The Industrial Structure and Clusters of the North San Joaquin Valley
Technical Report on the Industrial Structure and Clusters of the North San Joaquin Valley

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Introduction

This analysis on the Industrial Structure and Clusters of the North San Joaquin Valley (NSJV) is the fourth technical report from the NSJV Regional Assessment Project. Through this and the other reports, the project is providing knowledge about the resources available to support regional development. These reports will also establish a foundation for a focused regional development strategy that is aligned with other development plans. This report, like the others, applies a variety of analytical tools and methods in order to facilitate a deeper empirical understanding of the NSJV’s areas of competitive advantage and their geographies.

Using complementary approaches, the paper provides an initial overview of industrial competitiveness and clustering in the NSJV. The first section uses U.S. Bureau of Economic Analysis (BEA) data on local full-time and part-time employment to examine the NSJV’s economic base across 24 North American Industry Classification System (NAICS) defined economic sectors from 2001 to 2012. Location quotients (LQ), comparing local employment shares to the nation, show the sector’s competitive advantage. We take LQ above 1.2, which is a sector with a local employment share 1.2 times the national employment share, to indicate sectors with a local competitive advantage. Comparing these LQ over time, we identify how the clusters have been performing. The application of LQ is then complemented with a sectoral shift-share analysis of the period between 1990 and 2012 to identify factors contributing to the sectors’ employment change. As a standard method of regional analysis employment changes in the shift-share analysis is divided across three components: 1) National Growth Component, 2) Industrial Mix Component, and 3) Competitive Share Component. The National Growth Component attributes a share of the employment change to that which would have happened if the locality changed at the same rate as the nation. The Industrial Mix Component accounts for the fact that nationally some sectors have higher/lower rates of growth, the national rates of change for each sector is thereby reflected in this component. An area’s competitive advantage/disadvantage is reflected in the Competitive Share Component, which indicates the remaining employment change for the locality after the national and industrial components are accounted.

Section Two of the analysis examines industrial clusters in the NSJV using the framework and tool developed by the Unlocking Rural Competitiveness (URC) project as a resource for enhancing regional competitiveness in rural areas of the United States. The URC uses 17 broad and inclusive industrial clusters defined with a focus on rural geographies. Changes in cluster competitiveness are examined by comparing 2001 cluster LQ with their 2012 cluster LQ. In its estimates of the clusters’

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1 The BEA estimates of employment for 2001-2006 are based on the 2002 NAICS; estimates for 2007-2010 are based on the 2007 NAICS; and estimates for 2011 & 2012 are based on the 2012 NAICS.

2 It is important to note that the shift-share analysis does not indicate why a local sector may be competitive.

3 For methodological details see the URC web-site:

The third section then examines industrial clusters using the framework and tool developed by the U.S. Cluster Mapping Project (CMP).4 Using employment, establishments, and wage data at the six-digit NAICS code level from the U.S. Census Bureau’s County Business Patterns (CBP) program clusters were defined with significant externalities and linkages. The CMP separates all industries into two categories: "traded" and "local" based on the degree of industry dispersion across geographic areas. Traded industries are those concentrated in a subset of geographic areas and sell to other regions and nations. Local industries are those present in most if not all geographic areas, are evenly distributed, and hence primarily sell locally. The CMP methodology in this analysis identifies 51 traded clusters and 16 local clusters.

Key results of this analysis include the following:

- Agriculture and related services - clear areas of regional competitive advantage
- High manufacturing sector LQ in Section One seemingly related to agriculture industries across the NSJV
  - Shift-share analysis shows that this sector declined nationally, but each county had a competitive advantage
  - In the cluster analyses in Section Two and Three no county had an LQ suggesting competitive advantage in manufacturing, but food processing, livestock processing, paper & packaging, and glass & ceramics were recurrent clusters with LQ suggesting competitive advantage.

- In addition to agriculture, transportation and logistics recurrent area of competitive advantage
  - Transportation and warehousing sector had apparent advantage in Section One’s LQ analysis regionally and in each county.
  - In Section One’s shift-share analysis trade, transportation, and utilities had a significantly positive competitive share component regionally and in each county.
  - In the URC analyses in Section Two transportation & logistics had LQ suggesting competitive advantage regionally and in Stanislaus and San Joaquin Counties.
  - In the CMP analyses in Section Three both transportation & logistics and distribution & electronic commerce had LQ suggesting competitive advantage regionally and in each county.

4 For methodological details see the CMP web-site: [http://clustermapping.us/cluster](http://clustermapping.us/cluster)
Section One: The NSJV Economic Base

This section presents location quotients and a shift-share analysis of NAICS defined industrial sectors. These analyses indicate the NSJV’s economic base.

Location Quotient Dynamics

This sub-section compares changes in employment and earnings location quotients over time for sectors based on the BEA local area data, the size of the circle representing 2012 employment or earnings in the sector.

Figure 1 NSJV NAICS Industry LQ above 2.0 in 2001 and 2012 (Left-Employment & Right-Earnings)

Source: U.S. Bureau of Economic Analysis, Local Area Personal Income and Employment data.

Figure 1 shows agriculture’s significance as an area of regional concentration. Across the NSJV, farming and agricultural services recorded the highest location quotients of concentration in terms of both employment and earnings. Additional sectoral concentration in the transportation and warehousing as well as local government are seen in Figure 2. With rising employment and earning location quotients agricultural services & related activities and transportation and warehousing recorded increasing concentration in the period from 2001 to 2012. The four competitive sectors in figures 1 & 2 formed 24.1% of all NSJV employment and 33.8% of earnings in 2012. Figure 3 identifies a couple additional sectors in the region with notable concentration. Manufacturing is among the most significant emerging sectors in this figure with growing employment and earnings concentrations between 2001 and 2012.
Figure 2 NSJV NAICS Industry LQ from 1.2 to 2.2 in 2001 and/or 2012 (Left-Employment & Right-Earnings)

Source: U.S. Bureau of Economic Analysis, Local Area Personal Income and Employment data.

Figure 3 NSJV NAICS Industry LQ from 0.6 to 1.2 in 2001 and/or 2012 (Left-Employment & Right-Earnings)

Source: U.S. Bureau of Economic Analysis, Local Area Personal Income and Employment data.
<table>
<thead>
<tr>
<th>NSJV</th>
<th>2001 Location Quotient</th>
<th>2012 Location Quotient</th>
<th>2012 Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total employment</td>
<td>1.00</td>
<td>1.00</td>
<td>585,472</td>
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<tr>
<td>Accommodation and food services</td>
<td>0.90</td>
<td>0.88</td>
<td>36,741</td>
</tr>
<tr>
<td>Admin. &amp; waste management services</td>
<td>0.87</td>
<td>0.86</td>
<td>31,124</td>
</tr>
<tr>
<td><strong>Agricultural Services &amp; Related</strong></td>
<td><strong>6.59</strong></td>
<td><strong>6.93</strong></td>
<td><strong>19,519</strong></td>
</tr>
<tr>
<td>Arts, entertainment, and recreation</td>
<td>0.62</td>
<td>0.59</td>
<td>7,693</td>
</tr>
<tr>
<td>Construction</td>
<td>1.07</td>
<td>0.85</td>
<td>24,353</td>
</tr>
<tr>
<td>Educational services</td>
<td>0.51</td>
<td>0.63</td>
<td>8,577</td>
</tr>
<tr>
<td><strong>Farming</strong></td>
<td><strong>3.56</strong></td>
<td><strong>3.09</strong></td>
<td><strong>26,336</strong></td>
</tr>
<tr>
<td>Federal</td>
<td>0.63</td>
<td>0.59</td>
<td>5,564</td>
</tr>
<tr>
<td>Finance and insurance</td>
<td>0.65</td>
<td>0.64</td>
<td>20,939</td>
</tr>
<tr>
<td>Health care and social assistance</td>
<td>0.99</td>
<td>0.98</td>
<td>63,650</td>
</tr>
<tr>
<td>Information</td>
<td>0.51</td>
<td>0.43</td>
<td>4,578</td>
</tr>
<tr>
<td><strong>Local Government</strong></td>
<td><strong>1.45</strong></td>
<td><strong>1.41</strong></td>
<td><strong>63,927</strong></td>
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<tr>
<td>Management of companies</td>
<td>1.10</td>
<td>0.68</td>
<td>4,829</td>
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<tr>
<td>Manufacturing</td>
<td>1.05</td>
<td>1.18</td>
<td>48,448</td>
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<tr>
<td>Military</td>
<td>0.34</td>
<td>0.36</td>
<td>2,437</td>
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<tr>
<td>Mining</td>
<td>0.18</td>
<td>0.12</td>
<td>515</td>
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<tr>
<td>Other services</td>
<td>0.98</td>
<td>0.98</td>
<td>33,691</td>
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<tr>
<td>Prof., scientific,&amp; tech services</td>
<td>0.52</td>
<td>0.53</td>
<td>20,959</td>
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<tr>
<td>Real estate and rental and leasing</td>
<td>0.97</td>
<td>1.12</td>
<td>30,018</td>
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<tr>
<td>Retail trade</td>
<td>1.08</td>
<td>1.12</td>
<td>66,430</td>
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<tr>
<td>State Government</td>
<td>0.37</td>
<td>0.50</td>
<td>8,527</td>
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<tr>
<td><strong>Transportation and warehousing</strong></td>
<td><strong>1.25</strong></td>
<td><strong>1.64</strong></td>
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<td>Utilities</td>
<td>0.81</td>
<td>1.02</td>
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<td>Wholesale trade</td>
<td>0.78</td>
<td>1.10</td>
<td>22,506</td>
</tr>
</tbody>
</table>

Note: Bold industries had location quotients above 1.2 in 2001 and/or 2012

Source: U.S. Bureau of Economic Analysis, Local Area Personal Income and Employment data.
<table>
<thead>
<tr>
<th>NSJV</th>
<th>2001 Location Quotient</th>
<th>2012 Location Quotient</th>
<th>2012 Earnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Earnings</td>
<td>1.00</td>
<td>1.00</td>
<td>29,381,770</td>
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<td>Accommodation and food services</td>
<td>0.83</td>
<td>0.78</td>
<td>716,301</td>
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<td>Admin. &amp; waste management services</td>
<td>0.84</td>
<td>0.74</td>
<td>865,109</td>
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<tr>
<td><strong>Agricultural Services &amp; Related</strong></td>
<td><strong>6.56</strong></td>
<td><strong>9.26</strong></td>
<td><strong>770,649</strong></td>
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<tr>
<td>Arts, entertainment, and recreation</td>
<td>0.45</td>
<td>0.40</td>
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<td><strong>Construction</strong></td>
<td><strong>1.37</strong></td>
<td><strong>0.87</strong></td>
<td><strong>1,353,292</strong></td>
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<tr>
<td>Educational services</td>
<td>0.51</td>
<td>0.59</td>
<td>291,233</td>
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<tr>
<td><strong>Farming</strong></td>
<td><strong>6.36</strong></td>
<td><strong>7.85</strong></td>
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<tr>
<td>Federal</td>
<td>0.61</td>
<td>0.56</td>
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<td>Finance and insurance</td>
<td>0.42</td>
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<td>735,385</td>
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<td><strong>Health care and social assistance</strong></td>
<td><strong>1.11</strong></td>
<td><strong>1.21</strong></td>
<td><strong>3,896,843</strong></td>
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<td>Information</td>
<td>0.38</td>
<td>0.27</td>
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<td><strong>Local Government</strong></td>
<td><strong>1.87</strong></td>
<td><strong>1.83</strong></td>
<td><strong>5,023,344</strong></td>
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<tr>
<td>Management of companies</td>
<td>0.91</td>
<td>0.48</td>
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<td>Manufacturing</td>
<td>0.93</td>
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<td>Military</td>
<td>0.16</td>
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<td>86,621</td>
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<td>Mining</td>
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<td><strong>Other services</strong></td>
<td><strong>1.29</strong></td>
<td><strong>1.09</strong></td>
<td><strong>1,156,568</strong></td>
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<td>Prof., scientific, &amp; tech services</td>
<td>0.35</td>
<td>0.30</td>
<td>871,111</td>
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<td>Real estate and rental and leasing</td>
<td>0.69</td>
<td>0.87</td>
<td>470,748</td>
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<td><strong>Retail trade</strong></td>
<td><strong>1.36</strong></td>
<td><strong>1.23</strong></td>
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<td>State Government</td>
<td>0.49</td>
<td>0.67</td>
<td>719,768</td>
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<tr>
<td><strong>Transportation and warehousing</strong></td>
<td><strong>1.57</strong></td>
<td><strong>1.79</strong></td>
<td><strong>1,784,034</strong></td>
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<td>Utilities</td>
<td>0.79</td>
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<td>251,842</td>
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<td>Wholesale trade</td>
<td>0.70</td>
<td>0.93</td>
<td>1,391,666</td>
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</tbody>
</table>

Note: Bold industries had location quotients above 1.2 in 2001 and/or 2012

Source: U.S. Bureau of Economic Analysis, Local Area Personal Income and Employment data.
Figure 4 shows agriculture's significance to Merced County as an area economic concentration. Farming and agricultural services recorded the highest location quotients of concentration in terms of both employment and earnings. The importance of the public sector to Merced’s economy is also apparent with local government also featuring on figure 4 with earnings and employment location quotients above 1.7 in both 2001 and 2012. Additional sectoral concentration in the transportation and warehousing as well as state government is seen in Figure 5.
Agricultural services were the only concentrated sector with rising employment and earnings location quotients between 2001 and 2012. Employment concentration did rise in transportation and warehousing, but its earnings concentration declined slightly in the period. In contrast, earnings concentration rose in farming but its employment concentration declined. Manufacturing did not have a location quotient above 1.2 from earnings in either 2001 or 2012 although it did see its earnings concentration rise from 0.95 to 1.11 times the national share and employment concentration in the sector rose from a location quotient of 1.23 to 1.31. Merced county employment in the three sectors with earnings and employment concentrations above 1.2 in both 2001 and 2012, agricultural services, farming, and local government, formed 27.3% of all county employment and 40.1% of earnings.

Figure 6 Merced County LQ from 0.6 to 1.2 in 2001 and/or 2012 (Left-Employment & Right-Earnings)

Source: U.S. Bureau of Economic Analysis, Local Area Personal Income and Employment data.
Table 3: Merced County Employment LQ in 2001 and 2012

<table>
<thead>
<tr>
<th>Merced County</th>
<th>2001 Location Quotient</th>
<th>2012 Location Quotient</th>
<th>2012 Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total employment</td>
<td>1.00</td>
<td>1.00</td>
<td>93,766</td>
</tr>
<tr>
<td>Accommodation and food services</td>
<td>0.87</td>
<td>0.74</td>
<td>4,969</td>
</tr>
<tr>
<td>Admin. &amp; waste management services</td>
<td>0.53</td>
<td>0.71</td>
<td>4,095</td>
</tr>
<tr>
<td><strong>Agricultural services &amp; related</strong></td>
<td><strong>9.19</strong></td>
<td><strong>9.97</strong></td>
<td><strong>4,500</strong></td>
</tr>
<tr>
<td>Arts, entertainment, and recreation</td>
<td>0.53</td>
<td>0.48</td>
<td>1,008</td>
</tr>
<tr>
<td>Construction</td>
<td>0.71</td>
<td>0.69</td>
<td>3,163</td>
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<tr>
<td>Educational services</td>
<td>0.15</td>
<td>0.17</td>
<td>377</td>
</tr>
<tr>
<td><strong>Farming</strong></td>
<td><strong>6.83</strong></td>
<td><strong>5.91</strong></td>
<td><strong>8,075</strong></td>
</tr>
<tr>
<td>Federal</td>
<td>0.46</td>
<td>0.51</td>
<td>758</td>
</tr>
<tr>
<td>Finance and insurance</td>
<td>0.42</td>
<td>0.48</td>
<td>2,488</td>
</tr>
<tr>
<td>Health care and social assistance</td>
<td>0.86</td>
<td>0.80</td>
<td>8,241</td>
</tr>
<tr>
<td>Information</td>
<td>0.27</td>
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</tr>
<tr>
<td><strong>Local Government</strong></td>
<td><strong>1.92</strong></td>
<td><strong>1.79</strong></td>
<td><strong>13,037</strong></td>
</tr>
<tr>
<td>Management of companies</td>
<td>1.10</td>
<td>0.73</td>
<td>826</td>
</tr>
<tr>
<td><strong>Manufacturing</strong></td>
<td><strong>1.23</strong></td>
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<tr>
<td>Military</td>
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<td>0.39</td>
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<td>Mining</td>
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<td>Other services</td>
<td>1.03</td>
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<td>5,138</td>
</tr>
<tr>
<td>Prof., scientific,&amp; tech services</td>
<td>0.38</td>
<td>0.45</td>
<td>2,886</td>
</tr>
<tr>
<td>Real estate and rental and leasing</td>
<td>0.80</td>
<td>0.88</td>
<td>3,788</td>
</tr>
<tr>
<td>Retail trade</td>
<td>0.99</td>
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<td>9,703</td>
</tr>
<tr>
<td>State Government</td>
<td>0.13</td>
<td>1.19</td>
<td>3,250</td>
</tr>
<tr>
<td><strong>Transportation and warehousing</strong></td>
<td><strong>0.98</strong></td>
<td><strong>1.28</strong></td>
<td><strong>3,912</strong></td>
</tr>
<tr>
<td>Utilities</td>
<td>0.91</td>
<td>1.01</td>
<td>304</td>
</tr>
<tr>
<td>Wholesale trade</td>
<td>0.67</td>
<td>0.82</td>
<td>2,704</td>
</tr>
</tbody>
</table>

*Note: Bold industries had location quotients above 1.2 in 2001 and/or 2012*

*Source: U.S. Bureau of Economic Analysis, Local Area Personal Income and Employment data.*
<table>
<thead>
<tr>
<th>Merced County</th>
<th>2001 Location Quotient</th>
<th>2012 Location Quotient</th>
<th>2012 Earnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Earnings</td>
<td>1.00</td>
<td>1.00</td>
<td>4,759,379</td>
</tr>
<tr>
<td>Accommodation and food services</td>
<td>0.79</td>
<td>0.62</td>
<td>92,368</td>
</tr>
<tr>
<td>Admin. &amp; waste management services</td>
<td>0.41</td>
<td>0.51</td>
<td>96,672</td>
</tr>
<tr>
<td><strong>Agricultural services &amp; related</strong></td>
<td><strong>11.52</strong></td>
<td><strong>13.90</strong></td>
<td><strong>187,419</strong></td>
</tr>
<tr>
<td>Arts, entertainment, and recreation</td>
<td>0.58</td>
<td>0.21</td>
<td>10,828</td>
</tr>
<tr>
<td>Construction</td>
<td>0.97</td>
<td>0.67</td>
<td>166,752</td>
</tr>
<tr>
<td>Educational services</td>
<td>0.08</td>
<td>0.06</td>
<td>4,764</td>
</tr>
<tr>
<td><strong>Farming</strong></td>
<td><strong>13.16</strong></td>
<td><strong>16.50</strong></td>
<td><strong>798,035</strong></td>
</tr>
<tr>
<td>Federal</td>
<td>0.49</td>
<td>0.50</td>
<td>72,403</td>
</tr>
<tr>
<td>Finance and insurance</td>
<td>0.25</td>
<td>0.20</td>
<td>65,534</td>
</tr>
<tr>
<td>Health care and social assistance</td>
<td>0.99</td>
<td>0.81</td>
<td>420,865</td>
</tr>
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<td>Information</td>
<td>0.16</td>
<td>0.16</td>
<td>24,784</td>
</tr>
<tr>
<td><strong>Local Government</strong></td>
<td><strong>2.36</strong></td>
<td><strong>2.08</strong></td>
<td><strong>923,229</strong></td>
</tr>
<tr>
<td>Management of companies</td>
<td>1.00</td>
<td>0.59</td>
<td>73,723</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>0.95</td>
<td>1.11</td>
<td>524,141</td>
</tr>
<tr>
<td>Military</td>
<td>0.19</td>
<td>0.20</td>
<td>13,768</td>
</tr>
<tr>
<td>Mining</td>
<td>0.05</td>
<td>0.02</td>
<td>1,305</td>
</tr>
<tr>
<td><strong>Other services</strong></td>
<td><strong>1.27</strong></td>
<td><strong>1.02</strong></td>
<td><strong>176,345</strong></td>
</tr>
<tr>
<td>Prof., scientific, &amp; tech services</td>
<td>0.22</td>
<td>0.20</td>
<td>96,706</td>
</tr>
<tr>
<td>Real estate and rental and leasing</td>
<td>0.51</td>
<td>0.46</td>
<td>40,402</td>
</tr>
<tr>
<td>Retail trade</td>
<td>1.23</td>
<td>1.04</td>
<td>296,154</td>
</tr>
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<td><strong>State Government</strong></td>
<td><strong>0.14</strong></td>
<td><strong>1.47</strong></td>
<td><strong>256,887</strong></td>
</tr>
<tr>
<td><strong>Transportation and warehousing</strong></td>
<td><strong>1.84</strong></td>
<td><strong>1.42</strong></td>
<td><strong>229,411</strong></td>
</tr>
<tr>
<td>Utilities</td>
<td>1.07</td>
<td>1.12</td>
<td>43,216</td>
</tr>
<tr>
<td>Wholesale trade</td>
<td>0.52</td>
<td>0.59</td>
<td>143,668</td>
</tr>
</tbody>
</table>

Note: Bold industries had location quotients above 1.2 in 2001 and/or 2012

Source: U.S. Bureau of Economic Analysis, Local Area Personal Income and Employment data.
Figure 7 shows Stanislaus County’s concentration in agriculture. Farming and agricultural services again recorded the highest location quotients of concentration in terms of both employment and earnings. The importance of local government, manufacturing and transportation & warehousing to Stanislaus’ economy is also apparent with earnings and employment location quotients above 1.2 in 2012 as seen in Figure 7 & 8.
Emergent sectoral concentrations are suggested in Figure 8 and Figure 9. Health care & social assistance is one such area with earnings location quotients above 1.2 in 2001 & 2012 and employment location quotients above 1.0 in both years.

Figure 9 Stanislaus County LQ from 0.6 to 1.2 in 2001 and/or 2012 (Left-Employment & Right-Earnings)

Source: U.S. Bureau of Economic Analysis, Local Area Personal Income and Employment data.
Table 5 Stanislaus County Employment LQ IN 2001 and 2012

<table>
<thead>
<tr>
<th>Stanislaus County</th>
<th>2001 Location Quotient</th>
<th>2012 Location Quotient</th>
<th>2012 Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total employment</td>
<td>1.00</td>
<td>1.00</td>
<td>214,446</td>
</tr>
<tr>
<td>Accommodation and food services</td>
<td>0.96</td>
<td>0.96</td>
<td>14,613</td>
</tr>
<tr>
<td>Admin. &amp; waste management services</td>
<td>0.91</td>
<td>0.82</td>
<td>10,801</td>
</tr>
<tr>
<td><strong>Agricultural services &amp; related</strong></td>
<td><strong>7.04</strong></td>
<td><strong>6.45</strong></td>
<td><strong>6,655</strong></td>
</tr>
<tr>
<td>Arts, entertainment, and recreation</td>
<td>0.54</td>
<td>0.62</td>
<td>2,963</td>
</tr>
<tr>
<td>Construction</td>
<td>1.17</td>
<td>0.90</td>
<td>9,459</td>
</tr>
<tr>
<td>Educational services</td>
<td>0.34</td>
<td>0.46</td>
<td>2,317</td>
</tr>
<tr>
<td><strong>Farming</strong></td>
<td><strong>3.02</strong></td>
<td><strong>2.92</strong></td>
<td><strong>9,129</strong></td>
</tr>
<tr>
<td>Federal</td>
<td>0.34</td>
<td>0.25</td>
<td>869</td>
</tr>
<tr>
<td>Finance and insurance</td>
<td>0.60</td>
<td>0.61</td>
<td>7,299</td>
</tr>
<tr>
<td>Health care and social assistance</td>
<td>1.04</td>
<td>1.08</td>
<td>25,600</td>
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<td>Information</td>
<td>0.51</td>
<td>0.35</td>
<td>1,378</td>
</tr>
<tr>
<td><strong>Local Government</strong></td>
<td><strong>1.37</strong></td>
<td><strong>1.40</strong></td>
<td><strong>23,326</strong></td>
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<tr>
<td><strong>Management of companies</strong></td>
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<td><strong>0.83</strong></td>
<td><strong>2,140</strong></td>
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<tr>
<td><strong>Manufacturing</strong></td>
<td><strong>1.18</strong></td>
<td><strong>1.39</strong></td>
<td><strong>20,950</strong></td>
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<tr>
<td>Military</td>
<td>0.33</td>
<td>0.34</td>
<td>835</td>
</tr>
<tr>
<td>Mining</td>
<td>0.11</td>
<td>0.10</td>
<td>157</td>
</tr>
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<td>Other services</td>
<td>1.03</td>
<td>0.99</td>
<td>12,432</td>
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<tr>
<td>Prof., scientific,&amp; tech services</td>
<td>0.57</td>
<td>0.58</td>
<td>8,452</td>
</tr>
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<td>Real estate and rental and leasing</td>
<td>0.93</td>
<td>1.12</td>
<td>10,993</td>
</tr>
<tr>
<td>Retail trade</td>
<td>1.15</td>
<td>1.18</td>
<td>25,595</td>
</tr>
<tr>
<td>State Government</td>
<td>0.27</td>
<td>0.26</td>
<td>1,659</td>
</tr>
<tr>
<td><strong>Transportation and warehousing</strong></td>
<td><strong>0.86</strong></td>
<td><strong>1.33</strong></td>
<td><strong>9,305</strong></td>
</tr>
<tr>
<td>Utilities</td>
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<td>0.42</td>
<td>290</td>
</tr>
<tr>
<td>Wholesale trade</td>
<td>0.82</td>
<td>0.96</td>
<td>7,229</td>
</tr>
</tbody>
</table>

Note: Bold industries had location quotients above 1.2 in 2001 and/or 2012

Source: U.S. Bureau of Economic Analysis, Local Area Personal Income and Employment data.
### Table 6 Stanislaus County Earnings LQ in 2001 and 2012

<table>
<thead>
<tr>
<th>Stanislaus County</th>
<th>2001 Location Quotient</th>
<th>2012 Location Quotient</th>
<th>2012 Earnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Earnings</td>
<td>1.00</td>
<td>1.00</td>
<td>10,972,089</td>
</tr>
<tr>
<td>Accommodation and food services</td>
<td>0.91</td>
<td>0.83</td>
<td>284,774</td>
</tr>
<tr>
<td>Admin. &amp; waste management services</td>
<td>0.85</td>
<td>0.70</td>
<td>308,229</td>
</tr>
<tr>
<td><strong>Agricultural services &amp; related</strong></td>
<td><strong>5.73</strong></td>
<td><strong>9.17</strong></td>
<td><strong>284,871</strong></td>
</tr>
<tr>
<td>Arts, entertainment, and recreation</td>
<td>0.33</td>
<td>0.38</td>
<td>45,291</td>
</tr>
<tr>
<td><strong>Construction</strong></td>
<td><strong>1.36</strong></td>
<td><strong>0.84</strong></td>
<td><strong>486,187</strong></td>
</tr>
<tr>
<td>Educational services</td>
<td>0.23</td>
<td>0.38</td>
<td>68,930</td>
</tr>
<tr>
<td><strong>Farming</strong></td>
<td><strong>5.11</strong></td>
<td><strong>7.91</strong></td>
<td><strong>881,529</strong></td>
</tr>
<tr>
<td>Federal</td>
<td>0.29</td>
<td>0.23</td>
<td>76,381</td>
</tr>
<tr>
<td>Finance and insurance</td>
<td>0.39</td>
<td>0.34</td>
<td>261,131</td>
</tr>
<tr>
<td><strong>Health care and social assistance</strong></td>
<td><strong>1.25</strong></td>
<td><strong>1.47</strong></td>
<td><strong>1,769,044</strong></td>
</tr>
<tr>
<td>Information</td>
<td>0.36</td>
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<td>70,981</td>
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<tr>
<td><strong>Local Government</strong></td>
<td><strong>1.83</strong></td>
<td><strong>1.77</strong></td>
<td><strong>1,812,930</strong></td>
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<tr>
<td>Management of companies</td>
<td>1.13</td>
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<tr>
<td><strong>Manufacturing</strong></td>
<td><strong>1.12</strong></td>
<td><strong>1.39</strong></td>
<td><strong>1,513,628</strong></td>
</tr>
<tr>
<td>Military</td>
<td>0.14</td>
<td>0.17</td>
<td>27,776</td>
</tr>
<tr>
<td>Mining</td>
<td>0.04</td>
<td>0.02</td>
<td>3,181</td>
</tr>
<tr>
<td><strong>Other services</strong></td>
<td><strong>1.35</strong></td>
<td><strong>1.04</strong></td>
<td><strong>411,460</strong></td>
</tr>
<tr>
<td>Prof., scientific, &amp; tech services</td>
<td>0.40</td>
<td>0.33</td>
<td>356,814</td>
</tr>
<tr>
<td>Real estate and rental and leasing</td>
<td>0.64</td>
<td>0.89</td>
<td>179,687</td>
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<tr>
<td><strong>Retail trade</strong></td>
<td><strong>1.43</strong></td>
<td><strong>1.28</strong></td>
<td><strong>839,003</strong></td>
</tr>
<tr>
<td>State Government</td>
<td>0.03</td>
<td>0.03</td>
<td>132,998</td>
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<tr>
<td><strong>Transportation and warehousing</strong></td>
<td><strong>1.22</strong></td>
<td><strong>1.47</strong></td>
<td><strong>543,612</strong></td>
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<tr>
<td>Utilities</td>
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<tr>
<td>Wholesale trade</td>
<td>0.70</td>
<td>0.80</td>
<td>451,276</td>
</tr>
</tbody>
</table>

Note: Bold industries had location quotients above 1.2 in 2001 and/or 2012

Source: U.S. Bureau of Economic Analysis, Local Area Personal Income and Employment data.

Figure 10 shows San Joaquin County’s concentrations in agriculture and transportation & warehousing. While farming and agricultural services again recorded the highest location quotients in both employment and earnings, transportation and warehousing had location quotients above 1.65 in 2001 & 2012. The importance of local government and utilities to San Joaquin County’s economy is also apparent with earnings and employment location quotients above 1.2 in 2012 as seen in Figure 10 & 11.
Emergent sectoral concentrations are suggested in Figure 11 and Figure 12. Wholesale trade is one area, with employment and earnings location quotients above 1.0 in 2012. Retail trade is another area; it recorded earnings location quotients above 1.2 in both 2001 & 2012 and employment location quotients above 1.0 in both years.
Figure 12 San Joaquin County LQ from 0.7 to 1.2 in 2001 and/or 2012 (Left-Employment & Right-Earnings)

Table 7 San Joaquin County Employment LQ IN 2001 and 2012

<table>
<thead>
<tr>
<th>San Joaquin County</th>
<th>2001 Location Quotient</th>
<th>2012 Location Quotient</th>
<th>2012 Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total employment</td>
<td>1.00</td>
<td>1.00</td>
<td>277,260</td>
</tr>
<tr>
<td>Accommodation and food services</td>
<td>0.86</td>
<td>0.87</td>
<td>17,159</td>
</tr>
<tr>
<td>Admin. &amp; waste management services</td>
<td>0.96</td>
<td>0.95</td>
<td>16,228</td>
</tr>
<tr>
<td><strong>Agricultural services &amp; related</strong></td>
<td><strong>5.40</strong></td>
<td><strong>6.27</strong></td>
<td><strong>8,364</strong></td>
</tr>
<tr>
<td>Arts, entertainment, and recreation</td>
<td>0.72</td>
<td>0.60</td>
<td>3,722</td>
</tr>
<tr>
<td>Construction</td>
<td>1.11</td>
<td>0.86</td>
<td>11,731</td>
</tr>
<tr>
<td>Educational services</td>
<td>0.76</td>
<td>0.91</td>
<td>5,883</td>
</tr>
<tr>
<td>Farming</td>
<td>2.96</td>
<td>2.26</td>
<td>9,132</td>
</tr>
<tr>
<td>Federal</td>
<td>0.92</td>
<td>0.89</td>
<td>3,937</td>
</tr>
<tr>
<td>Finance and insurance</td>
<td>0.76</td>
<td>0.72</td>
<td>11,152</td>
</tr>
<tr>
<td>Health care and social assistance</td>
<td>0.99</td>
<td>0.97</td>
<td>29,809</td>
</tr>
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<td>Information</td>
<td>0.59</td>
<td>0.53</td>
<td>2,676</td>
</tr>
<tr>
<td><strong>Local Government</strong></td>
<td><strong>1.36</strong></td>
<td><strong>1.28</strong></td>
<td><strong>27,564</strong></td>
</tr>
<tr>
<td>Management of companies</td>
<td>0.98</td>
<td>0.56</td>
<td>1,863</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>0.88</td>
<td>0.97</td>
<td>18,877</td>
</tr>
<tr>
<td>Military</td>
<td>0.34</td>
<td>0.37</td>
<td>1,187</td>
</tr>
<tr>
<td>Mining</td>
<td>0.24</td>
<td>0.15</td>
<td>298</td>
</tr>
<tr>
<td>Other services</td>
<td>0.93</td>
<td>0.99</td>
<td>16,121</td>
</tr>
<tr>
<td>Prof., scientific, &amp; tech services</td>
<td>0.53</td>
<td>0.51</td>
<td>9,621</td>
</tr>
<tr>
<td><strong>Real estate and rental and leasing</strong></td>
<td><strong>1.04</strong></td>
<td><strong>1.20</strong></td>
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<tr>
<td>Retail trade</td>
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<td>State Government</td>
<td>0.52</td>
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<td><strong>Transportation and warehousing</strong></td>
<td><strong>1.65</strong></td>
<td><strong>2.00</strong></td>
<td><strong>18,060</strong></td>
</tr>
<tr>
<td>Utilities</td>
<td>1.18</td>
<td>1.48</td>
<td>1,316</td>
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<tr>
<td><strong>Wholesale trade</strong></td>
<td><strong>0.79</strong></td>
<td><strong>1.29</strong></td>
<td><strong>12,573</strong></td>
</tr>
</tbody>
</table>

Note: Bold industries had location quotients above 1.2 in 2001 and/or 2012

Source: U.S. Bureau of Economic Analysis, Local Area Personal Income and Employment data.
### Table 8 Stanislaus County Earnings LQ in 2001 and 2012

<table>
<thead>
<tr>
<th>San Joaquin County</th>
<th>2001 Location Quotient</th>
<th>2012 Location Quotient</th>
<th>2012 Earnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Earnings</td>
<td>1.00</td>
<td>1.00</td>
<td>13,650,302</td>
</tr>
<tr>
<td>Accommodation and food services</td>
<td>0.79</td>
<td>0.80</td>
<td>339,159</td>
</tr>
<tr>
<td>Admin. &amp; waste management services</td>
<td>0.95</td>
<td>0.84</td>
<td>460,208</td>
</tr>
<tr>
<td><strong>Agricultural services &amp; related</strong></td>
<td><strong>5.78</strong></td>
<td><strong>7.72</strong></td>
<td><strong>298,359</strong></td>
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<tr>
<td>Arts, entertainment, and recreation</td>
<td>0.50</td>
<td>0.48</td>
<td>70,174</td>
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<tr>
<td><strong>Construction</strong></td>
<td><strong>1.49</strong></td>
<td><strong>0.97</strong></td>
<td><strong>700,353</strong></td>
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<tr>
<td>Educational services</td>
<td>0.84</td>
<td>0.95</td>
<td>217,339</td>
</tr>
<tr>
<td><strong>Farming</strong></td>
<td><strong>5.37</strong></td>
<td><strong>4.79</strong></td>
<td><strong>664,646</strong></td>
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<tr>
<td>Federal</td>
<td>0.89</td>
<td>0.84</td>
<td>351,045</td>
</tr>
<tr>
<td>Finance and insurance</td>
<td>0.49</td>
<td>0.43</td>
<td>408,720</td>
</tr>
<tr>
<td>Health care and social assistance</td>
<td>1.03</td>
<td>1.14</td>
<td>1,706,934</td>
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<tr>
<td>Information</td>
<td>0.46</td>
<td>0.36</td>
<td>158,893</td>
</tr>
<tr>
<td><strong>Local Government</strong></td>
<td><strong>1.77</strong></td>
<td><strong>1.80</strong></td>
<td><strong>2,287,195</strong></td>
</tr>
<tr>
<td>Management of companies</td>
<td>0.71</td>
<td>0.48</td>
<td>173,356</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>0.78</td>
<td>0.88</td>
<td>1,185,223</td>
</tr>
<tr>
<td>Military</td>
<td>0.16</td>
<td>0.23</td>
<td>45,077</td>
</tr>
<tr>
<td>Mining</td>
<td>0.16</td>
<td>0.06</td>
<td>13,757</td>
</tr>
<tr>
<td><strong>Other services</strong></td>
<td><strong>1.26</strong></td>
<td><strong>1.15</strong></td>
<td><strong>568,763</strong></td>
</tr>
<tr>
<td>Prof., scientific, &amp; tech services</td>
<td>0.36</td>
<td>0.31</td>
<td>417,591</td>
</tr>
<tr>
<td>Real estate and rental and leasing</td>
<td>0.78</td>
<td>0.99</td>
<td>250,659</td>
</tr>
<tr>
<td><strong>Retail trade</strong></td>
<td><strong>1.33</strong></td>
<td><strong>1.26</strong></td>
<td><strong>1,024,351</strong></td>
</tr>
<tr>
<td>State Government</td>
<td>0.69</td>
<td>0.66</td>
<td>329,883</td>
</tr>
<tr>
<td><strong>Transportation and warehousing</strong></td>
<td><strong>1.77</strong></td>
<td><strong>2.18</strong></td>
<td><strong>1,009,011</strong></td>
</tr>
<tr>
<td><strong>Utilities</strong></td>
<td><strong>1.12</strong></td>
<td><strong>1.57</strong></td>
<td><strong>172,694</strong></td>
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<tr>
<td>Wholesale trade</td>
<td>0.74</td>
<td>1.14</td>
<td>796,722</td>
</tr>
</tbody>
</table>

Note: Bold industries had location quotients above 1.2 in 2001 and/or 2012

Source: U.S. Bureau of Economic Analysis, Local Area Personal Income and Employment data.

### Shift-Share Analysis

This sub-section presents a shift-share analysis of employment for twelve supersectors that contain one or more two-digit NAICS sectors. The employment data presented in this analysis was obtained from the U.S. Bureau of Labor Statistics’ Census of Employment and Wages. We review the NSJV as a whole before analyzing San Joaquin, Stanislaus, and Merced counties in turn. During the 1990 to 2012 period employment in the NSJV increased by 77,796. The service sectors led overall job growth. Education and health services had the largest increase in employment, 35,018, while professional & business services as well as other services recorded the highest rates of growth. The largest decline in the number of jobs was recorded in the manufacturing sector, 14,131, but the information sector and the construction sector had larger rates of decline during this period.

When these employment changes in the NSJV are examined through a shift-share analysis, we see that the National Growth Component (NGC) was responsible for 76,271 new jobs during the

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5 For additional information on the Census of Employment and Wages see: [http://www.bls.gov/cew/home.htm](http://www.bls.gov/cew/home.htm)
period. The NSJV’s industrial mix component reflected an overall loss of 10,516 jobs, largely due to the concentration in manufacturing which decreased employment nationally. Positive growth in competitive share components of the transportation sector, manufacturing, professional and other services were indicators of the region’s productive advantage in these sectors.

Table 9 Employment Change in the NSJV 1990 to 2012

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Education and Health Services</td>
<td>67,316</td>
<td>102,334</td>
<td>35,018</td>
<td>52</td>
</tr>
<tr>
<td>Trade, Transportation, &amp; Utilities</td>
<td>71,482</td>
<td>100,386</td>
<td>28,904</td>
<td>40</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>60,708</td>
<td>46,577</td>
<td>-14,131</td>
<td>-23</td>
</tr>
<tr>
<td>Natural Resources and Mining</td>
<td>43,163</td>
<td>41,452</td>
<td>-1,711</td>
<td>-4</td>
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<tr>
<td>Leisure and Hospitality</td>
<td>25,645</td>
<td>36,977</td>
<td>11,332</td>
<td>44</td>
</tr>
<tr>
<td>Professional &amp; Business Services</td>
<td>18,501</td>
<td>33,905</td>
<td>15,404</td>
<td>83</td>
</tr>
<tr>
<td>Public Administration</td>
<td>17,516</td>
<td>21,383</td>
<td>3,867</td>
<td>22</td>
</tr>
<tr>
<td>Other Services</td>
<td>10,711</td>
<td>19,895</td>
<td>9,184</td>
<td>86</td>
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<td>Construction</td>
<td>20,827</td>
<td>15,520</td>
<td>-5,307</td>
<td>-26</td>
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<tr>
<td>Financial Activities</td>
<td>17,562</td>
<td>14,472</td>
<td>-3,090</td>
<td>-18</td>
</tr>
<tr>
<td>Information</td>
<td>5,140</td>
<td>3,466</td>
<td>-1,674</td>
<td>-33</td>
</tr>
<tr>
<td></td>
<td>358,571</td>
<td>436,367</td>
<td>77,796</td>
<td></td>
</tr>
</tbody>
</table>


Table 10 Shift-Share Analysis of the NSJV 1990 to 2012

<table>
<thead>
<tr>
<th>Sector</th>
<th>National Growth Component, Percent</th>
<th>National Growth Component, Jobs</th>
<th>Industrial Mix Component, Percent</th>
<th>Industrial Mix Component, Jobs</th>
<th>Competitive Share Component, Percent</th>
<th>Competitive Share Component, Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade, Transportation, and Utilities</td>
<td>21</td>
<td>15,205</td>
<td>-11</td>
<td>-7,510</td>
<td>30</td>
<td>21,209</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>21</td>
<td>12,913</td>
<td>-55</td>
<td>-33,120</td>
<td>10</td>
<td>6,076</td>
</tr>
<tr>
<td>Other Services</td>
<td>21</td>
<td>2,278</td>
<td>9</td>
<td>985</td>
<td>55</td>
<td>5,921</td>
</tr>
<tr>
<td>Professional and Business Services</td>
<td>21</td>
<td>3,935</td>
<td>48</td>
<td>8,952</td>
<td>14</td>
<td>2,517</td>
</tr>
<tr>
<td>Public Administration</td>
<td>21</td>
<td>3,726</td>
<td>-7</td>
<td>-1,254</td>
<td>8</td>
<td>1,395</td>
</tr>
<tr>
<td>Leisure and Hospitality</td>
<td>21</td>
<td>5,455</td>
<td>26</td>
<td>6,582</td>
<td>-3</td>
<td>-705</td>
</tr>
<tr>
<td>Information</td>
<td>21</td>
<td>1,093</td>
<td>-24</td>
<td>-1,240</td>
<td>-30</td>
<td>-1,527</td>
</tr>
<tr>
<td>Education and Health Services</td>
<td>21</td>
<td>14,319</td>
<td>36</td>
<td>24,387</td>
<td>-6</td>
<td>-3,688</td>
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<tr>
<td>Financial Activities</td>
<td>21</td>
<td>3,736</td>
<td>-11</td>
<td>-1,983</td>
<td>-28</td>
<td>-4,843</td>
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<tr>
<td>Construction</td>
<td>21</td>
<td>4,430</td>
<td>-14</td>
<td>-2,978</td>
<td>-33</td>
<td>-6,759</td>
</tr>
<tr>
<td>Natural Resources and Mining</td>
<td>21</td>
<td>9,181</td>
<td>-8</td>
<td>-3,337</td>
<td>-18</td>
<td>-7,555</td>
</tr>
<tr>
<td></td>
<td>76,271</td>
<td>-10,516</td>
<td>12,041</td>
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</tr>
</tbody>
</table>

During the 1990 to 2012 period employment in San Joaquin County increased by 24.5%, which equated to 40,407 jobs and was above the 21.7% growth recorded for the NSJV region as a whole. The transportation sector had the largest increase in employment, 21,209, while professional & business services as well as other services recorded the highest rates of growth. The largest decline in employment was recorded in the manufacturing sector, 7,565.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade, Transportation, and Utilities</td>
<td>33,677</td>
<td>52,391</td>
<td>18,714</td>
<td>56</td>
</tr>
<tr>
<td>Education and Health Services</td>
<td>30,883</td>
<td>46,097</td>
<td>15,214</td>
<td>49</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>25,151</td>
<td>17,586</td>
<td>-7,565</td>
<td>-30</td>
</tr>
<tr>
<td>Leisure and Hospitality</td>
<td>12,149</td>
<td>17,255</td>
<td>5,106</td>
<td>42</td>
</tr>
<tr>
<td>Professional and Business Services</td>
<td>9,628</td>
<td>16,490</td>
<td>6,862</td>
<td>71</td>
</tr>
<tr>
<td>Natural Resources and Mining</td>
<td>16,679</td>
<td>15,685</td>
<td>-994</td>
<td>-6</td>
</tr>
<tr>
<td>Public Administration</td>
<td>9,560</td>
<td>12,988</td>
<td>3,408</td>
<td>36</td>
</tr>
<tr>
<td>Other Services</td>
<td>4,864</td>
<td>9,406</td>
<td>4,542</td>
<td>95</td>
</tr>
<tr>
<td>Construction</td>
<td>9,846</td>
<td>7,629</td>
<td>-2,217</td>
<td>-23</td>
</tr>
<tr>
<td>Financial Activities</td>
<td>9,581</td>
<td>7,468</td>
<td>-2,113</td>
<td>-22</td>
</tr>
<tr>
<td>Information</td>
<td>2,704</td>
<td>2,094</td>
<td>-610</td>
<td>-23</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>164,742</strong></td>
<td><strong>205,149</strong></td>
<td><strong>40,407</strong></td>
<td></td>
</tr>
</tbody>
</table>


Shift-share analysis of San Joaquin County's employment change indicates that the national growth component was responsible for 35,042 new jobs during the period. San Joaquin’s industrial mix component registered a loss of 2,964 jobs, due to the concentration in manufacturing and transportation which decreased employment nationally. Positive growth in competitive share components of the transportation sector, other services, manufacturing, professional services and public administration indicated areas where the county has competitive advantage.
Table 12 Shift-Share Analysis of San Joaquin County 1990 to 2012

<table>
<thead>
<tr>
<th>Sector</th>
<th>National Growth Component, Percent</th>
<th>National Growth Component, Jobs</th>
<th>Industrial Mix Component, Percent</th>
<th>Industrial Mix Component, Jobs</th>
<th>Competitive Share Component, Percent</th>
<th>Competitive Share Component, Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade, Transportation, and Utilities</td>
<td>21</td>
<td>7,163</td>
<td>-11</td>
<td>-3,538</td>
<td>45</td>
<td>15,089</td>
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<tr>
<td>Other Services</td>
<td>21</td>
<td>1,035</td>
<td>9</td>
<td>447</td>
<td>64</td>
<td>3,120</td>
</tr>
<tr>
<td>Public Administration</td>
<td>21</td>
<td>2,038</td>
<td>-7</td>
<td>-686</td>
<td>22</td>
<td>2,056</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>21</td>
<td>5,350</td>
<td>-55</td>
<td>-13,721</td>
<td>3</td>
<td>806</td>
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<tr>
<td>Professional and Business Services</td>
<td>21</td>
<td>2,048</td>
<td>48</td>
<td>4,659</td>
<td>2</td>
<td>155</td>
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<tr>
<td>Information</td>
<td>21</td>
<td>575</td>
<td>-24</td>
<td>-652</td>
<td>-20</td>
<td>-533</td>
</tr>
<tr>
<td>Leisure and Hospitality</td>
<td>21</td>
<td>2,584</td>
<td>26</td>
<td>3,118</td>
<td>-5</td>
<td>-596</td>
</tr>
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<td>Education and Health Services</td>
<td>21</td>
<td>6,569</td>
<td>36</td>
<td>11,188</td>
<td>-8</td>
<td>-2,543</td>
</tr>
<tr>
<td>Construction</td>
<td>21</td>
<td>2,094</td>
<td>-14</td>
<td>-1,408</td>
<td>-30</td>
<td>-2,903</td>
</tr>
<tr>
<td>Financial Activities</td>
<td>21</td>
<td>2,038</td>
<td>-11</td>
<td>-1,082</td>
<td>-32</td>
<td>-3,069</td>
</tr>
<tr>
<td>Natural Resources and Mining</td>
<td>21</td>
<td>3,548</td>
<td>-8</td>
<td>-1,289</td>
<td>-20</td>
<td>-3,252</td>
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<tr>
<td></td>
<td></td>
<td>35,042</td>
<td>-2,964</td>
<td>8,330</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Table 13 Employment Change in Stanislaus County 1990 to 2012

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Education and Health Services</td>
<td>26,102</td>
<td>41,142</td>
<td>15,040</td>
<td>58</td>
</tr>
<tr>
<td>Trade, Transportation, and Utilities</td>
<td>28,088</td>
<td>35,313</td>
<td>7,225</td>
<td>26</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>26,605</td>
<td>20,624</td>
<td>-5,981</td>
<td>-23</td>
</tr>
<tr>
<td>Leisure and Hospitality</td>
<td>9,918</td>
<td>15,012</td>
<td>5,094</td>
<td>51</td>
</tr>
<tr>
<td>Natural Resources and Mining</td>
<td>14,661</td>
<td>13,364</td>
<td>-1,297</td>
<td>-9</td>
</tr>
<tr>
<td>Professional and Business Services</td>
<td>6,914</td>
<td>12,926</td>
<td>6,012</td>
<td>87</td>
</tr>
<tr>
<td>Other Services</td>
<td>4,427</td>
<td>7,534</td>
<td>3,107</td>
<td>70</td>
</tr>
<tr>
<td>Construction</td>
<td>8,943</td>
<td>6,231</td>
<td>-2,712</td>
<td>-30</td>
</tr>
<tr>
<td>Financial Activities</td>
<td>5,402</td>
<td>5,434</td>
<td>32</td>
<td>1</td>
</tr>
<tr>
<td>Public Administration</td>
<td>4,949</td>
<td>4,858</td>
<td>-91</td>
<td>-2</td>
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<td>Information</td>
<td>1,828</td>
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<td>-855</td>
<td>-47</td>
</tr>
<tr>
<td></td>
<td>137,837</td>
<td>163,411</td>
<td>25,574</td>
<td></td>
</tr>
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</table>


Between 1990 and 2012 employment in Stanislaus County increased by 18.6%, which equated to 25,574 jobs and was below the 21.7% growth for the entire NSJV. The education and health services sector had the largest increase in employment, 15,040, while professional & business services as well as other services recorded the highest rates of growth. As with San Joaquin, Stanislaus County’s largest decline in employment was recorded in the manufacturing sector, 5,981.
Table 14 Shift-Share Analysis of Stanislaus County 1990 to 2012

<table>
<thead>
<tr>
<th>Sector</th>
<th>National Growth Component, Percent</th>
<th>National Growth Component, Jobs</th>
<th>Industrial Mix Component, Percent</th>
<th>Industrial Mix Component, Jobs</th>
<th>Competitive Share Component, Percent</th>
<th>Competitive Share Component, Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade, Transportation, and Utilities</td>
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<td>5,975</td>
<td>-11</td>
<td>-2,951</td>
<td>15</td>
<td>4,201</td>
</tr>
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<td>21</td>
<td>5,659</td>
<td>-55</td>
<td>-14,515</td>
<td>11</td>
<td>2,874</td>
</tr>
<tr>
<td>Other Services</td>
<td>21</td>
<td>942</td>
<td>9</td>
<td>407</td>
<td>40</td>
<td>1,758</td>
</tr>
<tr>
<td>Professional and Business Services</td>
<td>21</td>
<td>1,471</td>
<td>48</td>
<td>3,345</td>
<td>17</td>
<td>1,196</td>
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<td>Leisure and Hospitality</td>
<td>21</td>
<td>2,110</td>
<td>26</td>
<td>2,545</td>
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<td>Education and Health Services</td>
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<td>5,552</td>
<td>36</td>
<td>9,456</td>
<td>0</td>
<td>32</td>
</tr>
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<td>Financial Activities</td>
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<td>1,149</td>
<td>-11</td>
<td>-610</td>
<td>-9</td>
<td>-507</td>
</tr>
<tr>
<td>Public Administration</td>
<td>21</td>
<td>1,053</td>
<td>-7</td>
<td>-354</td>
<td>-16</td>
<td>-789</td>
</tr>
<tr>
<td>Information</td>
<td>21</td>
<td>389</td>
<td>-24</td>
<td>-441</td>
<td>-44</td>
<td>-803</td>
</tr>
<tr>
<td>Natural Resources and Mining</td>
<td>21</td>
<td>3,119</td>
<td>-8</td>
<td>-1,133</td>
<td>-22</td>
<td>-3,282</td>
</tr>
<tr>
<td>Construction</td>
<td>21</td>
<td>1,902</td>
<td>-14</td>
<td>-1,279</td>
<td>-37</td>
<td>-3,336</td>
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<tr>
<td></td>
<td></td>
<td>29,321</td>
<td>-5,530</td>
<td>1,783</td>
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<td></td>
</tr>
</tbody>
</table>


Stanislaus County’s shift-share analysis indicates that the national growth component was responsible for 29,321 new jobs during the period. Its industrial mix component registered a loss of 5,530 jobs, which was also largely due to concentration in manufacturing and transportation sectors that decreased employment nationally. Positive growth in competitive share components of the transportation sector, manufacturing, other services, and professional services indicated areas that the county has competitive advantage.

During the 1990 to 2012 period employment in Merced County increased by 21.1%, which equated to 11,815 jobs and was slightly below the 21.7% growth recorded for the NSJV region as a whole. The education and health services sector had the largest increase in employment, 4,764, while professional & business services as well as other services recorded the highest rates of growth. The largest decline in employment was recorded in the financial sector, 1,009.

Merced County’s shift-share analysis indicates that the national growth component was responsible for 11,909 new jobs during the period. Its industrial mix component registered a loss of 2,022 jobs, which was largely due to concentration in manufacturing and transportation sectors like the other counties that decreased employment nationally. Positive growth in competitive share components of the manufacturing sector, transportation, professional services, and other services indicated areas that the county has competitive advantage.
Table 15 Employment Change in Merced County 1990 to 2012

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Education and Health Services</td>
<td>10,331</td>
<td>15,095</td>
<td>4,764</td>
<td>46%</td>
</tr>
<tr>
<td>Trade, Transportation, and Utilities</td>
<td>9,717</td>
<td>12,682</td>
<td>2,965</td>
<td>31%</td>
</tr>
<tr>
<td>Natural Resources and Mining</td>
<td>11,823</td>
<td>12,403</td>
<td>580</td>
<td>5%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>8,952</td>
<td>8,367</td>
<td>-585</td>
<td>-7%</td>
</tr>
<tr>
<td>Leisure and Hospitality</td>
<td>3,578</td>
<td>4,710</td>
<td>1,132</td>
<td>32%</td>
</tr>
<tr>
<td>Professional and Business Services</td>
<td>1,959</td>
<td>4,489</td>
<td>2,530</td>
<td>129%</td>
</tr>
<tr>
<td>Public Administration</td>
<td>2,987</td>
<td>3,537</td>
<td>550</td>
<td>18%</td>
</tr>
<tr>
<td>Other Services</td>
<td>1,420</td>
<td>2,895</td>
<td>1,475</td>
<td>104%</td>
</tr>
<tr>
<td>Construction</td>
<td>2,038</td>
<td>1,660</td>
<td>-378</td>
<td>-19%</td>
</tr>
<tr>
<td>Financial Activities</td>
<td>2,579</td>
<td>1,570</td>
<td>-1,009</td>
<td>-39%</td>
</tr>
<tr>
<td>Information</td>
<td>608</td>
<td>399</td>
<td>-209</td>
<td>-34%</td>
</tr>
<tr>
<td></td>
<td>55,992</td>
<td>67,807</td>
<td>11,815</td>
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</table>


Table 16 Shift-Share Analysis of Merced County 1990 to 2012

<table>
<thead>
<tr>
<th>Sector</th>
<th>National Growth Component, Percent</th>
<th>National Growth Component, Jobs</th>
<th>Industrial Mix Component, Percent</th>
<th>Industrial Mix Component, Jobs</th>
<th>Competitive Share Component, Percent</th>
<th>Competitive Share Component, Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>21</td>
<td>1,904</td>
<td>-55</td>
<td>-4,884</td>
<td>27</td>
<td>2,395</td>
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<tr>
<td>Trade, Transportation, and Utilities</td>
<td>21</td>
<td>2,067</td>
<td>-11</td>
<td>-1,021</td>
<td>20</td>
<td>1,919</td>
</tr>
<tr>
<td>Professional and Business Services</td>
<td>21</td>
<td>417</td>
<td>48</td>
<td>948</td>
<td>60</td>
<td>1,165</td>
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<tr>
<td>Other Services</td>
<td>21</td>
<td>302</td>
<td>9</td>
<td>131</td>
<td>73</td>
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<tr>
<td>Public Administration</td>
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<td>635</td>
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<td>-214</td>
<td>4</td>
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<tr>
<td>Information</td>
<td>21</td>
<td>129</td>
<td>-24</td>
<td>-147</td>
<td>-32</td>
<td>-192</td>
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<tr>
<td>Construction</td>
<td>21</td>
<td>433</td>
<td>-14</td>
<td>-291</td>
<td>-26</td>
<td>-520</td>
</tr>
<tr>
<td>Leisure and Hospitality</td>
<td>21</td>
<td>761</td>
<td>26</td>
<td>918</td>
<td>-15</td>
<td>-547</td>
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<tr>
<td>Natural Resources and Mining</td>
<td>21</td>
<td>2,515</td>
<td>-8</td>
<td>-914</td>
<td>-9</td>
<td>-1,021</td>
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<tr>
<td>Education and Health Services</td>
<td>21</td>
<td>2,197</td>
<td>36</td>
<td>3,743</td>
<td>-11</td>
<td>-1,176</td>
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<tr>
<td>Financial Activities</td>
<td>21</td>
<td>549</td>
<td>-11</td>
<td>-291</td>
<td>-49</td>
<td>-1,266</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>11,909</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-2,022</td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>1,927</td>
</tr>
</tbody>
</table>

Section Two: NSJV Industrial Clusters in the Unlocking Rural Competitiveness Project Framework

This section of the analysis examines industrial clusters in the North San Joaquin Valley (NSJV) using the framework and tool developed by the Unlocking Rural Competitiveness project as a resource for enhancing regional competitiveness in rural areas of the United States. There are 17 industrial clusters in the framework, which we distinguish from the other clusters by referring to them as the Unlocking Rural Competitiveness (URC) clusters. These clusters were defined to be as broad and inclusive as feasible to allow rural areas to identify and work with at least some clusters. We review the NSJV as a whole before analyzing Merced, Stanislaus, and San Joaquin counties in turn.

![Figure 13 NSJV URC Clusters LQ in 2001 and 2012](source: U.S. B.L.S., Quarterly Census of Employment & Wages (QCEW) and Purdue Center for Regional Development (cluster definitions))
Across the NSJV, three URC clusters recorded location quotients that indicated regional competitive advantage: 1) Agribusiness, Food Processing & Technology; 2) Glass & Ceramics; and 3) Transportation & Logistics. Each of these recorded increasing concentration (higher location quotients) in the period from 2001 to 2012. Overall URC clusters accounted for 51.3% of all NSJV employment and the three competitive clusters formed 20.9% of all NSJV employment.
Table 17 NSJV URC Clusters LQs 2001 & 2012

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total All Industries</td>
<td>1</td>
<td>1</td>
<td>441,212</td>
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<tr>
<td>Advanced Materials</td>
<td>0.42</td>
<td>0.39</td>
<td>5,531</td>
</tr>
<tr>
<td>Agribusiness, Food Processing &amp; Technology</td>
<td>6.54</td>
<td>6.88</td>
<td>69,508</td>
</tr>
<tr>
<td>Apparel &amp; Textiles</td>
<td>0.21</td>
<td>0.5</td>
<td>1,080</td>
</tr>
<tr>
<td>Arts, Entertainment, Recreation &amp; Visitor Industries</td>
<td>0.55</td>
<td>0.43</td>
<td>7,474</td>
</tr>
<tr>
<td>Biomedical/ Biotechnical (Life Sciences)</td>
<td>0.78</td>
<td>0.85</td>
<td>41,066</td>
</tr>
<tr>
<td>Business &amp; Financial Services</td>
<td>0.43</td>
<td>0.41</td>
<td>16,082</td>
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<tr>
<td>Chemicals &amp; Chemical Based Products</td>
<td>0.8</td>
<td>0.92</td>
<td>5,841</td>
</tr>
<tr>
<td>Defense &amp; Security</td>
<td>0.71</td>
<td>0.68</td>
<td>16,562</td>
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<tr>
<td>Education &amp; Knowledge Creation</td>
<td>0.77</td>
<td>0.6</td>
<td>10,022</td>
</tr>
<tr>
<td>Energy (Fossil &amp; Renewable)</td>
<td>0.46</td>
<td>0.54</td>
<td>10,757</td>
</tr>
<tr>
<td>Forest &amp; Wood Products</td>
<td>1.12</td>
<td>1.09</td>
<td>4,470</td>
</tr>
<tr>
<td>Glass &amp; Ceramics</td>
<td>1.6</td>
<td>2.62</td>
<td>1,679</td>
</tr>
<tr>
<td>Information Technology &amp; Telecommunications</td>
<td>0.24</td>
<td>0.22</td>
<td>3,734</td>
</tr>
<tr>
<td>Transportation &amp; Logistics</td>
<td>1.26</td>
<td>1.58</td>
<td>21,175</td>
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<tr>
<td>Manufacturing Supercluster</td>
<td>0.49</td>
<td>0.47</td>
<td>7,822</td>
</tr>
<tr>
<td>Mining</td>
<td>0.37</td>
<td>0.59</td>
<td>401</td>
</tr>
<tr>
<td>Printing &amp; Publishing</td>
<td>0.57</td>
<td>0.45</td>
<td>3,103</td>
</tr>
</tbody>
</table>

Source: U.S. B.L.S., Quarterly Census of Employment & Wages (QCEW) and Purdue Center for Regional Development (cluster definitions)

In Merced County, only the Agribusiness, Food Processing & Technology URC cluster registered a location quotient that suggested competitive advantage, but it was a strong competitive strength with a 2012 location quotient of 11.9 and a 27.2% share of all Merced County employment. Overall, URC clusters formed 54.5% the county’s employment.
Figure 15 Merced County URC Clusters LQ in 2001 and 2012

Source: U.S. BLS, Quarterly Census of Employment & Wages (QCEW) and Purdue Center for Regional Development (cluster definitions)
Figure 16: Merced County URC Clusters Detailed LQ in 2001 and 2012

Source: U.S. B.L.S., Quarterly Census of Employment & Wages (QCEW) and Purdue Center for Regional Development (cluster definitions)
Table 18 Merced County URC Clusters LQ’s 2001 & 2012

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total All Industries</td>
<td>1</td>
<td>1</td>
<td>70,776</td>
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<tr>
<td>Advanced Materials</td>
<td>0.39</td>
<td>0.29</td>
<td>668</td>
</tr>
<tr>
<td>Agribusiness, Food Processing &amp; Technology</td>
<td>11.19</td>
<td>11.88</td>
<td>19,260</td>
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<tr>
<td>Apparel &amp; Textiles</td>
<td>0.29</td>
<td>0.57</td>
<td>198</td>
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<tr>
<td>Arts, Entertainment, Recreation &amp; Visitor Industries</td>
<td>0.45</td>
<td>0.34</td>
<td>947</td>
</tr>
<tr>
<td>Biomedical/ Biotechnical (Life Sciences)</td>
<td>0.66</td>
<td>0.64</td>
<td>4,992</td>
</tr>
<tr>
<td>Business &amp; Financial Services</td>
<td>0.32</td>
<td>0.27</td>
<td>1,697</td>
</tr>
<tr>
<td>Chemicals &amp; Chemical Based Products</td>
<td>0.97</td>
<td>0.38</td>
<td>384</td>
</tr>
<tr>
<td>Defense &amp; Security</td>
<td>0.65</td>
<td>0.69</td>
<td>2,688</td>
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<tr>
<td>Education &amp; Knowledge Creation</td>
<td>0.4</td>
<td>0.44</td>
<td>1,178</td>
</tr>
<tr>
<td>Energy (Fossil &amp; Renewable)</td>
<td>0.4</td>
<td>0.59</td>
<td>1,898</td>
</tr>
<tr>
<td>Forest &amp; Wood Products</td>
<td>0.59</td>
<td>0.77</td>
<td>509</td>
</tr>
<tr>
<td>Glass &amp; Ceramics</td>
<td>0.12</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Information Technology &amp; Telecommunications</td>
<td>0.11</td>
<td>0.29</td>
<td>789</td>
</tr>
<tr>
<td>Transportation &amp; Logistics</td>
<td>0.98</td>
<td>0.88</td>
<td>1,891</td>
</tr>
<tr>
<td>Manufacturing Supercluster</td>
<td>0.33</td>
<td>0.28</td>
<td>754</td>
</tr>
<tr>
<td>Mining</td>
<td>0.19</td>
<td>0.51</td>
<td>56</td>
</tr>
<tr>
<td>Printing &amp; Publishing</td>
<td>0.9</td>
<td>0.59</td>
<td>652</td>
</tr>
</tbody>
</table>

Source: U.S. B.L.S., Quarterly Census of Employment & Wages (QCEW) and Purdue Center for Regional Development (cluster definitions)

In Stanislaus County, four URC clusters recorded location quotients that suggested competitive advantage: 1) Agribusiness, Food Processing & Technology; 2) Glass & Ceramics; 3) Transportation & Logistics; and 4) Forest & Wood Products. Each of these recorded increasing concentration (higher location quotients) in the period from 2001 to 2012. While further investigation is necessary, it is possible that the glass and wood products clusters’ are linked to the agribusiness cluster through packaging. Overall URC clusters accounted for 49.8% of employment, and the four competitive clusters alone formed 21% of all employment.
Figure 17 Stanislaus County URC Clusters LQ in 2001 and 2012

Source: U.S. B.L.S., Quarterly Census of Employment & Wages (QCEW) and Purdue Center for Regional Development (cluster definitions)
Figure 18 Stanislaus County URC Clusters Detailed LQ in 2001 and 2012

Source: U.S. B.L.S., Quarterly Census of Employment & Wages (QCEW) and Purdue Center for Regional Development (cluster definitions)
<table>
<thead>
<tr>
<th>Description</th>
<th>2001 Industry Cluster LQ</th>
<th>2012 Industry Cluster LQ</th>
<th>QCEW Cluster - Employment</th>
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</thead>
<tbody>
<tr>
<td>Total All Industries</td>
<td>1</td>
<td>1</td>
<td>164,187</td>
</tr>
<tr>
<td>Advanced Materials</td>
<td>0.33</td>
<td>0.34</td>
<td>1,815</td>
</tr>
<tr>
<td>Agribusiness, Food Processing &amp; Technology</td>
<td>6.79</td>
<td>6.88</td>
<td>25,880</td>
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<tr>
<td>Apparel &amp; Textiles</td>
<td>0.21</td>
<td>0.67</td>
<td>540</td>
</tr>
<tr>
<td>Arts, Entertainment, Recreation &amp; Visitor Industries</td>
<td>0.55</td>
<td>0.42</td>
<td>2,734</td>
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<td>Biomedical/ Biotechnical (Life Sciences)</td>
<td>0.81</td>
<td>0.96</td>
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<td>Business &amp; Financial Services</td>
<td>0.43</td>
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<td>6,385</td>
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<td>Chemicals &amp; Chemical Based Products</td>
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<td>0.91</td>
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<td>Defense &amp; Security</td>
<td>0.35</td>
<td>0.4</td>
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<tr>
<td>Education &amp; Knowledge Creation</td>
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<td>0.55</td>
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<td>Forest &amp; Wood Products</td>
<td>0.9</td>
<td>1.19</td>
<td>1,814</td>
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<tr>
<td>Glass &amp; Ceramics</td>
<td>1.56</td>
<td>2.73</td>
<td>776</td>
</tr>
<tr>
<td>Information Technology &amp; Telecommunications</td>
<td>0.18</td>
<td>0.17</td>
<td>1,082</td>
</tr>
<tr>
<td>Transportation &amp; Logistics</td>
<td>0.69</td>
<td>1.21</td>
<td>6,017</td>
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<td>Manufacturing Supercluster</td>
<td>0.51</td>
<td>0.5</td>
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<td>Mining</td>
<td>0.17</td>
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<td>Printing &amp; Publishing</td>
<td>0.62</td>
<td>0.43</td>
<td>1,089</td>
</tr>
</tbody>
</table>

Source: U.S. B.L.S., Quarterly Census of Employment & Wages (QCEW) and Purdue Center for Regional Development (cluster definitions)

San Joaquin County also had four URC clusters with location quotients that suggested competitive advantage: 1) Agribusiness, Food Processing & Technology; 2) Glass & Ceramics; 3) Transportation & Logistics; and 4) Forest & Wood Products. The Forest and Wood Products cluster’s location quotient dropped from 1.5 in 2001 to 1.1 in 2012, but the others had increasing concentration (higher location quotients). Overall, the URC clusters accounted for 51.4% of San Joaquin County’s employment and the three clusters with 2012 location quotients above 1.2 formed 18.7% of all employment.
Figure 19 San Joaquin County URC Clusters LQ in 2001 and 2012

Source: U.S. B.L.S., Quarterly Census of Employment & Wages (QCEW) and Purdue Center for Regional Development (cluster definitions)
Figure 20 San Joaquin County URC Clusters Detailed LQ in 2001 and 2012

Source: U.S. B.L.S., Quarterly Census of Employment & Wages (QCEW) and Purdue Center for Regional Development (cluster definitions)
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total All Industries</td>
<td>1</td>
<td>1</td>
<td>206,249</td>
</tr>
<tr>
<td>Advanced Materials</td>
<td>0.5</td>
<td>0.46</td>
<td>3,048</td>
</tr>
<tr>
<td>Agribusiness, Food Processing &amp; Technology</td>
<td>4.88</td>
<td>5.16</td>
<td>24,368</td>
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<tr>
<td>Apparel &amp; Textiles</td>
<td>0.2</td>
<td>0.34</td>
<td>342</td>
</tr>
<tr>
<td>Arts, Entertainment, Recreation &amp; Visitor Industries</td>
<td>0.59</td>
<td>0.47</td>
<td>3,793</td>
</tr>
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<td>Biomedical/ Biotechnical (Life Sciences)</td>
<td>0.8</td>
<td>0.83</td>
<td>18,732</td>
</tr>
<tr>
<td>Business &amp; Financial Services</td>
<td>0.46</td>
<td>0.44</td>
<td>8,000</td>
</tr>
<tr>
<td>Chemicals &amp; Chemical Based Products</td>
<td>0.9</td>
<td>1.12</td>
<td>3,309</td>
</tr>
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<td>Defense &amp; Security</td>
<td>1.01</td>
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<td>10,280</td>
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<tr>
<td>Education &amp; Knowledge Creation</td>
<td>0.76</td>
<td>0.69</td>
<td>5,401</td>
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<tr>
<td>Energy (Fossil &amp; Renewable)</td>
<td>0.48</td>
<td>0.53</td>
<td>4,941</td>
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<tr>
<td>Forest &amp; Wood Products</td>
<td>1.47</td>
<td>1.12</td>
<td>2,147</td>
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<tr>
<td>Glass &amp; Ceramics</td>
<td>2.09</td>
<td>2.53</td>
<td>903</td>
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<tr>
<td>Information Technology &amp; Telecommunications</td>
<td>0.34</td>
<td>0.24</td>
<td>1,863</td>
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<tr>
<td>Transportation &amp; Logistics</td>
<td>1.81</td>
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<td>Manufacturing Supercluster</td>
<td>0.52</td>
<td>0.52</td>
<td>4,019</td>
</tr>
<tr>
<td>Mining</td>
<td>0.6</td>
<td>0.69</td>
<td>219</td>
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<tr>
<td>Printing &amp; Publishing</td>
<td>0.43</td>
<td>0.42</td>
<td>1,362</td>
</tr>
</tbody>
</table>

Source: U.S. B.L.S., Quarterly Census of Employment & Wages (QCEW) and Purdue Center for Regional Development (cluster definitions)
Section Three: NSJV Industrial Clusters in the U.S. Cluster Mapping Project Framework

This section examines industrial clusters in the NSJV using the framework and tool developed by the U.S. Cluster Mapping Project. All industries were separated into "traded" and "local" based on the degree of industry dispersion across geographic areas. Traded industries are those concentrated in a subset of geographic areas and sell to other regions and nations. Local industries are those present in most if not all geographic areas, are evenly distributed, and hence primarily sell locally. If two such industries systematically appear to have high levels of employment in the same geographies, there is an indication that they are linked as part of one cluster category. The clusters were defined by creating groups of narrow industry codes with significant externalities and linkages. The U.S. Cluster Mapping Project research had identified 51 traded clusters and 16 local clusters, which we distinguish from the other clusters by referring to them as the Cluster Mapping Project (CMP) clusters. The underlying data source for the CMP clusters is the U.S. Census Bureau's County Business Patterns (CBP) on employment, establishments, and wages by six-digit NAICS.
Figure 21 NSJV Traded CMP Clusters All LQ in 1998 and 2010

Source U.S. Census Bureau's County Business Patterns (CBP) and Harvard Business School Institute for Strategy & Competitiveness
Across the NSJV, twelve traded CMP clusters recorded location quotients that indicated regional competitive advantage. As indicated in Figure 21, the traded CMP clusters with high and increasing apparent competitive advantage included: 1) Food Processing and Manufacturing; 2) Transportation and Logistics; and 3) Distribution and Electronic Commerce. Traded CMP clusters with high, but declining apparent competitive advantage included: 1) Agricultural Inputs and Services; 2) Livestock Processing; and 3) Downstream Metal Products. In 2011 traded CMP clusters accounted for 31.6% of all NSJV employment, which is 7.1% lower than the 1998 share of traded CMP clusters. Among NSJV’s traded CMP clusters 65.7% of 2011 employment was in clusters that had LQs indicating a competitive advantage.
Figure 23: NSJV Traded CMP Cluster less than 1.2 LQ in 1998 and 2010

Source: U.S. Census Bureau's County Business Patterns (CBP) and Harvard Business School Institute for Strategy & Competitiveness

Figure 24: NSJV Traded and Local CMP Cluster Composition in 1998 and 2010

Source: U.S. Census Bureau's County Business Patterns (CBP) and Harvard Business School Institute for Strategy & Competitiveness
<table>
<thead>
<tr>
<th>Cluster Name</th>
<th>LQ 1998</th>
<th>LQ 2011</th>
<th>2011 Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerospace Vehicles and Defense</td>
<td>0.08</td>
<td>0.27</td>
<td>375</td>
</tr>
<tr>
<td>Agricultural Inputs and Services</td>
<td>10.04</td>
<td>9.03</td>
<td>2,325</td>
</tr>
<tr>
<td>Apparel</td>
<td>0.35</td>
<td>0.28</td>
<td>100</td>
</tr>
<tr>
<td>Automotive</td>
<td>0.48</td>
<td>0.94</td>
<td>1,896</td>
</tr>
<tr>
<td>Biopharmaceuticals</td>
<td>0.13</td>
<td>0.32</td>
<td>190</td>
</tr>
<tr>
<td>Business Services</td>
<td>0.49</td>
<td>0.30</td>
<td>8,061</td>
</tr>
<tr>
<td>Communications Equipment and Services</td>
<td>0.94</td>
<td>0.96</td>
<td>1,153</td>
</tr>
<tr>
<td>Construction Products and Services</td>
<td>1.08</td>
<td>0.66</td>
<td>1,228</td>
</tr>
<tr>
<td>Distribution and Electronic Commerce</td>
<td>1.24</td>
<td>1.65</td>
<td>22,404</td>
</tr>
<tr>
<td>Downstream Chemical Products</td>
<td>0.35</td>
<td>0.57</td>
<td>355</td>
</tr>
<tr>
<td>Downstream Metal Products</td>
<td>3.31</td>
<td>2.49</td>
<td>2,387</td>
</tr>
<tr>
<td>Education and Knowledge Creation</td>
<td>0.56</td>
<td>0.81</td>
<td>6,344</td>
</tr>
<tr>
<td>Electric Power Generation and Transmission</td>
<td>0.34</td>
<td>0.08</td>
<td>30</td>
</tr>
<tr>
<td>Environmental Services</td>
<td>1.90</td>
<td>1.52</td>
<td>310</td>
</tr>
<tr>
<td>Financial Services</td>
<td>0.77</td>
<td>0.52</td>
<td>2,553</td>
</tr>
<tr>
<td>Food Processing and Manufacturing</td>
<td>9.16</td>
<td>9.22</td>
<td>22,299</td>
</tr>
<tr>
<td>Footwear</td>
<td>0.08</td>
<td>1.73</td>
<td>70</td>
</tr>
<tr>
<td>Forestry</td>
<td>0.76</td>
<td>0.60</td>
<td>100</td>
</tr>
<tr>
<td>Furniture</td>
<td>1.64</td>
<td>1.04</td>
<td>842</td>
</tr>
<tr>
<td>Hospitality and Tourism</td>
<td>0.52</td>
<td>0.49</td>
<td>3,724</td>
</tr>
<tr>
<td>Information Technology and Analytical Instruments</td>
<td>0.23</td>
<td>0.23</td>
<td>585</td>
</tr>
<tr>
<td>Insurance Services</td>
<td>0.76</td>
<td>0.46</td>
<td>1,728</td>
</tr>
<tr>
<td>Jewelry and Precious Metals</td>
<td>0.40</td>
<td>0.15</td>
<td>10</td>
</tr>
<tr>
<td>Leather and Related Products</td>
<td>0.82</td>
<td>1.05</td>
<td>90</td>
</tr>
<tr>
<td>Lighting and Electrical Equipment</td>
<td>0.46</td>
<td>0.39</td>
<td>285</td>
</tr>
<tr>
<td>Livestock Processing</td>
<td>4.00</td>
<td>3.75</td>
<td>4,874</td>
</tr>
<tr>
<td>Marketing, Design, and Publishing</td>
<td>0.32</td>
<td>0.35</td>
<td>1,089</td>
</tr>
<tr>
<td>Medical Devices</td>
<td>0.82</td>
<td>0.47</td>
<td>325</td>
</tr>
<tr>
<td>Metalworking Technology</td>
<td>0.54</td>
<td>0.75</td>
<td>917</td>
</tr>
<tr>
<td>Music and Sound Recording</td>
<td>0.60</td>
<td>0.17</td>
<td>10</td>
</tr>
<tr>
<td>Nonmetal Mining</td>
<td>1.14</td>
<td>0.83</td>
<td>180</td>
</tr>
<tr>
<td>Oil and Gas Production and Transportation</td>
<td>0.07</td>
<td>0.18</td>
<td>285</td>
</tr>
<tr>
<td>Paper and Packaging</td>
<td>1.84</td>
<td>1.61</td>
<td>1,723</td>
</tr>
<tr>
<td>Performing Arts</td>
<td>0.48</td>
<td>0.31</td>
<td>245</td>
</tr>
<tr>
<td>Plastics</td>
<td>0.86</td>
<td>1.24</td>
<td>2,096</td>
</tr>
<tr>
<td>Printing Services</td>
<td>0.84</td>
<td>1.36</td>
<td>1,709</td>
</tr>
<tr>
<td>Production Technology and Heavy Machinery</td>
<td>0.61</td>
<td>0.54</td>
<td>1,249</td>
</tr>
<tr>
<td>Recreational and Small Electric Goods</td>
<td>0.65</td>
<td>1.02</td>
<td>469</td>
</tr>
<tr>
<td>Textile Manufacturing</td>
<td>0.08</td>
<td>0.15</td>
<td>80</td>
</tr>
<tr>
<td>Trailers, Motor Homes, and Appliances</td>
<td>1.32</td>
<td>0.71</td>
<td>200</td>
</tr>
<tr>
<td>Transportation and Logistics</td>
<td>1.20</td>
<td>1.99</td>
<td>8,075</td>
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<tr>
<td>Upstream Chemical Products</td>
<td>0.37</td>
<td>0.98</td>
<td>455</td>
</tr>
<tr>
<td>Upstream Metal Manufacturing</td>
<td>0.37</td>
<td>0.31</td>
<td>310</td>
</tr>
<tr>
<td>Video Production and Distribution</td>
<td>0.76</td>
<td>0.24</td>
<td>110</td>
</tr>
<tr>
<td>Vulcanized and Fired Materials</td>
<td>0.90</td>
<td>0.97</td>
<td>584</td>
</tr>
<tr>
<td>Water Transportation</td>
<td>0.59</td>
<td>0.36</td>
<td>270</td>
</tr>
<tr>
<td>Wood Products</td>
<td>2.58</td>
<td>1.70</td>
<td>1,445</td>
</tr>
</tbody>
</table>

**NSJV Traded Clusters Employment Sub-Total:** 106,144

Source: U.S. B.L.S., Quarterly Census of Employment & Wages (QCEW) and Purdue Center for Regional Development (cluster definitions)
Figure 25 San Joaquin County Traded CMP Clusters All LQ in 1998 and 2010

Source: U.S. Census Bureau's County Business Patterns (CBP) and Harvard Business School Institute for Strategy & Competitiveness
In San Joaquin County there were also twelve traded CMP clusters with LQ indicating regional competitive advantage. As seen in Figures 25 and 26, traded CMP clusters with high and increasing apparent competitive advantage included: 1) Transportation and Logistics; 2) Distribution and Electronic Commerce; 3) Plastics; and 4) Paper and Packaging. Traded CMP clusters with high, but declining apparent competitive advantage included: 1) Agricultural Inputs and Services; 2) Food Processing and Manufacturing; 3) Downstream Metal Products; 4) Wood Products; and 5) Livestock Processing. In 2011 traded CMP clusters accounted for 31.7% of all employment, which is 5.7% lower than the 1998 share of traded CMP clusters. Among San Joaquin’s traded CMP clusters 70.4% of 2011 employment was in clusters with LQs indicating a competitive advantage.
Figure 27 San Joaquin County Traded CMP Cluster less than 1.2 LQ in 1998 and 2010

Source: U.S. Census Bureau's County Business Patterns (CBP) and Harvard Business School Institute for Strategy & Competitiveness

Figure 28 San Joaquin County Traded and Local CMP Cluster Composition in 1998 and 2010

Source: U.S. Census Bureau's County Business Patterns (CBP) and Harvard Business School Institute for Strategy & Competitiveness
<table>
<thead>
<tr>
<th>Cluster Name</th>
<th>LQ 1998</th>
<th>LQ 2011</th>
<th>2011 Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerospace Vehicles and Defense</td>
<td>0.08</td>
<td>0.55</td>
<td>375</td>
</tr>
<tr>
<td>Agricultural Inputs and Services</td>
<td>8.77</td>
<td>8.23</td>
<td>1,056</td>
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<tr>
<td>Apparel</td>
<td>0.53</td>
<td>0.23</td>
<td>40</td>
</tr>
<tr>
<td>Automotive</td>
<td>0.46</td>
<td>0.95</td>
<td>956</td>
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<tr>
<td>Business Services</td>
<td>0.59</td>
<td>0.32</td>
<td>4,243</td>
</tr>
<tr>
<td>Communications Equipment and Services</td>
<td>0.45</td>
<td>0.33</td>
<td>198</td>
</tr>
<tr>
<td>Construction Products and Services</td>
<td>1.26</td>
<td>0.81</td>
<td>753</td>
</tr>
<tr>
<td>Distribution and Electronic Commerce</td>
<td>1.48</td>
<td>1.89</td>
<td>12,817</td>
</tr>
<tr>
<td>Downstream Chemical Products</td>
<td>0.49</td>
<td>1.07</td>
<td>335</td>
</tr>
<tr>
<td>Downstream Metal Products</td>
<td>3.34</td>
<td>2.12</td>
<td>1,008</td>
</tr>
<tr>
<td>Education and Knowledge Creation</td>
<td>0.95</td>
<td>1.31</td>
<td>5,150</td>
</tr>
<tr>
<td>Electric Power Generation and Transmission</td>
<td>0.65</td>
<td>0.10</td>
<td>20</td>
</tr>
<tr>
<td>Environmental Services</td>
<td>2.53</td>
<td>0.89</td>
<td>90</td>
</tr>
<tr>
<td>Financial Services</td>
<td>0.92</td>
<td>0.49</td>
<td>1,209</td>
</tr>
<tr>
<td>Food Processing and Manufacturing</td>
<td>6.08</td>
<td>5.63</td>
<td>6,785</td>
</tr>
<tr>
<td>Footwear</td>
<td>0.16</td>
<td>0.50</td>
<td>10</td>
</tr>
<tr>
<td>Forestry</td>
<td>1.51</td>
<td>0.12</td>
<td>10</td>
</tr>
<tr>
<td>Furniture</td>
<td>2.07</td>
<td>1.16</td>
<td>467</td>
</tr>
<tr>
<td>Hospitality and Tourism</td>
<td>0.53</td>
<td>0.53</td>
<td>2,025</td>
</tr>
<tr>
<td>Information Technology and Analytical Instruments</td>
<td>0.32</td>
<td>0.30</td>
<td>385</td>
</tr>
<tr>
<td>Insurance Services</td>
<td>0.85</td>
<td>0.70</td>
<td>1,328</td>
</tr>
<tr>
<td>Leather and Related Products</td>
<td>0.43</td>
<td>0.47</td>
<td>20</td>
</tr>
<tr>
<td>Lighting and Electrical Equipment</td>
<td>0.42</td>
<td>0.56</td>
<td>205</td>
</tr>
<tr>
<td>Livestock Processing</td>
<td>1.46</td>
<td>1.31</td>
<td>846</td>
</tr>
<tr>
<td>Marketing, Design, and Publishing</td>
<td>0.38</td>
<td>0.35</td>
<td>555</td>
</tr>
<tr>
<td>Medical Devices</td>
<td>1.44</td>
<td>0.21</td>
<td>70</td>
</tr>
<tr>
<td>Metalworking Technology</td>
<td>0.53</td>
<td>0.59</td>
<td>363</td>
</tr>
<tr>
<td>Music and Sound Recording</td>
<td>0.32</td>
<td>0.34</td>
<td>10</td>
</tr>
<tr>
<td>Nonmetal Mining</td>
<td>1.65</td>
<td>0.74</td>
<td>80</td>
</tr>
<tr>
<td>Oil and Gas Production and Transportation</td>
<td>0.14</td>
<td>0.13</td>
<td>100</td>
</tr>
<tr>
<td>Paper and Packaging</td>
<td>1.67</td>
<td>1.76</td>
<td>836</td>
</tr>
<tr>
<td>Performing Arts</td>
<td>0.56</td>
<td>0.42</td>
<td>165</td>
</tr>
<tr>
<td>Plastics</td>
<td>1.30</td>
<td>1.88</td>
<td>1,586</td>
</tr>
<tr>
<td>Printing Services</td>
<td>0.50</td>
<td>0.66</td>
<td>414</td>
</tr>
<tr>
<td>Production Technology and Heavy Machinery</td>
<td>0.58</td>
<td>0.38</td>
<td>436</td>
</tr>
<tr>
<td>Recreational and Small Electric Goods</td>
<td>0.84</td>
<td>1.00</td>
<td>227</td>
</tr>
<tr>
<td>Textile Manufacturing</td>
<td>0.12</td>
<td>0.16</td>
<td>40</td>
</tr>
<tr>
<td>Trailers, Motor Homes, and Appliances</td>
<td>0.88</td>
<td>0.43</td>
<td>60</td>
</tr>
<tr>
<td>Transportation and Logistics</td>
<td>1.25</td>
<td>2.75</td>
<td>5,564</td>
</tr>
<tr>
<td>Upstream Chemical Products</td>
<td>0.48</td>
<td>1.41</td>
<td>325</td>
</tr>
<tr>
<td>Upstream Metal Manufacturing</td>
<td>0.25</td>
<td>0.40</td>
<td>200</td>
</tr>
<tr>
<td>Video Production and Distribution</td>
<td>0.06</td>
<td>0.35</td>
<td>80</td>
</tr>
<tr>
<td>Vulcanized and Fired Materials</td>
<td>1.11</td>
<td>1.31</td>
<td>394</td>
</tr>
<tr>
<td>Water Transportation</td>
<td>0.65</td>
<td>0.24</td>
<td>90</td>
</tr>
<tr>
<td>Wood Products</td>
<td>3.33</td>
<td>2.07</td>
<td>877</td>
</tr>
</tbody>
</table>

San Joaquin County Traded Clusters Employment Sub-Total: 52,873

Source: U.S. B.L.S., Quarterly Census of Employment & Wages (QCEW) and Purdue Center for Regional Development (cluster definitions)
Figure 29 Stanislaus County Traded CMP Clusters All LQ in 1998 and 2010

Source: U.S. Census Bureau’s County Business Patterns (CBP) and Harvard Business School Institute for Strategy & Competitiveness
In Stanislaus County there were eleven traded CMP clusters with LQ indicating regional competitive advantage. Figures 29 and 30 show that traded CMP clusters with high and increasing apparent competitive advantage included: 1) Downstream Metal Products; 2) Environmental Services; 3) Leather and Related Products; and 4) Wood Products. Traded CMP clusters with high, but declining apparent competitive advantage included: 1) Food Processing and Manufacturing; 2) Agricultural Inputs and Services; 3) Livestock Processing; 4) Environmental Services; and 5) Paper and packaging. In 2011 traded CMP clusters accounted for 30.2% of all employment, which is 9.6% lower than the 1998 share of traded CMP clusters. Among Stanislaus’ traded CMP clusters 68.7% of 2011 employment was in clusters with LQs indicating a competitive advantage.
Figure 31 Stanislaus County Traded CMP Cluster less than 1.2 LQ in 1998 and 2010

Source U.S. Census Bureau's County Business Patterns (CBP) and Harvard Business School Institute for Strategy & Competitiveness

Figure 32 Stanislaus County Traded and Local CMP Cluster COMPOSITION IN 1998 and 2010

Source U.S. Census Bureau's County Business Patterns (CBP) and Harvard Business School Institute for Strategy & Competitiveness
<table>
<thead>
<tr>
<th>Cluster Name</th>
<th>LQ 1998</th>
<th>LQ 2011</th>
<th>2011 Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Inputs and Services</td>
<td>8.81</td>
<td>6.05</td>
<td>563</td>
</tr>
<tr>
<td>Apparel</td>
<td>0.23</td>
<td>0.16</td>
<td>20</td>
</tr>
<tr>
<td>Automotive</td>
<td>0.53</td>
<td>1.28</td>
<td>930</td>
</tr>
<tr>
<td>Biopharmaceuticals</td>
<td>0.29</td>
<td>0.28</td>
<td>60</td>
</tr>
<tr>
<td>Business Services</td>
<td>0.49</td>
<td>0.34</td>
<td>3,276</td>
</tr>
<tr>
<td>Communications Equipment and Services</td>
<td>0.19</td>
<td>0.43</td>
<td>185</td>
</tr>
<tr>
<td>Construction Products and Services</td>
<td>0.94</td>
<td>0.58</td>
<td>395</td>
</tr>
<tr>
<td>Distribution and Electronic Commerce</td>
<td>1.11</td>
<td>1.47</td>
<td>7,227</td>
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<tr>
<td>Downstream Chemical Products</td>
<td>0.25</td>
<td>0.04</td>
<td>10</td>
</tr>
<tr>
<td>Downstream Metal Products</td>
<td>3.29</td>
<td>3.56</td>
<td>1,229</td>
</tr>
<tr>
<td>Education and Knowledge Creation</td>
<td>0.23</td>
<td>0.38</td>
<td>1,084</td>
</tr>
<tr>
<td>Environmental Services</td>
<td>1.43</td>
<td>2.71</td>
<td>200</td>
</tr>
<tr>
<td>Financial Services</td>
<td>0.68</td>
<td>0.57</td>
<td>1,017</td>
</tr>
<tr>
<td>Food Processing and Manufacturing</td>
<td>12.92</td>
<td>12.47</td>
<td>10,896</td>
</tr>
<tr>
<td>Forestry</td>
<td>0.11</td>
<td>0.33</td>
<td>20</td>
</tr>
<tr>
<td>Furniture</td>
<td>1.41</td>
<td>1.01</td>
<td>295</td>
</tr>
<tr>
<td>Hospitality and Tourism</td>
<td>0.54</td>
<td>0.51</td>
<td>1,405</td>
</tr>
<tr>
<td>Information Technology and Analytical Instruments</td>
<td>0.20</td>
<td>0.20</td>
<td>190</td>
</tr>
<tr>
<td>Insurance Services</td>
<td>0.39</td>
<td>0.23</td>
<td>320</td>
</tr>
<tr>
<td>Jewelry and Precious Metals</td>
<td>1.05</td>
<td>0.41</td>
<td>10</td>
</tr>
<tr>
<td>Leather and Related Products</td>
<td>1.43</td>
<td>2.26</td>
<td>70</td>
</tr>
<tr>
<td>Lighting and Electrical Equipment</td>
<td>0.28</td>
<td>0.04</td>
<td>10</td>
</tr>
<tr>
<td>Livestock Processing</td>
<td>4.55</td>
<td>4.25</td>
<td>1,995</td>
</tr>
<tr>
<td>Marketing, Design, and Publishing</td>
<td>0.27</td>
<td>0.39</td>
<td>444</td>
</tr>
<tr>
<td>Medical Devices</td>
<td>0.32</td>
<td>0.99</td>
<td>245</td>
</tr>
<tr>
<td>Metalworking Technology</td>
<td>0.61</td>
<td>1.05</td>
<td>464</td>
</tr>
<tr>
<td>Nonmetal Mining</td>
<td>0.72</td>
<td>0.90</td>
<td>70</td>
</tr>
<tr>
<td>Paper and Packaging</td>
<td>2.62</td>
<td>2.38</td>
<td>817</td>
</tr>
<tr>
<td>Performing Arts</td>
<td>0.35</td>
<td>0.21</td>
<td>60</td>
</tr>
<tr>
<td>Plastics</td>
<td>0.35</td>
<td>0.80</td>
<td>490</td>
</tr>
<tr>
<td>Printing Services</td>
<td>0.54</td>
<td>0.79</td>
<td>360</td>
</tr>
<tr>
<td>Production Technology and Heavy Machinery</td>
<td>0.71</td>
<td>0.90</td>
<td>743</td>
</tr>
<tr>
<td>Recreational and Small Electric Goods</td>
<td>0.65</td>
<td>0.41</td>
<td>67</td>
</tr>
<tr>
<td>Textile Manufacturing</td>
<td>0.04</td>
<td>0.21</td>
<td>40</td>
</tr>
<tr>
<td>Trailers, Motor Homes, and Appliances</td>
<td>1.65</td>
<td>0.69</td>
<td>70</td>
</tr>
<tr>
<td>Transportation and Logistics</td>
<td>1.13</td>
<td>1.29</td>
<td>1,888</td>
</tr>
<tr>
<td>Upstream Chemical Products</td>
<td>0.37</td>
<td>0.42</td>
<td>70</td>
</tr>
<tr>
<td>Upstream Metal Manufacturing</td>
<td>0.62</td>
<td>0.28</td>
<td>100</td>
</tr>
<tr>
<td>Video Production and Distribution</td>
<td>1.84</td>
<td>0.18</td>
<td>30</td>
</tr>
<tr>
<td>Vulcanized and Fired Materials</td>
<td>0.94</td>
<td>0.87</td>
<td>190</td>
</tr>
<tr>
<td>Wood Products</td>
<td>1.30</td>
<td>1.75</td>
<td>538</td>
</tr>
</tbody>
</table>

Stanislaus County Traded Clusters Employment Sub-Total: 38,338

Source: U.S. B.L.S., Quarterly Census of Employment & Wages (QCEW) and Purdue Center for Regional Development (cluster definitions)
Figure 33 Merced County Traded CMP Clusters All LQ in 1998 and 2010

Source U.S. Census Bureau's County Business Patterns (CBP) and Harvard Business School Institute for Strategy & Competitiveness
Merced County had nine traded CMP clusters with LQ indicating regional competitive advantage. Figures 33 and 34 show that traded CMP clusters with high and increasing apparent competitive advantage included: 1) Agricultural Inputs and Services; 2) Food Processing and Manufacturing; 3) Livestock Processing; Environmental Services; 4) Printing Services; and 5) Trailers, Motor Homes, and Appliances. Traded CMP clusters with high, but declining apparent competitive advantage included: 1) Communications Equipment and Services; and 2) Wood Products. In 2011 traded CMP clusters accounted for 34.8% of all employment, which is 5.6% lower than the 1998 share of traded CMP clusters. Among Merced's traded CMP clusters 79.3% of 2011 employment was in clusters with LQs indicating a competitive advantage.
Figure 35: Merced County Traded CMP Cluster less than 1.2 LQ in 1998 and 2010

Source: U.S. Census Bureau's County Business Patterns (CBP) and Harvard Business School Institute for Strategy & Competitiveness

Figure 36: Merced County Traded and Local CMP Cluster Composition in 1998 and 2010

Source: U.S. Census Bureau's County Business Patterns (CBP) and Harvard Business School Institute for Strategy & Competitiveness
Table 24 Merced County CMP Traded Clusters LQs 2001 & 2012

<table>
<thead>
<tr>
<th>Cluster Name</th>
<th>LQ 1998</th>
<th>LQ 2011</th>
<th>2011 Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Inputs and Services</td>
<td>17.64</td>
<td>19.48</td>
<td>706</td>
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<tr>
<td>Apparel</td>
<td>0.09</td>
<td>0.81</td>
<td>40</td>
</tr>
<tr>
<td>Automotive</td>
<td>0.42</td>
<td>0.04</td>
<td>10</td>
</tr>
<tr>
<td>Biopharmaceuticals</td>
<td>0.13</td>
<td>0.71</td>
<td>60</td>
</tr>
<tr>
<td>Business Services</td>
<td>0.17</td>
<td>0.15</td>
<td>542</td>
</tr>
<tr>
<td>Communications Equipment and Services</td>
<td>4.60</td>
<td>4.56</td>
<td>770</td>
</tr>
<tr>
<td>Construction Products and Services</td>
<td>0.85</td>
<td>0.30</td>
<td>80</td>
</tr>
<tr>
<td>Distribution and Electronic Commerce</td>
<td>0.73</td>
<td>1.23</td>
<td>2,360</td>
</tr>
<tr>
<td>Downstream Chemical Products</td>
<td>0.17</td>
<td>0.11</td>
<td>10</td>
</tr>
<tr>
<td>Downstream Metal Products</td>
<td>3.29</td>
<td>1.11</td>
<td>150</td>
</tr>
<tr>
<td>Education and Knowledge Creation</td>
<td>0.10</td>
<td>0.10</td>
<td>110</td>
</tr>
<tr>
<td>Electric Power Generation and Transmission</td>
<td>0.18</td>
<td>0.19</td>
<td>10</td>
</tr>
<tr>
<td>Environmental Services</td>
<td>1.03</td>
<td>0.70</td>
<td>20</td>
</tr>
<tr>
<td>Financial Services</td>
<td>0.52</td>
<td>0.47</td>
<td>327</td>
</tr>
<tr>
<td>Food Processing and Manufacturing</td>
<td>9.39</td>
<td>13.57</td>
<td>4,618</td>
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<tr>
<td>Furniture</td>
<td>0.83</td>
<td>0.70</td>
<td>80</td>
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<tr>
<td>Hospitality and Tourism</td>
<td>0.39</td>
<td>0.27</td>
<td>294</td>
</tr>
<tr>
<td>Insurance Services</td>
<td>1.46</td>
<td>0.15</td>
<td>80</td>
</tr>
<tr>
<td>Lighting and Electrical Equipment</td>
<td>1.07</td>
<td>0.68</td>
<td>70</td>
</tr>
<tr>
<td>Livestock Processing</td>
<td>11.11</td>
<td>11.11</td>
<td>2,033</td>
</tr>
<tr>
<td>Marketing, Design, and Publishing</td>
<td>0.26</td>
<td>0.20</td>
<td>90</td>
</tr>
<tr>
<td>Medical Devices</td>
<td>0.11</td>
<td>0.10</td>
<td>10</td>
</tr>
<tr>
<td>Metalworking Technology</td>
<td>0.37</td>
<td>0.52</td>
<td>90</td>
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<tr>
<td>Nonmetal Mining</td>
<td>0.55</td>
<td>0.99</td>
<td>30</td>
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<tr>
<td>Paper and Packaging</td>
<td>0.30</td>
<td>0.52</td>
<td>70</td>
</tr>
<tr>
<td>Performing Arts</td>
<td>0.59</td>
<td>0.18</td>
<td>20</td>
</tr>
<tr>
<td>Plastics</td>
<td>0.75</td>
<td>0.08</td>
<td>20</td>
</tr>
<tr>
<td>Printing Services</td>
<td>2.82</td>
<td>5.28</td>
<td>935</td>
</tr>
<tr>
<td>Production Technology and Heavy Machinery</td>
<td>0.43</td>
<td>0.22</td>
<td>70</td>
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<tr>
<td>Trailers, Motor Homes, and Appliances</td>
<td>1.92</td>
<td>2.72</td>
<td>175</td>
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<tr>
<td>Transportation and Logistics</td>
<td>1.25</td>
<td>1.78</td>
<td>70</td>
</tr>
<tr>
<td>Upstream Metal Manufacturing</td>
<td>0.09</td>
<td>0.92</td>
<td>60</td>
</tr>
<tr>
<td>Water Transportation</td>
<td>1.89</td>
<td>0.07</td>
<td>10</td>
</tr>
<tr>
<td>Wood Products</td>
<td>3.51</td>
<td>1.73</td>
<td>180</td>
</tr>
</tbody>
</table>

Merced County Traded Clusters Employment Sub-Total: 14,933

Source: U.S. B.L.S., Quarterly Census of Employment & Wages (QCEW) and Purdue Center for Regional Development (cluster definitions)