

## **Santa Fe, NM Metropolitan Statistical Area**

### **Entrepreneurial Ecosystem Metrics: Summary**

We applied metrics from publicly available data sources to the entrepreneurial ecosystems indicators suggested by Stangler & Bell-Masterson (2015) for the Santa Fe, NM metropolitan statistical area (SFM). We assessed the metro's entrepreneurial vibrancy based on its Density, Fluidity, Connectivity, and Diversity of entrepreneurship.

**Density:** Although overall entrepreneurial rates have declined in SFM, incorporated self-employment and the growth of high-tech establishments have remained high and relatively steady in recent years.

**Fluidity:** SFM annual job creation and destruction rates have declined since 2009 but worker churn has become more dynamic and gross migration flows to and from the area have increased.

**Connectivity:** The metro has a well-connected ecosystem relative to its size. SFM has an active presence of investors, companies, and universities engaged on the CrunchBase network.

**Diversity:** The Santa Fe, NM metropolitan area is economically specialized broadly across 24 detailed sectors. The metro's entrepreneurial diversity is also supported by a high representation of women in self-employment and a high, but decreasing proportion of foreign-born workers in the labor force.

### **Introduction**

We are interested in seeing how well a metropolitan's entrepreneurial ecosystem sustains opportunity for individuals as well as firms. Entrepreneurship occurs across all sectors of the economy and the four indicators discussed in this report capture various dimensions of entrepreneurial activity. We consider regional industrial and occupational compositions, population and labor flows, and regional networks to assess entrepreneurial opportunity. We also consider entrepreneurial outcome-based measures of self-employment rates, firm entry and exit dynamics, and socio-economic opportunity to assess metropolitan entrepreneurial vibrancy.

We evaluated the Santa Fe, NM metropolitan area's entrepreneurial vibrancy using both metropolitan self-employment rates<sup>1</sup> as well as the share of new and young firms<sup>2</sup> normalized by the resident population. Both measures indicate high levels of entrepreneurial activity for the Santa Fe, NM metropolitan area, though both have been declining over the 2009 to 2013 timeframe.

The Santa Fe, NM metropolitan area has a vibrant entrepreneurial ecosystem. The metro's average total self-employment rate between 2009 and 2014 exceeded the annual average self-employment rate of the nation by 8.8 percentage points. In 2014, SFM's over 11,000 self-employed workers account for 16.2 percent of its employed workforce, far exceeding the national self-

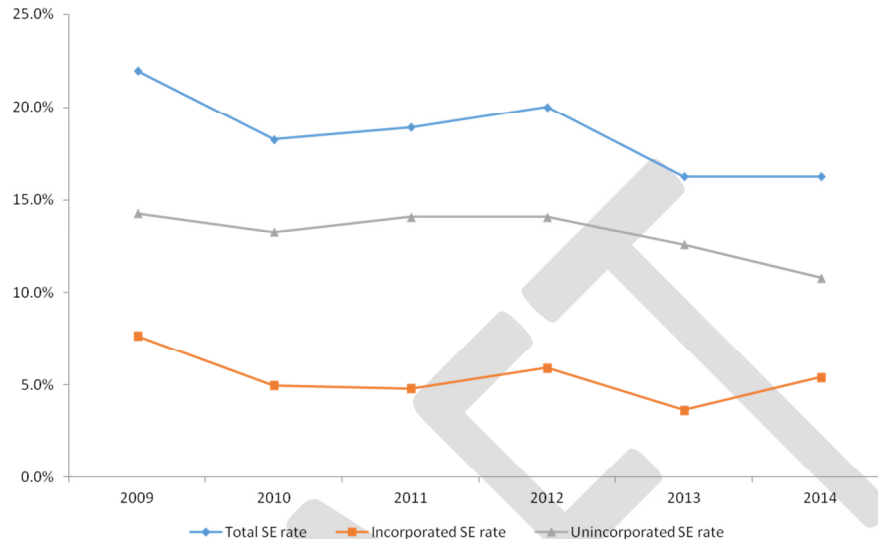
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<sup>1</sup> The self-employment rate provides a broader measure of entrepreneurial activity as it is estimated by surveying individuals. It includes both incorporated as well as unincorporated self-employment.

<sup>2</sup> A region's share of new and young firms per 1,000 residents is more adequate for assessing entrepreneurial activity at the firm-level and is representative of employer-type entrepreneurship.

employment rate of 9.6 percent.<sup>3,4</sup> Both unincorporated and incorporated self-employment rates, at 16.2 percent and 5.4 percent of employment, respectively, exceed the national rate (figure 1).<sup>5</sup>

**Figure 1: Santa Fe, NM MSA self-employment rate 2009 - 2014 by type**



Source: Author's estimates of American Community Survey 1-year estimates from 2009 to 2014.

Similar to self-employment, new and young firms are performing well in the Santa Fe, NM metropolitan area. In 2013, there were 6.8 new and young firms per 1,000 people in the Santa Fe, NM metropolitan area. Although this represents a 22 percent decline from 8.8 new and young firms per 1,000 people in 2009, it is 0.7 firms higher than the national rate in 2013. The national rate declined from 7.2 firms per 1,000 people to 6.1 firms over this same time period. Although the entrepreneurial ecosystem is losing some vibrancy, this mirrors the broader economy and rates remain above national levels and are the highest of the six metros in this study.

### Metropolitan Comparative Advantages

The findings of this report highlight the metro's overall declining entrepreneurial activity. As shown in figure 1 above, SFM's self-employment rate has been tracking down from a peak of 22 percent in 2009. This decline was driven mostly by a downward trend in unincorporated self-employment activity. Incorporated self-employment rates remained high in 2014 at 5.4 percent, well above the national average of 3.4 percent.

<sup>3</sup> The national self-employment rates include self-employment activity in agriculture and natural resource mining, both of which are under-represented in metropolitan areas.

<sup>4</sup> American Community Survey (ACS) estimates for national self-employment rates are slightly lower than Current Population Survey (CPS) by the Bureau of Labor Statistics (BLS) that estimate the national rate at about 10 percent. We chose to use ACS estimates consistently throughout our analysis as the sample size is larger, allowing for better estimates at the metropolitan level.

<sup>5</sup> Unincorporated self-employment is associated with non-employer types of businesses and proprietorships that often provide secondary incomes to households.

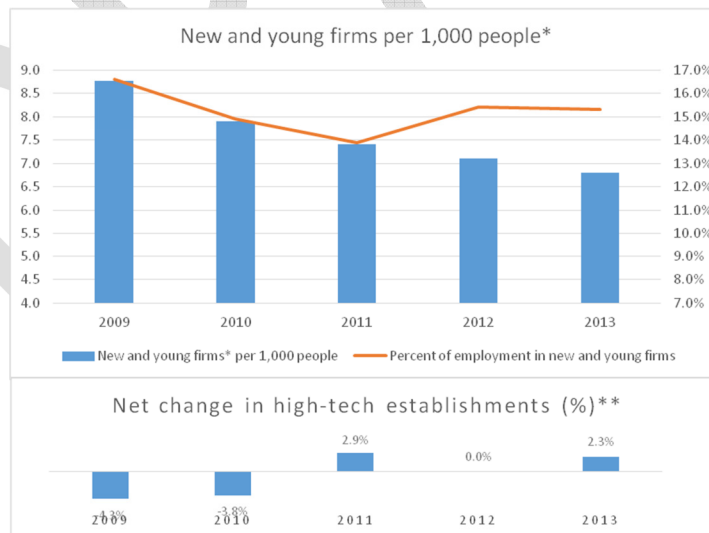
The unique entrepreneurial character of SFM can be attributed to its development as a cultural center that attracts tourism and artist enclaves. The metro is home to some of the highest concentrations of artists, art dealers, anthropologists, archeologists, and museum workers.<sup>6</sup> Yet, SFM also has a significant high-skilled and high-technology workforce that is supported by federally funded research centers such as the Los Alamos National Laboratory (LANL).<sup>7</sup> Other non-federal research institutes include the Santa Fe Institute (SFI), Sandia National Laboratories, and the National Center for Genome Resources (NCGR) that produce innovations commercialized by regional entrepreneurial ventures. This innovative activity is also evident in the region’s patenting which is concentrated in the classes of artificial intelligence, chemistry and molecular biology, optics, and measuring and testing equipment. Additionally, 26 percent of patents filed since 2000 were individually owned, the largest proportion of any of the six metros assessed here. As such, despite its relatively small population size of 148,164 residents, the SFM has a vibrant and innovative entrepreneurial ecosystem that has developed alongside strong regional capabilities in the arts and the sciences.

Although the time period analyzed here is relatively short, the indicators assessed in this study are informative of the structure of the metro’s entrepreneurial ecosystem and its current trajectory. While we have highlighted some of the key features above, a closer analysis of the each of the metrics in the composite indicators is pursued below.

**Ecosystem Density:**

Although overall entrepreneurial rates have declined in the metro, incorporated self-employment and the growth of high-tech establishments have remained high and relatively steady in recent years.

**Figure 2: Santa Fe, NM MSA Entrepreneurial Ecosystem Density**



\*Firms 5 years of age or less.  
 \*\* High-technology NAICS sector definition follows Hecker (2005) with updated definitions.  
 Source: Author’s estimates based on the BDS and QCEW 2009 – 2013.

<sup>6</sup> We defined comparative advantage as having an establishment location quotient over 2.5.

<sup>7</sup> A list of the top 10 occupations by location quotient and employment at the detailed SOC level is provided in the appendix.

The entrepreneurial density of the Santa Fe metropolitan area is high relative to that of the nation but has been declining in recent years. As of 2013, the metro had a concentration of 6.8 new and young firms per 1,000 people, a steady decrease from 8.8 in 2009 (figure 2). Nonetheless, the Santa Fe, NM metropolitan area continues to have the highest density of new and young firms of the six metros analyzed in this study and remains 0.7 firms per 1,000 people above the national rate.

The region's share of employment in entrepreneurial firms first declined from 16.6 percent to 13.9 percent from 2009 to 2011. Following this decline, the share increased in 2012 and 2013 to over 15 percent of regional employment. This trend suggests that while the number of new and young firms in the Santa Fe, NM metropolitan area decreased from 1,255 firms in 2009 to 1,002 firms in 2013, the more recent cohort of new and young firms hire a larger number of workers than previous cohorts. For instance, in 2011 about 39.9 percent of new and young firms had more than 5 employees, by 2013 this proportion has returned to 42.9 percent. Furthermore, there has been an increase in new firm survival rates. Particularly, the 5-year survival rate of entrepreneurial ventures in SFM also increased from 43.8 percent in 2009 to 47.5 percent in 2013, which may account for the increased share of employment<sup>8</sup>.

Finally, high-technology entrepreneurship has been returning to the region.<sup>9</sup> Between 2008 and 2009, region's net change in high-tech establishments was -4.3 percent, accounting for a net loss of 18 out of 414 establishments. In recent years, the metro has shown modest growth including 2.3 percent in 2013. SFM's high-tech sector is concentrated in in Management, scientific, and technical consulting services (NAICS 5416); Architectural, engineering, and related services (NAICS 5413); and Computer systems design and related services (NAICS 5415).

#### **Ecosystem Fluidity:**

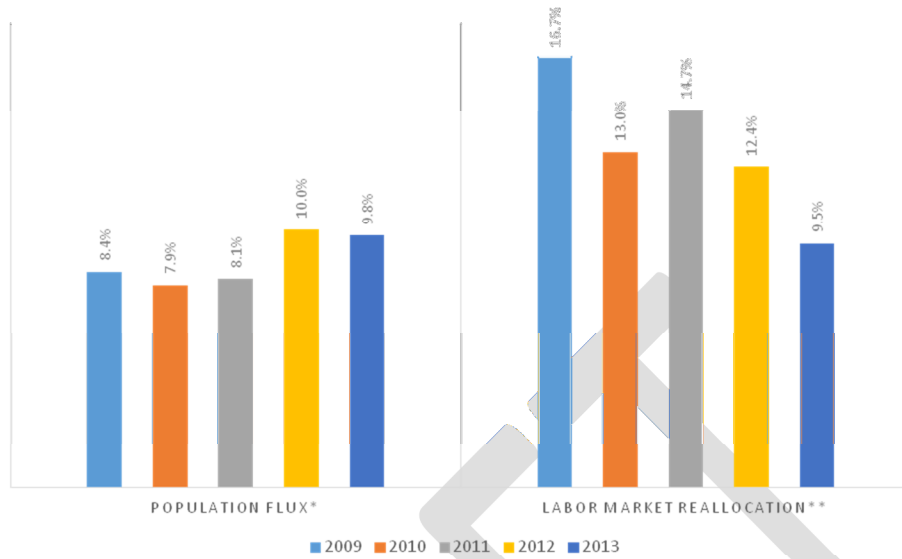
Santa Fe, NM metropolitan area annual job creation and destruction rates have declined since 2009 but worker churn has become more dynamic and gross migration flows have increased.

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<sup>8</sup> BDS suppressed employment data for confidentiality reasons. Consequently, it is difficult to estimate employment changes precisely for firm size, firm age, and employment at the MSA level.

<sup>9</sup> High-technology NAICS sector definition follows Hecker (2005) and were updated for most recent NAICS codes.

**Figure 3: Santa Fe, NM MSA Entrepreneurial Ecosystem Fluidity**



\* Gross Migration as percent of population.

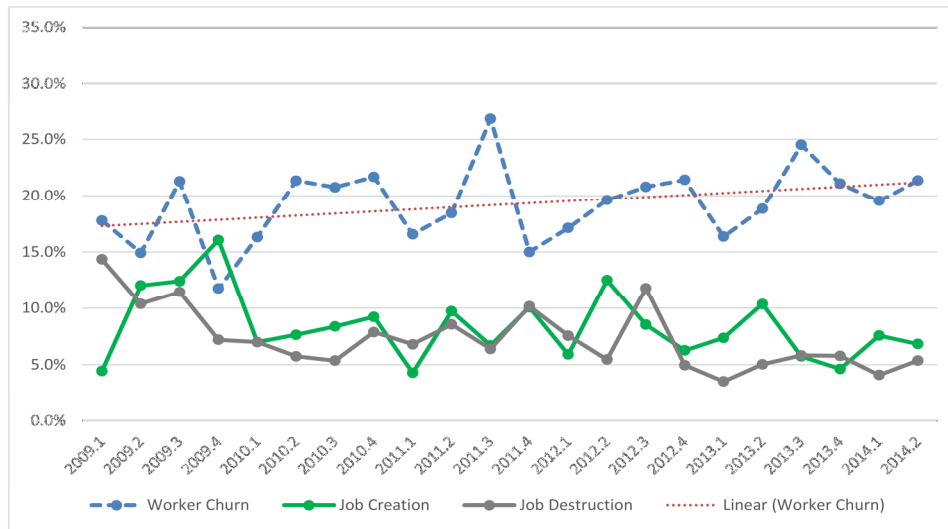
\*\* Annual averages of excess job reallocation.

Source: Author's estimates from IRSOT data and Quarterly Workforce Indicators.

The Santa Fe metropolitan area's gross migration flows<sup>10</sup> averaged 8.8 percent from 2009 to 2013, increasing by nearly 1.5 percentage points over the period (figure 3). SFM's migration flows arrive from regional non-metro areas and the metro also has significant flows of people moving back and forth from the nearby Albuquerque, NM metropolitan area. Following Albuquerque, SFM also has notable migration flows with the Phoenix, AZ; Portland, OR; Houston, TX; and Las Cruces, NM metropolitan areas. Internationally, SFM is most closely connected with migrants from Central America and a smaller connection with Europe.

<sup>10</sup> Gross migration rate was calculated as the sum of inflows and outflows of migrants in the metro divided by metro population.

**Figure 4: Santa Fe, NM MSA Labor Market Reallocation**



Source: Author’s estimates from Quarterly Workforce Indicators.

While migration has been increasing in SFM, gross job reallocation has declined. Gross job reallocation, the sum of job creation and destruction, was in excess of 20 percent for three quarters in 2009. Gross job reallocation averaged 10 percent over the four quarters in 2013. The reduced gross job reallocation is lower volatility of both job creation and destruction rates (figure 4).

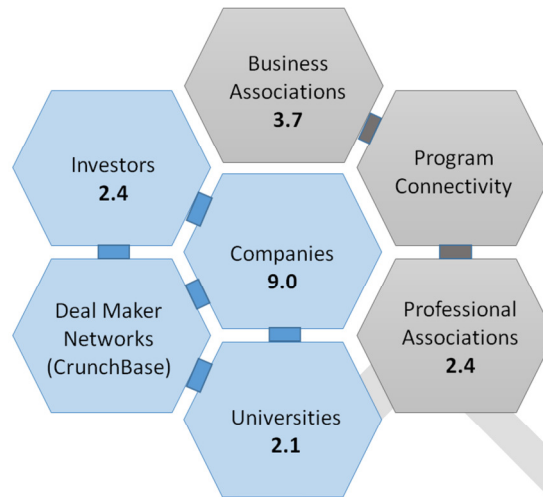
Worker churn<sup>11</sup> has shown an increasing trend since 2009. SFM’s worker churn falls within the middle range and shows a similar trend as the other metros in this study.

**Ecosystem Connectivity:**

The metro has a well-connected ecosystem relative to its size. SFM has an active presence of investors, companies, and universities engaged on the CrunchBase network.

<sup>11</sup> Worker churn is the dynamic movement of workers between jobs other than new job creation or job destruction and is used here as a proxy for information spillovers within the metro area.

**Figure 5: Santa Fe, NM MSA Entrepreneurial Ecosystem Connectivity**



\* All estimates normalized per 1,000 firms.  
Source: Author's estimates from the CrunchBase database; QCEW 2014 annual averages.

As of 2013 the Santa Fe metro's economy was comprised of over 3,700 firms that employed over 44,400 workers. At the same time, the metro has 14 business association and 9 professional associations operational in SFM. When adjusted for the number of firms in the region, SFM has 3.7 business and 2.4 professional associations per 1,000 firms, ranking the metro above Albuquerque, NM MSA and Burlington, VT MSA, of the six metros in this study (figure 5). SFM also has more professional associations per 1,000 firms than the Kansas City metropolitan area. In this regard, given its small size, we expect that SFM is well connected within certain business and professional networks, but more research would be necessary to affirm their role in the metro's entrepreneurial ecosystem.

The other measure for assessing the metro's ecosystem connectivity is SFM's representation on the national CrunchBase network.<sup>12</sup> SFM ranks first of the six metros analyzed in terms of investors that are registered on CrunchBase and located in SFM. These investors mostly serve seed and early stage entrepreneurial ventures, but also include an 8-week accelerator and consultancy services for new ventures. The venture activity is concentrated in high-technology and information technology firms. The metro also has above average representation for universities and companies that are involved in the CrunchBase network that are active in sectors beyond technology.

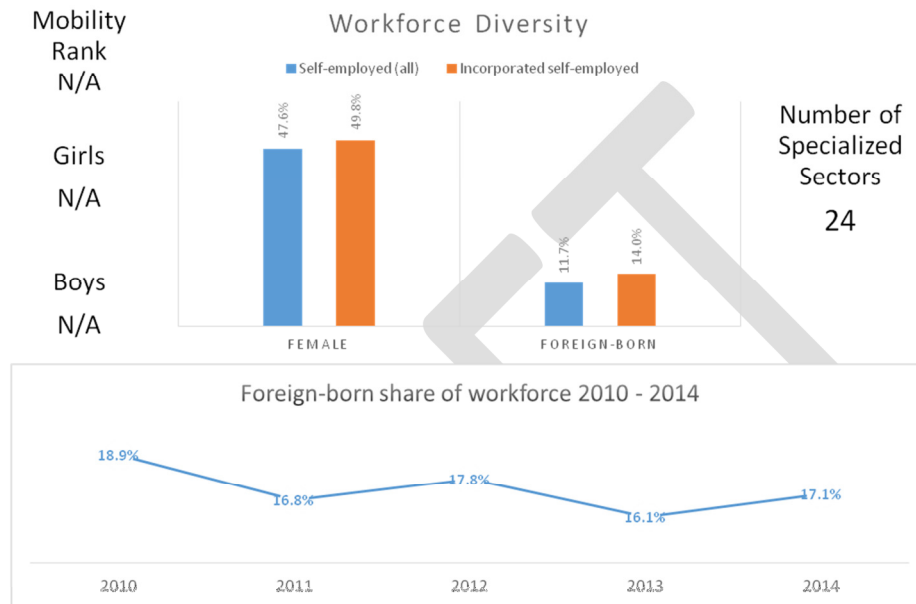
SFM's concentration in high-technology activity is especially interesting given the region has a low proportional share of workers employed in high-tech occupations. Only about 4 percent of the workforce is engaged in work that requires significant knowledge and use of technology to perform occupational tasks. Consequently, investigation in the metro's high-technology cluster may yield some nuanced detail about where the high-technology sector is concentrated and if there is a regional advantage for a high level of specialization in a niche technology.

<sup>12</sup> The CrunchBase database is biased in favor of the technology sector. Yet, it does provide some indication of an ecosystem's connectedness in the absence of better publicly available regional metrics.

**Ecosystem Diversity:**

The Santa Fe, NM metropolitan area is economically specialized broadly across 24 detailed sectors. The metro’s entrepreneurial diversity is also supported by a high representation of women in self-employment and a high, but decreasing proportion of foreign-born workers in the labor force.

**Figure 6: Santa Fe, NM MSA Entrepreneurial Ecosystem Diversity**



\* Specialized sectors have at least 10 establishments and location quotients >= 2.0 at the 4-Digit NAICS level.  
 \*\* Mobility shows the percent change in income for a child from low-income family growing up to age 26.  
 Source: Author’s estimates from ACS 2009 – 2014; QCEW 2012 – 2014; and Equality of Opportunity Project.

The economic mobility ranking was not available for the SFM. However, as we are interested in the economic opportunity created through entrepreneurial activity, we assessed the median earnings of the self-employed in SFM. In 2014, the median earnings of workers in SFM was \$30,155, lowest of the six metros in this study, and lower than the nearby Albuquerque, NM metropolitan area. However, the median earnings of the self-employed in incorporated businesses was about \$8,000 higher in SFM than in Albuquerque, suggesting a more vibrant environment for entrepreneurial activity in the formal sector. The unincorporated self-employed in SFM continued to earn less than in Albuquerque. This is suggestive that the formal institutional structure in SFM is more favorable to entrepreneurship than in Albuquerque, although this effect may be driven by more successful high-technology entrepreneurship

SFM’s self-employed workforce is also diverse in the proportion of women self-employed both in total self-employment (47.6 percent) as well as incorporated self-employment activity (49.8 percent). The metro also fares well in terms of immigrant self-employment with nearly 12 percent of all self-employed businesses being run by immigrants and a higher 14 percent share of the incorporated businesses being immigrant run (figure 6).

In terms of economic specialization, SFM is specialized in 24 4-digit NAICS sectors, the most of any other metro in this study. These sectors include Grantmaking and giving services (NAICS 8132); Museums, historical sites, zoos, and parks (NAICS 7121); Other miscellaneous store retailers (NAICS



4539); Independent artists, writers, and performers (NAICS 7115), among others. These sectors tend to create opportunity for self-employment both directly as well as indirectly through support services that revolve around tourism adding to the metro's ecosystem vibrancy.

### **Conclusion**

The entrepreneurial ecosystem in the Santa Fe, NM metropolitan area is one of the most vibrant in the country with high levels of density, fluidity and connectivity. It has the highest levels of direct entrepreneurial activities of self-employment, both incorporated and unincorporated, as well as new and young firms per 1,000 people. The metro also has the highest levels of job reallocation and connectivity. These measures paint a picture of a very entrepreneurial metro which is constantly changing but remains highly connected within the ecosystem.

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**Appendix: Santa Fe, NM Metropolitan Statistical Area**

Table 1. Santa Fe, NM MSA Entrepreneurial Ecosystem Density Measures

Indicator	Measure	2009	2010	2011	2012	2013
Density	New and young firms* per 1,000 people	8.8	7.9	7.4	7.1	6.8
	Employment share new and young firms	16.6%	14.9%	13.9%	15.4%	15.3%
	Net Change high-tech establishments**	-4.3%	-3.8%	2.9%	0.0%	2.3%

\*Firms 5 years of age or less.

\*\* Uses industries with high technology use. See (Hecker, 2005).

Source: Author's estimates based Business Dynamics Survey and Quarterly Census of Employment and Wages 2009 – 2013.

Table 2: Santa Fe, NM MSA Entrepreneurial Ecosystem Fluidity Measures

Indicator	Measure	2009	2010	2011	2012	2013
Fluidity	Population Flux*	8.4%	7.9%	8.1%	10.0%	9.8%
	Labor market reallocation**	16.7%	13.0%	14.7%	12.4%	9.5%
	High-growth firms	0	0	0	0	0

\*Gross Migration as % of Population

\*\*Annual Averages of Excess Reallocation

Source: Author's estimates from IRS SOT data, Quarterly Workforce Indicators, and the Inc. 5000 lists.

Table 5A. Santa Fe, NM MSA Top Five Major Industry Sectors by Employment 2014

Santa Fe, NM	Employment	% of Total	Avg. Wage (\$s)
Retail trade	8,799	20.2%	\$29,965
Accommodation and food services	8,444	19.4%	\$22,245
Health care and social assistance	8,288	19.1%	\$47,243
Construction	2,566	5.9%	\$35,399
Other services, except public administration	2,491	5.7%	\$35,385
<b>Total Private Employment</b>	<b>43,496</b>	<b>100.0%</b>	<b>\$40,703</b>

Source: Quarterly Census of Employment and Wages 2014

Table 5B. Santa Fe, NM MSA Top 10 Detailed Industries by Establishment LQs 2014

<b>Santa Fe, NM</b>	<b>Establishments</b>	<b>LQ</b>
Art dealers	120	39.3
New single-family general contractors	116	2.5
Independent artists, writers, and performers	50	3.6
Architectural services	39	2.9
Jewelry stores	38	3.0
Grantmaking foundations	35	7.7
Offices of miscellaneous health practitioners	35	3.5
Other individual and family services	35	2.2
Gift, novelty, and souvenir stores	31	2.4
All other home furnishings stores	28	3.6
<b>Total Private Establishments</b>	<b>5,224</b>	<b>1.0</b>

\*Only establishments with LQ>2.0 included

Source: Quarterly Census of Employment and Wages 2014

Table 5C. Santa Fe, NM MSA Top 5 Major Occupations by Employment 2014

<b>Santa Fe, NM</b>	<b>Employment</b>	<b>% of Total</b>	<b>Median Wage</b>
Office and Administrative Support Occupations	9,080	15.1%	\$31,890
Food Preparation and Serving Related Occupations	7,400	12.3%	\$22,760
Sales and Related Occupations	6,910	11.5%	\$26,350
Management Occupations	4,010	6.7%	\$77,210
Business and Financial Operations Occupations	3,750	6.2%	\$47,750
<b>Total Occupations</b>	<b>60,160</b>	<b>100.0%</b>	<b>\$32,840</b>

Source: Occupational Employment Statistics 2014 Annual Estimates.

Table 5D. Santa Fe, NM MSA Top 10 Detailed Occupations by Location Quotients 2014

<b>Santa Fe, NM</b>	<b>LQ</b>	<b>Employment</b>	<b>Median Wage</b>
Anthropologists and Archeologists	24.5	80	\$48,280
Museum Technicians and Conservators	9.2	40	\$28,060
Plasterers and Stucco Masons	8.7	80	\$33,450
Curators	7.4	40	\$48,810
Environmental Scientists and Specialists, Including Health	6.9	270	\$57,800
Financial Specialists, All Other	5.4	330	\$37,100
Social Workers, All Other	4.6	130	\$51,220
Jewelers and Precious Stone and Metal Workers	4.5	50	\$33,160
Social and Community Service Managers	4.4	230	\$69,100
Urban and Regional Planners	4.3	70	\$53,780
<b>Total Occupations (All)</b>	<b>1.0</b>	<b>60,160</b>	<b>\$32,840</b>

Source: Occupational Employment Statistics 2014 Annual Estimates.