropping sharply during the recession. Employment stagnated in 2008 before increasing slightly over the last three years of the period.
Census ACS and Knowing When to Use It

The Census’ ACS collects information on employment for the civilian employed population 16 years of age and older. Data are reported in multiple tables, with Table S2403: Industry by Sex and Median Earnings in the Past 12 Months (in 2013 Inflation-Adjusted Dollars) for the Civilian Employed Population 16 Years and Over being used for the purposes of this article to provide total employment estimates. Other subject tables (denoted by an “S” in ACS) that provide employment data include the following:

- Table S2401: Occupation by Sex and Median Earnings in the Past 12 Months (in 2013 Inflation-Adjusted Dollars) for the Civilian Employed Population 16 Years and Over
- Table S2404: Industry by Sex and Median Earnings in the Past 12 Months (in 2013 Inflation-Adjusted Dollars) for the Full-Time, Year-Round Civilian Employed Population 16 Years and Over
- Table S2405: Industry by Occupation for the Civilian Employed Population 16 Years and Over
- Table S2406: Occupation by Class of Worker for the Civilian Employed Population 16 Years and Over
- Table S2407: Industry by Class of Worker for the Civilian Employed Population 16 Years and Over
- Table S2408: Class of Worker by Sex and Median Earnings in the Past 12 Months (in 2013 Inflation-Adjusted Dollars) for the Civilian Employed Population 16 Years and Over
- Table S2409: Class of Worker by Sex and Median Earnings in the Past 12 Months (in 2013 Inflation-Adjusted Dollars) for the Full-Time, Year-Round Civilian Employed Population 16 Years and Over

Census industry data describe the kind of business conducted by a person’s employing organization. The data include information on all people 15 years old and over who had worked in the past five years. For employed people, the data refer to the person’s job during the previous week. For those who worked two or more jobs, the data refer to the job where the person worked the greatest number of hours. For unemployed people and people who are not currently employed but report having a job within the last five years, the data refer to their last job. (Source: U.S. Census Bureau)

As with all measurements discussed in this article, it is likely that Census employment data will be the only data available for small geographies. Note the corresponding analysis tips in the previous section to learn about key considerations when using Census data for small geographies. ACS data should be used when QCEW data are not available for one or more of the geographies being analyzed.

(For information on accessing ACS data, please see the previous section on labor force data and ACS.)

ANALYSIS TIP: UNDERSTANDING ACS TABLE OPTIONS

ACS data tables in American Fact Finder fall under six main categories:

- Subject Tables (denoted by an “S” in the table number) provide detailed ACS data, classified by subject, on social, economic, housing, and demographic profiles.
- Comparison Profiles (denoted by a “C”) provide side-by-side comparisons of data across time periods.
- Detailed Tables (denoted by a “B”) provide access to the most detailed ACS data and crosstabulations of ACS variables.
- Ranking Tables (denoted by an “R”) provide state rankings of estimates across 86 key variables.
- Geographic Comparison Tables (denoted by “GCT”) compare geographic areas other than states (e.g., counties or congressional districts) for key variables.
- Selected Population Profiles (denoted by an “S”) provide broad social, economic, and housing profiles for a large number of race, ethnic, ancestry, and country/region of birth groups.
CASE STUDY EXAMPLE: EMPLOYMENT DATA FROM THE CENSUS ACS

Exhibit 6 provides employment estimates from the U.S. Census Bureau's ACS, Table S2404. The data are current as of 2013. Information on some select sub-county areas is not included because the margins of error were considerably high (the margin of error was equal to 40 percent or more of the estimate).

Key Analysis Points

- Approximately 24,410 people, 16 years old and older, were employed in Eddy County (2013).
- The sub-county area with the largest employment was the Carlsbad CCD, with the City of Carlsbad comprising just over three-quarters of the employment within the CCD.
- The Artesia CCD and the City of Artesia had the second highest employment, with the city comprising just over 61 percent of employment in the larger CCD area.

Census County and Zip Code Business Patterns and Knowing When to Use Them

Another Census program—County Business Patterns (CBP)—publishes annual statistics for businesses with paid employees. Data include the number of establishments, employment during the week of the 12th, and first quarter and annual payroll. The Zip Code Business Patterns program is part of the CBP program and collects data at the zip code level.

CBP basic data items are extracted from the Business Register (BR), a database of all known single and multi-establishment employer companies maintained and updated by the U.S. Census Bureau. The BR contains the most complete, current, and consistent data for business establishments. The annual Company Organization Survey provides individual establishment data for multi-establishment companies. Data for single-establishment companies are obtained from various Census Bureau programs, such as the Economic Census, Annual Survey of Manufactures and Current Business Surveys, as well as from administrative record sources. (Source: U.S. Census Bureau)

CBP data are available for the nation, states, counties, micropolitan statistical areas, and zip codes. CBP, like ACS, is a good resource when needing data for smaller geographies. One benefit of using CBP is that it identifies when data face significant reliability or error issues, assisting the end user in deciding whether or not to publish data that have distortion issues. One drawback to CBP is that the data are more dated than ACS. As with ACS, CBP data should be used when QCEW data are not available for one or more of the geographies being analyzed. (Source: U.S. Census Bureau)

ACCESSING COUNTY BUSINESS PATTERNS DATA

CBP statistics are published approximately 18 months after the end of each reference year, with Zip Code Business Patterns data available shortly after the release of CBP. Data are available in hypertext tables (HTML) and in
**Analysis Tip: Historical CBP Data**

County Business Patterns has been produced as a consistent, annual series since 1964 and ZIP Code Business Patterns since 1994. Printed reports were published annually through 2004 and at irregular intervals dating back to 1946. As with the ACS, the comparability of CBP data over time may be affected by changes in industry classifications, definitions of establishments, establishment’s active status, and/or changes to geographic boundaries (actual or statistically-defined areas).

For the purposes of this example analysis, historical CBP is not included, largely because the geographies are already small and face higher measures of error. Historical analysis can be completed, however, with caution and a full understanding of potential issues.

For more information on historical CBP and related issues, visit www.census.gov/econ/cbp/historical.htm.

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**Case Study Example: Employment Data from the Census CBP**

Exhibit 7 provides employment estimates from the Zip Code Business Patterns for Eddy County and the zip codes that fall entirely or partially within the county. (Note that most zip codes are derived from the physical location address reported in Census Bureau programs as defined by the Census. In some cases when the physical location is not available geographic assignment is based on the mailing address.) The data are current as of 2012. Information on some select zip codes is not included because data was greatly distorted or could not be released due to confidentiality requirements. (Note that establishment and wage data are also available but are not shown in this analysis.)

**Key Analysis Points**

- Approximately 20,700 people were employed at business establishments in Eddy County as of 2012.
- Approximately 19,100 people (around 92 percent of all non-self-employed workers in Eddy County) were employed in the two most populous zip codes—88220, including the City of Carlsbad, Carlsbad Caverns, and the Livingston Wheeler, La Huerta, and Happy Valley CDPs, and 88210, including the City of Artesia and the Atoka and Morningside CDPs.

### Employment in Select Sub-County Areas of Eddy County, 2012 (Census CBP)

<table>
<thead>
<tr>
<th>Zip Code Area</th>
<th>Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carlsbad, La Huerta, Carlsbad Caverns, Happy Valley, Livingston Wheeler (88220)</td>
<td>12,351</td>
</tr>
<tr>
<td>Artesia, Atoka (88210)</td>
<td>6,803</td>
</tr>
<tr>
<td>Artesia (88211)</td>
<td>764</td>
</tr>
<tr>
<td>Carlsbad (88221)</td>
<td>382</td>
</tr>
<tr>
<td>Loving* (88256)</td>
<td>128</td>
</tr>
<tr>
<td>Loco Hills (88255)</td>
<td>164</td>
</tr>
<tr>
<td>Lake Arthur* (88253)</td>
<td>24</td>
</tr>
<tr>
<td>Whites City (88268)</td>
<td>20-99</td>
</tr>
<tr>
<td>Malaga (88263)</td>
<td>10-19</td>
</tr>
<tr>
<td>Lakewood, Seven Rivers (88254)</td>
<td>10-19</td>
</tr>
<tr>
<td>Hope* (88250)</td>
<td>10-19</td>
</tr>
</tbody>
</table>

New Mexico Employment: 602,715  
Eddy County Employment: 20,697

Source: U.S. Census Bureau, County Business Patterns 2012

Notes: (*) Represents zip codes that cross outside of Eddy County. Zip codes 88250, 88254, 88263, and 88268, report ranges due to data limitations and suppression issues.
ANALYSIS TIP: EMPLOYMENT DATA FROM CENSUS LODES DATA

One additional source that is much less frequently used for strict employment estimates is from the U.S. Census Bureau’s Longitudinal Employer-Household Dynamics (LEHD) program. LEHD Origin Destination Employment Statistics (LODES) is a partially synthetic dataset that describes geographic patterns of workers by employment location and residential location, as well as the connections between the two locations. A major benefit of LODES data is that they are available for a wide variety of geographies, including tribal and pueblo lands, congressional districts, zip codes, and Census blocks/tracts. The reason LODES is not typically used for employment estimates over ACS, however, is that data are lagged. The most recent ACS data are available for 2013, while the most recent LODES data are available for 2011. (Source: U.S. Census Bureau)

LODES data are unique in that they provide information on worker residence and workplace. This type of data is particularly useful for certain analyses, such as that completed on commuting patterns. LODES is discussed in detail later in this article under the Employment and Demographics section. You may wish to pull LODES employment estimates, especially if you are also analyzing worker demographics. This article, however, defers to ACS as the best source for employment for small geographies when not incorporating other measurements into analysis.
INDUSTRY EMPLOYMENT DATA

Employment data by industry adds an additional layer of detail to analysis of the labor market and workforce. Industry employment is typically produced and reported using the North American Industry Classification System (NAICS). NAICS is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy. It is important to note that when adding an additional level of detail to the analysis, such as breaking employment out by industry, you will likely begin to see increasing levels of distortion and more suppression issues. This can limit analysis.

The three programs used to access industry employment data have already been presented in this article and include QCEW, Census ACS, and Census CBP. This section will discuss these programs in the context of industry employment and will introduce ways in which the data can be used to compare the workforce across geographies.

QCEW and Knowing When to Use It

QCEW is the preferred source for industry employment data when (1) data accuracy is more critical than the currency of the data and/or (2) data do not need to be adjusted for seasonal impacts. QCEW data are produced for all NAICS levels, from the industry sector (2-digit NAICS) to detailed industry (6-digit NAICS). As with total employment data, QCEW industry employment data are limited to the county-level. For smaller geographies, ACS and CBP data would need to be accessed.

CASE STUDY EXAMPLE: INDUSTRY EMPLOYMENT DATA FROM QCEW

Exhibit 8 provides industry employment counts in Eddy County as of 2013 for industry sectors (NAICS 2-digit). Industries are ranked by employment (number of jobs) from largest to smallest. Based on QCEW data, mining is the largest industry in Eddy County. Health care and social assistance, retail trade, and accommodation and food services follow mining in employment.

Eddy and its neighbor Lea County are unique amongst other New Mexico counties in that the mining industry is the largest employing industry. The size of the industry is driven by oil, natural gas, and, to a smaller extent, mineral mining (mainly potash) in the Permian Basin. While comparing employment across industries is useful, comparing a county’s industries to the industry within the state as a whole can give a better insight into which industries the county is particularly specialized.

Key Analysis Points: Using Location Quotients to Measure Specialization

A location quotient (LQ) measures an industry’s share of the local area’s total employment and compares that to the share at a larger geographic level (e.g., state or nation). An
8 Employment by Major Industry Sector for Eddy County, 2013 (QCEW)

<table>
<thead>
<tr>
<th>Major Sector</th>
<th>Location Quotient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining</td>
<td>7.6</td>
</tr>
<tr>
<td>Utilities</td>
<td>1.5</td>
</tr>
<tr>
<td>Transp. &amp; Warehousing</td>
<td>1.4</td>
</tr>
<tr>
<td>Construction</td>
<td>1.3</td>
</tr>
<tr>
<td>Real Estate</td>
<td>1.1</td>
</tr>
<tr>
<td>Other Services</td>
<td>1.1</td>
</tr>
<tr>
<td>Agriculture</td>
<td>1.1</td>
</tr>
<tr>
<td>Mgmt of Companies</td>
<td>1.1</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>0.9</td>
</tr>
<tr>
<td>Wholesale Trade</td>
<td>0.9</td>
</tr>
<tr>
<td>Admin. &amp; Waste Svcs</td>
<td>0.9</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>0.8</td>
</tr>
<tr>
<td>Educational Svcs</td>
<td>0.8</td>
</tr>
<tr>
<td>Accommodation &amp; Food Svcs</td>
<td>0.7</td>
</tr>
<tr>
<td>Finance &amp; Insurance</td>
<td>0.7</td>
</tr>
<tr>
<td>Health Care &amp; Social Asst.</td>
<td>0.6</td>
</tr>
<tr>
<td>Information</td>
<td>0.6</td>
</tr>
<tr>
<td>Public Administration</td>
<td>0.5</td>
</tr>
<tr>
<td>Arts &amp; Entertainment</td>
<td>0.4</td>
</tr>
<tr>
<td>Prof. &amp; Technical Svcs</td>
<td>0.3</td>
</tr>
</tbody>
</table>

Source: NMDWS, Quarterly Census of Employment and Wages program

9 Employment by Major Industry Sector for Eddy County, 2005 and 2013 (QCEW)

Source: NMDWS, Quarterly Census of Employment and Wages program
LQ of 1.0 means the local area and the larger area are equally specialized in the industry, while an LQ of greater than 1.0 means the local area has a higher concentration than the larger area, and an LQ of less than 1.0 means it has a lower concentration than the larger area.

Exhibit 8 provides a listing of each industry’s LQ when comparing Eddy County industry employment to the industry employment at the state level. Based on the calculated LQs, Eddy County specializes in mining activities. What is interesting is that the county also has higher LQs in utilities, transportation and warehousing, and construction. It is likely that the county’s specialization in these industries is also related to oil and gas extraction and mineral mining. These are the only major industry sectors in which the county has a specialization (an LQ of 1.1 is not considered a significant sign of specialization).

**Census ACS Data and Knowing When to Use It**

As stated in the previous section on total employment, the Census’ ACS collects information on employment by industry for the civilian employed population 16 years of age and older. Data are reported in multiple tables, with Table S2403: Industry by Sex and Median Earnings in the Past 12 Months (in 2013 Inflation-Adjusted Dollars) for the Civilian Employed Population 16 Years and Over being used for the purposes of this article to provide industry employment estimates. Other tables that provide industry employment data include:

- Table S2404: Industry by Sex And Median Earnings in the Past 12 Months (in 2013 Inflation-Adjusted Dollars) for the Full-Time, Year-Round Civilian Employed Population 16 Years and Over,
- Table S2405: Industry by Occupation for the Civilian Employed Population 16 Years and Over, and
- Table S2407: Industry by Class of Worker for the Civilian Employed Population 16 Years and Over.

As with all measurements discussed in this article, it is likely that Census employment data will be the only data available for small geographies. For information on how the Census collects, codes, and edits responses on industry, visit [www.census.gov](http://www.census.gov).

**Key Analysis Points: Analyzing Employment over Time**

You can also analyze industry employment change over time. Exhibit 9 provides major industry sector employment for Eddy County in 2005 and in 2013. Based on this data, mining experienced the largest increase in employment, followed by construction and retail trade. Employment in administrative and waste services, finance and insurance, other services, arts and entertainment, and real estate declined over the eight-year period. Eddy County has fared much better than the state since 2005; the state saw employment decline in 14 of the 20 industries, including many of the industries that grew in Eddy County, such as construction, retail trade, transportation and warehousing, and educational services.
Employment estimates will vary between ACS and QCEW due to differences in methodology and reporting. Differences are acceptable, as long as the data user is aware of the methodologies and limitations of his/her source.

CASE STUDY EXAMPLE: INDUSTRY EMPLOYMENT DATA FROM ACS

Exhibit 10 illustrates major industry sector employment for Eddy County and five sub-county areas. Data for other sub-county geographies were reported with significantly high margins of error in comparison to the data for the geographies shown. For the geographies in Exhibit 10, employment is not shown for industries with a margin of error representing 40 percent or more of the employment estimate (e.g., construction employment in Artesia, Carlsbad, and the Loving CCD).

Based on ACS employment data, the educational services and health care industry is the largest employing industry in Eddy County and all of the sub-county areas shown, except the Artesia and Loving CCDs, where agriculture and mining is ranked first.
Key Analysis Points: Using Location Quotients to Measure Specialization

Based on ACS data, Eddy County specializes in mining (in this case, agriculture and mining are combined), but to a lesser degree (LQ=4.0) when compared to the LQ based on QCEW data. With ACS data, LQs can be calculated for the smaller geographies listed, keeping in mind that estimates for these areas still have fairly high margins of error. All five sub-county areas specialize in agriculture and, predominantly, mining. Artesia has a higher LQ in wholesale trade, manufacturing, and, to a lesser degree, transportation, warehousing, and utilities. The Loving CCD has a higher LQ in transportation, warehousing, and utilities.

Note that the QCEW and Census measurements are not the same because both programs differ in data collection and methodology. That being said, both data sources can be used as long as consistency is maintained in which source is used across geographies and margins of error are of acceptable size based on the individual analysis being completed.

ANALYSIS TIP: CBP AND INDUSTRY EMPLOYMENT DATA

CBP employment estimates at the industry level are only available at the state, county, and metropolitan and micropolitan geographies. Zip Code Business Patterns only report establishment data by employment size class (establishments by range of employees); it does not report employment by industry. Due to the geographic limitations of the CBP program, it is not typically the source for industry employment data. QCEW would be the preferred data source, and, because all of New Mexico’s metropolitan and micropolitan areas fall completely within counties, QCEW data would be used for those geographies as well. For geographies below the county level, ACS is the best source for industry employment.
OTHER RESOURCES FOR EMPLOYMENT DATA

There are several other commonly used resources for total and industry employment data. Depending on the analysis, these can serve as additional tools for understanding a smaller geography’s labor force and workforce.

Size Class Data

Size class data measure the number of establishments based on the number of workers employed (e.g., 50 establishments employ 100 to 249 workers) and/or employment totals at establishments grouped by employment range (e.g., 1,000 workers are employed across all establishments employing 20 to 49 workers each). Two main sources for size class data are QCEW and BED. Unfortunately, neither of these resources reports size class data for a geography smaller than the state. To get size class data for smaller areas, CBP and Quarterly Workforce Indicators (QWI) are the best resources.

CBP AND ZIP CODE BUSINESS PATTERNS

CBP size class data are available for the nation, states, counties, micropolitan statistical areas, and zip codes. (For more information on CBP, see the Employment Data section earlier in this article). Data for all areas larger than the zip code level include the number of establishments by employment size range and employment totals at establishments grouped by employment range. Zip code data only include establishments by employment size range.

CASE STUDY EXAMPLE: SIZE CLASS DATA FROM THE CENSUS CBP

Exhibit 11 provides size class data for Eddy County from CBP (while employment data are available, this analysis only includes establishment data). Exhibit 12 provides data for select sub-county areas (by zip code) and presents establishment estimates within two categories—fewer than 50 and 50 or more—because establishments are few, and levels of error are much higher. Industry size class data are available for the smaller geographies beyond those shown, but this information is not included, as error and distortion measures are significantly high.

ANALYSIS TIP: EMPLOYMENT AND SMALL BUSINESSES

The majority of business establishments employ a small number of workers (fewer than 20), regardless of industry or geography. It is critical to note that this count does not include nonemployer establishments, or self-employed workers. To get a complete picture of employment, especially when looking at small businesses, analysis should include data on nonemployer establishments. This data is available through the U.S. Census Bureau’s annual Nonemployer Statistics. This program is detailed in the next section of this article.

Exhibit 11: Establishments by Employment Size in Eddy County, 2012 (Census CBP)

<table>
<thead>
<tr>
<th>Industry Category</th>
<th>Fewer than 10</th>
<th>10 to 49</th>
<th>50 to 100</th>
<th>100 or More</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total, All Sectors</td>
<td>866</td>
<td>7</td>
<td>356</td>
<td>42</td>
</tr>
<tr>
<td>Agriculture</td>
<td>78</td>
<td>2</td>
<td>13</td>
<td>1</td>
</tr>
<tr>
<td>Mining</td>
<td>14</td>
<td></td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Utilities</td>
<td>96</td>
<td></td>
<td>29</td>
<td>42</td>
</tr>
<tr>
<td>Construction</td>
<td>23</td>
<td>8</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>42</td>
<td></td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Wholesale Trade</td>
<td>49</td>
<td></td>
<td>22</td>
<td>1</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>11</td>
<td>10</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Transp. &amp; Warehousing</td>
<td>11</td>
<td></td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>Information</td>
<td>46</td>
<td>19</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Finance &amp; Insurance</td>
<td>45</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Real Estate</td>
<td>64</td>
<td>12</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Prof. &amp; Technical Svs</td>
<td>37</td>
<td>5</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Management of Companies</td>
<td>7</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Admin. &amp; Waste Svs</td>
<td>68</td>
<td>52</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Educational Svs</td>
<td>44</td>
<td>57</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Health Care &amp; Social Asst.</td>
<td>104</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau, County Business Patterns 2012
Key Analysis Points

- Around two-thirds of all employing business establishments in Eddy County employed fewer than ten workers (as of 2012).
- The utilities, arts and entertainment, and professional and technical services industries had the highest concentrations of establishments employing fewer than ten workers, with concentrations ranging from 81 to 83 percent (this excludes management of companies, which only had one establishment reporting).
- The mining, health care and social assistance, and manufacturing industries had the highest concentrations of establishments employing 50 or more workers, with concentrations ranging from 11 to 16 percent.
- Accommodation and food services was the only industry in which establishments employing fewer than ten workers didn’t comprise the largest portion of all establishments; just over 50 percent of the establishments in the industry employed ten to 49 workers.
  - Of the sub-county areas, zip code 88256 (Loving) had the largest concentration of establishments with fewer than 50 workers (100 percent of all establishments), while zip codes 88211 and 88255 (Artesia and Loco Hills) had the largest concentrations of establishments with 50 or more workers (note that Loco Hills only had one establishment reporting).

Due to the small size of these areas, reporting error is likely significant, even when analyzing total establishments across industries.

Quartely Workforce Indicators (QWI)

Quarterly Workforce Indicators (QWI) is a product of the U.S. Census Bureau’s Longitudinal Employer-Household Dynamics (LEHD) program. QWI data include 32 economic indicators such as employment, job creation, earnings, and other measures of employment flows. QWI report data on workers, as opposed to population, using detailed firm characteristics (geography, industry, age, size) and worker demographics information (sex, age, education, race, ethnicity). QWI data can be more limited than data from other sources discussed (mainly ACS and LODES) because data are only available for states, WIA regions, counties, MSAs, micropolitan areas, and non-metropolitan/micropolitan areas (combined). QWI is still a useful source for information on the labor force and workforce. Data options include employment estimates based on:

- Industry (2-, 3-, and 4-digit NAICS)
- Firm Ownership (total or private)
- Firm Age
- Firm Size
- Worker Demographics (gender, age, educational attainment, race, ethnicity)
- Employment flows (hires, separations, turnover, replacement hires)
- Earnings and payroll

Source: U.S. Census Bureau, County Business Patterns 2012
Data are available across quarters, with some data being available back to 1995. Data are typically released one year after each quarter ends (first quarter 2014 data are the most recent at the time of this publication). As is the case with most of the data for smaller geographies, much of the data through QWI are suppressed and cannot be reported.

ACCESSING QWI DATA

QWI data are available through two online applications—QWI Explorer and the Local Employment Dynamics (LED) Extraction Tool. QWI Explorer provides data via charts and interactive tables, with the ability for users to compare, rank, and aggregate QWI data across time, geography, and/or firm and worker characteristics. QWI Explorer is further discussed later in this article in the Employment and Demographics section. The LED Extraction Tool is an online application that enables access to QWI data in comma-separated value (CSV) files for the exact variables and characteristics requested by users. For more information and links to these applications, visit http://lehd.ces.census.gov/.

CASE STUDY EXAMPLE: SIZE CLASS DATA FROM QWI

The only size class category for which the majority of Eddy County data are not suppressed is the “Fewer than 50 workers” category. Exhibit 13 provides data on the number of establishments with fewer than 20, fewer than 50, and more than 50 workers by major industry sector.

Key Analysis Points

- The administrative and waste management services, mining, and health care and social assistance industries in Eddy County had the largest concentrations of employment at establishments with 50 or more workers (82.7, 82.4, and 80.2 percent, respectively).
- The other services and real estate industries had the largest concentrations of employment at

ANALYSIS TIP: SIZE CLASS AND ESTABLISHMENTS VERSUS EMPLOYMENT

When analyzing size class using employment totals at establishments grouped by employment range, keep in mind that, while most establishments are small in size (fewer than 20 employees), the largest percentage of employment will likely be at large establishments simply because they employ so many workers. When looking at size class by major industry sector, those sectors that tend to have more large employers (e.g., mining) will likely have higher concentrations of employment within large business establishments.

<table>
<thead>
<tr>
<th>13 Eddy County Employment by Establishment Size, Q1 2014 (Census LEHD QWI)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accom. &amp; Food Svcs</strong></td>
</tr>
<tr>
<td>55.9%</td>
</tr>
<tr>
<td>82.7%</td>
</tr>
</tbody>
</table>

Note that totals sum to more than 100 because the Fewer than 20 category is a subset of the Fewer than 50 category.

Source: U.S. Census Bureau, Quarterly Workforce Indicators
*Some data for establishments with fewer than 50 workers is significantly distorted.
establishments with fewer than 20 workers (61.9 and 53.3 percent, respectively), while other services and agriculture had the largest concentrations of establishments with fewer than 50 workers (83.5 and 67.3 percent, respectively).

Nonemployer Establishment Data

Most data on the workforce and employment measure workers employed by a business establishment. What these measurements don’t typically include is information on one of the most important segments of working New Mexicans—self-employed workers. Self-employed workers are classified as nonemployer business establishments, meaning that they do not employ any workers besides themselves. The best resource for data on nonemployer establishments is the U.S. Census Bureau’s annual Nonemployer Statistics because it provides data on employment and establishments.

Nonemployer Statistics data originate from statistical information obtained through business income tax records that the Internal Revenue Service (IRS) provides to the Census Bureau. The universe of nonemployer firms is created annually in conjunction with identifying the Census Bureau’s employer business universe.

The data are processed through various automated and analytical review to eliminate employers from the tabulation, correct and complete data items, remove anomalies, and validate geography coding and industry classification. For more information on Nonemployer Statistics, visit www.census.gov/econ/nonemployer/. For more information on nonemployer statistics, see ER&A’s Winter 2015 Regional Review (Volume 5, Issue 1).

A limitation to nonemployer statistics from the U.S. Census Bureau is that the smallest geography for which data are available is the micropolitan area. As stated previously, New Mexico’s micropolitan areas correspond to counties, therefore, only Eddy County/Carlsbad-Artesia Micropolitan Area data are available for this analysis.

ACCESSING NONEMPLOYER ESTABLISHMENT DATA

Annual Nonemployer Statistics data are available approximately 18 months after each reference year. Data are published via hypertext tables (HTML), comma-delimited format (CSV) for spreadsheet or database use, and on the American Fact Finder website—http://factfinder.census.gov. Data

14 Nonemployer Establishments as a Share of Total Establishments: Difference from NM Share in Percentage Points, 2012

Source: Census Nonemployer Establishment Statistics

CASE STUDY EXAMPLE: NONEMPLOYER ESTABLISHMENT DATA FROM THE CENSUS

Exhibit 14 provides the nonemployer share of total business establishments by county as of 2012. Based on nonemployer statistics, approximately 65 percent of Eddy County businesses were nonemployer, ranking the county twenty-ninth out of the 33 counties. Eddy’s share of nonemployer establishments is significantly less than that of the state as a whole. Lower concentrations of nonemployer establishments appear to be clustered in the southeastern, and to some extent, the southwestern parts of the state. This could be somewhat driven by industry composition in these counties—mining and

<table>
<thead>
<tr>
<th>Industry Sector</th>
<th>Nonemployer Estab.</th>
<th>Nonemp. Share of</th>
<th>Rank of NM Counties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total, All Sectors</td>
<td>2,448</td>
<td>65.2%</td>
<td>29</td>
</tr>
<tr>
<td>Agriculture</td>
<td>42</td>
<td>66.7%</td>
<td>22</td>
</tr>
<tr>
<td>Mining</td>
<td>240</td>
<td>5.1%</td>
<td>9</td>
</tr>
<tr>
<td>Utilities</td>
<td>4</td>
<td>2.4%</td>
<td>10</td>
</tr>
<tr>
<td>Construction</td>
<td>232</td>
<td>13.0%</td>
<td>25</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>50</td>
<td>3.6%</td>
<td>23</td>
</tr>
<tr>
<td>Wholesale Trade</td>
<td>42</td>
<td>7.2%</td>
<td>25</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>301</td>
<td>10.0%</td>
<td>21</td>
</tr>
<tr>
<td>Transp. &amp; Warehousing</td>
<td>129</td>
<td>11.7%</td>
<td>28</td>
</tr>
<tr>
<td>Information</td>
<td>16</td>
<td>5.6%</td>
<td>24</td>
</tr>
<tr>
<td>Finance &amp; Insurance</td>
<td>58</td>
<td>9.8%</td>
<td>18</td>
</tr>
<tr>
<td>Real Estate</td>
<td>193</td>
<td>36.6%</td>
<td>25</td>
</tr>
<tr>
<td>Prof. &amp; Technical Svcs</td>
<td>243</td>
<td>28.8%</td>
<td>25</td>
</tr>
<tr>
<td>Admin. &amp; Waste Svcs</td>
<td>164</td>
<td>13.5%</td>
<td>27</td>
</tr>
<tr>
<td>Educational Svcs</td>
<td>32</td>
<td>27.1%</td>
<td>28</td>
</tr>
<tr>
<td>Health Care &amp; Social Asst.</td>
<td>150</td>
<td>4.8%</td>
<td>28</td>
</tr>
<tr>
<td>Arts &amp; Entertainment</td>
<td>83</td>
<td>52.5%</td>
<td>21</td>
</tr>
<tr>
<td>Accommodation &amp; Food Svcs</td>
<td>37</td>
<td>1.8%</td>
<td>29</td>
</tr>
<tr>
<td>Other Services</td>
<td>432</td>
<td>33.5%</td>
<td>25</td>
</tr>
</tbody>
</table>

Source: Census Nonemployer Establishment Statistics

Notes: Data for the management of companies and public administration sectors is not available. Employment at employer establishments for the educational services sector is unavailable. A nonemployer establishment is assumed to have employment equal to one. In some cases, counties not listed may be ranked higher than those shown, but data suppression does not allow for these counties to be identified.
oil and gas extraction, with traditionally low concentrations of nonemployers, are major industries in these counties. Evidence of this industry’s impact on nonemployer establishment concentration is further supported by San Juan County, which has a significant mining industry and also has a lower concentration of nonemployer establishments.

Exhibit 15 provides Eddy County’s shares of nonemployer establishments and employment by major industry sector (2-digit NAICS). This table helps to not only identify which industries have the highest concentrations of self-employed workers, but those industries in which Eddy County has a higher concentration than other counties in New Mexico. For example, the agriculture industry has the highest concentration of self-employed workers, but this is the case in all other counties and the state as a whole. But, when looking at Eddy’s rank with respect to self-employed concentration, the county rises to the top for self-employed workers in mining and utilities.

**Employment and Demographics—The Longitudinal Employer-Household Dynamics (LEHD) Program**

The LEHD program, mentioned in the previous section, uses unemployment insurance (UI) earnings data and QCEW data, along with data from other programs, to create statistics on employment, earnings, and job flows at detailed levels of geography and industry and by different demographic groups. In addition, the LEHD program creates partially synthetic data on workers’ residential patterns (synthetic being defined as any production data applicable to a given situation that are not obtained by direct measurement). The program produces two data products—Quarterly Workforce Indicators (QWI) and LEHD Origin Destination Employment Statistics (LODES)—and administers four applications for accessing data—QWI Explorer, the LED Extraction Tool, OnTheMap, and OnTheMap for Emergency Management.

LEHD data are incredibly useful because they provide a variety of information for small geographies that is often not available from other sources. Data are particularly useful for analysis related to two main topics: (1) demographics of the workforce and (2) workforce employment flows (directional analysis of place of work). Example analytic topics include:

- Commuting patterns across counties
- Labor turnover by industry
- Worker age by industry and age of firms
- Hiring patterns by gender and age
- Education levels across industries and geographies
- Size class data

All LEHD applications and corresponding CSV data files can be accessed at the LEHD homepage—http://lehd.ces.census.gov/.
QUARTERLY WORKFORCE INDICATORS (QWI)

As mentioned previously, QWI data include 32 economic indicators such as employment, job creation, earnings, and other measures of employment flows. Data are available across quarters, with some data being available back to 1995, and are released one year after the quarter ends. QWI report data on workers, as opposed to population, using detailed firm characteristics (geography, industry, age, size) and worker demographics information (sex, age, education, race, ethnicity).

Key Analysis Points

- Workers at start-up establishments in Eddy County are more likely to be under the age of 45 than workers at other establishments. The percentage of workers under the age of 45 generally decreases as firm age increases. (See Exhibit 16.)
- Just over 19 percent of workers at start-ups were under the age of 25, representing a percentage that is the second highest of all firm age groups.

As shown in Exhibit 17, workers at Eddy County’s start-up companies are generally more likely to have higher levels of educational attainment than firms of older ages (those operating for 11 or more years being the exception). Forty-five percent of workers reported having a high school diploma (or equivalent) or less, and just under 70 percent reported having an associate’s degree or

CASE STUDY EXAMPLE: WORKFORCE DEMOGRAPHIC ANALYSIS USING QWI DATA AND THE QWI EXPLORER TOOL

To provide an example of analysis using QWI data, we will prepare a snapshot of start-up firms in Eddy County using the QWI Explorer Tool, with start-up firms being defined as businesses that reported being in operation for one year or less.

Exhibit 16 provides the employment composition of Eddy County by worker age group and age of firm, Q1 2014.

Exhibit 17 provides employment composition by worker educational attainment, and Exhibit 18 provides composition by worker race. Finally, Exhibit

<table>
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<tr>
<th>0-1 Years Start-Ups</th>
<th>2-3 Years</th>
<th>4-5 Years</th>
<th>6-10 Years</th>
<th>11+ Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.2%</td>
<td>18.8%</td>
<td>20.7%</td>
<td>16.2%</td>
<td>12.2%</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau, Quarterly Workforce Indicators

<table>
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<tr>
<th>0-1 Years Start-Ups</th>
<th>2-3 Years</th>
<th>4-5 Years</th>
<th>6-10 Years</th>
<th>11+ Years</th>
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</thead>
<tbody>
<tr>
<td>19.2%</td>
<td>18.7%</td>
<td>20.7%</td>
<td>16.2%</td>
<td>12.2%</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau, Quarterly Workforce Indicators

Note: Data not available include data for the population 24 years old or younger.
less; both percentages are the lowest of all five firm age categories (as of the first quarter of 2014). Nearly 12 percent of workers reported having a bachelor’s or advanced degree, representing the second highest of the groups, following firms operating for 11 or more years.

- Educational attainment data are unavailable for around 19 percent of workers employed at start-ups because those workers are under the age of 25 (data was not collected). This indicates that results would vary if information on these workers was available.

- Workers at start-up establishments are more likely to be of a minority race compared to workers at older firms. (See Exhibit 18.) Close to 10 percent of workers at start-ups reported their race as Black/African American, American Indian, Asian, or Other, compared to 6 to 8 percent of workers at older firms.

- The largest minority race reported by workers at start-ups was American Indian (3.1 percent).

- As of the first quarter of 2014, just around one-quarter of start-up firm employment in Eddy County was in the mining industry. (See Exhibit 19.) As was mentioned in the size class section of this article, the concentration of workers increases for certain industries that tend to have larger business establishments, such as mining and health care.

**LODES**

**LEHD ORIGIN DESTINATION EMPLOYMENT STATISTICS (LODES)**

As discussed briefly in the Employment Data section, LODES is a partially synthetic dataset that describes geographic patterns of workers by employment location and residential location, as well as the connections between the two locations. LODES data are available for a wide variety of small geographies. LODES data are often used when analyzing commuting of residents and workers. Data options include:
• Worker Demographics (gender, age, educational attainment, race, ethnicity)
• Monthly Earnings
• Industry

ACCESSING LODES DATA

LODES data are available through two online applications—OnTheMap and OnTheMap for Emergency Management. OnTheMap is a web-based mapping and reporting application that enables access to LODES data and uses reports, maps, and profiles to show where workers are employed and where they live. It also provides companion reports on age, earnings, industry distributions, race, ethnicity, educational attainment, and sex. Data are available as far back as 2002. OnTheMap for Emergency Management is a web-based tool that provides information on the potential effects of disasters on the U.S. workforce and population. The tool allows users to create detailed reports on workforce, population, and housing characteristics for hurricanes, floods, wildfires, winter storms, and federal disaster declaration areas. The tool automatically incorporates real-time data updates from the National Weather Services’ (NWS) National Hurricane Center, Department of Interior (DOI), Department of Agriculture (DOA), and the Federal Emergency Management Agency (FEMA). For more information and links to these applications, visit http://lehd.ces.census.gov.

CASE STUDY EXAMPLE: COMMUTING ANALYSIS USING LODES DATA AND THE ONTHEMAP TOOL

Commuting patterns into and out of Eddy County and commuting patterns into and out of the Greater Carlsbad Area (City of Carlsbad and Happy Valley, La Huerta, and Livingston Wheeler CDPs) are presented to provide an example of analysis using LODES data and the OnTheMap application. Area profiles, comparisons, and other analyses can be completed using LODES data, much like QWI data (for example, see the Size Class discussion earlier in the article). Origin and destination data (used to look at commuting) is unique to LODES, however, so that is what is selected for the example analysis. For the purposes of this analysis, commuters refer to persons whose primary location of work differs from their place of residence. The number of commuters do not represent those with daily commuting trips (see Analysis Tip).

Exhibit 20 shows worker flows into, out of, and within Eddy County as of 2011. Exhibits 21 and 22 provide the top...
locations from which workers are commuting into the county and to which residents are commuting out of the county. Exhibit 23 provides information on the characteristics of commuters and non-commuters, including age, earnings, and industry. Exhibit 24 shows worker flows into, out of, and within the Greater Carlsbad Area as of 2011. Exhibit 25 provides the top locations from which workers are commuting into the area and to which residents are commuting out of the area.

**Key Analysis Points: Eddy County**

- As of 2011, Eddy County had a net migration of approximately 2,663 workers; 4,175 Eddy County residents were leaving the county for work, while 6,838 nonresidents were commuting into the county for work.
- Just over 52 percent of non-county residents who were commuting into Eddy County in 2011 were commuting from nine places. (See Exhibit 21.) The largest percentage of these non-residents were commuting into Eddy County from Roswell and the Hobbs area (Hobbs City and North Hobbs CDP).
- Just over two-thirds of Eddy County residents who commuted out of the county for work in 2011 were employed in eight places. (See Exhibit 22.) Of these, the largest percentage of residents were commuting to Hobbs and Roswell, followed by Lovington and Eunice.
- Exhibit 23 shows that workers commuting out of the county were more likely to be younger (29 and under) than workers commuting into the county or not commuting.
- Workers commuting out of Eddy County were more likely to be earning less than non-commuters and workers commuting into the county.
- Workers commuting both into and out of Eddy County were more likely to be employed in goods producing and trade, transportation, and utilities industries than non-commuters.
Key Analysis Points: Greater Carlsbad Area

- As of 2011, the Greater Carlsbad Area had a net migration of approximately 789; around 4,073 residents left the area for work, while about 4,862 nonresidents commuted into the area for work. (See Exhibit 24.)
- Just under one-third of all workers coming into the area for work came from seven areas—Hobbs, Roswell, Artesia, Loving Village, El Paso, TX, Lovington, and Eunice. (See Exhibit 25.) Just over 43 percent of all area residents who commuted to a work location out of the area were going to one of these seven areas—Hobbs, Artesia, Roswell, Las Cruces, Clovis, Loving Village, and Ruidoso.
ACS AND COMMUTING DATA

Census ACS is another source for data on commuting. Place level data are available from ACS 5-year estimates for small geographies. A wide variety of data by different demographic characteristics are available under the following three main data categories:

- Means of Transportation to Work
- Travel Time to Work
- Workers by Place of Work

A key summary table for commuting data is Table S0801: Commuting Characteristics by Sex. ACS data are much more current than LODES data, but there is one key disadvantage—data are limited to stating whether or not the worker was employed in his/her place of residence. It does not provide information on specific work origins and destinations. Positively, ACS does give the analyst specific measures of error, which can help in determining whether or not to report data for small geographies. LODES data do have error measures, but they are not as specific as the margins of error reported in ACS.

Example analysis of commuting data is not provided in this article because, while data is available for Eddy County’s small geographies, specific origin-destination information is not available. Hence, LODES is the preferred data source. In addition, the OnTheMap application is very helpful in visualizing worker flows and is one of the easier applications to use for commuting analysis. That being said, in cases where means of transportation and travel times are needed, and/or the workplace and residence locations are not needed, ACS would be the preferred source. For more information on how the data from these two programs differ, visit:

This article has presented labor force, employment, and industry employment data. It has also looked at other sources and measurements of employment, including size class data, nonemployment establishment data, and demographic data on workers. The final employment data to discuss are related to occupational employment. While the Occupational Employment Statistics (OES) program is the best data source for occupational data, data are not available for geographies smaller than the MSA. Therefore, the U.S. Census Bureau’s ACS is the best data source for incorporated places and any other geographies smaller than the county.

Census ACS and Knowing When to Use It

The Census’ ACS collects information on employment by occupation for the civilian employed population 16 years of age and older. Data are reported in multiple tables, with Table S2401: Occupation by Sex and Median Earnings in the Past 12 Months (in 2013 Inflation-Adjusted Dollars) for the Civilian Employed Population 16 Years and Over being used for the purposes of this article to provide total employment estimates. The other subject table that provides occupational employment data is Table S2406: Occupation by Class of Worker for the Civilian Employed Population 16 Years and Over. Occupational employment data are accompanied by earnings data, allowing for a more complete analysis of the workforce.

Census occupation data describe the kind of work a person does on the job. The data include information on all people 15 years old and over who had worked in the past five years. For employed people, the data refer to the person’s job during the previous week. For those who worked two or more jobs, the data refer to the job where the person worked the greatest number of hours. For unemployed people and people who are not currently employed but report having a job within the last five years, the data refer to their last job. (Source: U.S. Census Bureau)

Census occupational employment data will be the only data available for small geographies. Check the Analysis Tips in the Industry Employment section to learn about key considerations when using Census data for small geographies.

(For information on accessing ACS data, please see the Labor Force section of this article.)

CASE STUDY EXAMPLE: OCCUPATIONAL EMPLOYMENT DATA FROM ACS

Exhibit 26 provides employment by major occupation group for Eddy County and select sub-county areas as of 2013. Geographies with larger...
margins of error are not shown (margin of error is 40 percent or more of the estimate). Management, business, science, and arts occupations (including management, business, and financial; computer, engineering, and science; education, legal, community service, arts, and media; and healthcare practitioner and technical occupations) had the highest employment in each geography shown, followed by sales and office-related occupations. Exhibit 27 shows the distribution of occupational employment for each geography. The Artesia CCD and Artesia City had the largest concentrations of management, business, science, and arts occupations. The Loving CCD, by far, had the smallest concentration of service occupations (including healthcare support, protective service, food preparation and serving, building and grounds maintenance, and personal care occupations). The Loving CCD had the largest concentrations of both sales and office-related occupations and natural resources, construction, and maintenance occupations.
PUTTING IT ALL TOGETHER

Many sources for employment data have been presented in this article. Some data are produced by ER&A, while others are produced by the U.S. Census Bureau. How do you know which source to use? In summary, all of the sources presented can be used for employment data. Two main factors will determine which sources you use: (1) The size of your smallest geography and (2) the depth of your analysis. Identifying the sources that provide data for your smallest geography will help you use consistent data sources across all geographies as you begin your analysis and will assist in comparative analysis. Using different sources for employment estimates should be pursued with caution. Make sure you are fully aware of the methodological differences between the sources. Knowing the depth of your analysis will also help you determine which sources to use. For example, if you intend to include industry and demographic data in your analysis, you’ll likely look to ACS and LEHD data for employment estimates. Note that it is sometimes impossible to use the same source for all your employment measurements. Just remember to not only be aware of the differences in the data, but also make sure to note those differences in anything you produce that reports the results of your analysis.

This last exhibit provides a summary of the sources discussed in the article and the geographies for which data are available. For additional information on these sources, you can visit any one of the URLs included. ER&A has also produced two other resources that summarize a variety of labor force and workforce data sources—the Labor Market Information Data Program Users Guide and Labor Market Information Program and Resource Cheat Sheet. You can find both of these publications at www.dws.state.nm.us/LaborMarketInformation/Publications/EconomicResearch_Publications.

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**Websites**
- **LAUS**: [www.bls.gov/lau/](http://www.bls.gov/lau/)
- **ACS**: [www.census.gov/acs/www/](http://www.census.gov/acs/www/)
- **QCEW**: [www.bls.gov/cew/](http://www.bls.gov/cew/)
- **CBP**: [www.census.gov/econ/cbp/index.html](http://www.census.gov/econ/cbp/index.html)
- **LEHD**: [http://lehd.ces.census.gov/](http://lehd.ces.census.gov/)
- **NonEmployer Stats**: [www.census.gov/econ/nonemployer/index.html](http://www.census.gov/econ/nonemployer/index.html)
- **QWI**: [www.census.gov/econ/qwi/countiesmicroareas.html](http://www.census.gov/econ/qwi/countiesmicroareas.html)
- **LODES**: [www.census.gov/econ/lodes/](http://www.census.gov/econ/lodes/)