
Measuring the Employment Impacts of the Living Wage Ordinance in Santa Fe, New Mexico

June 30, 2006

UNIVERSITY OF NEW MEXICO

BUREAU OF BUSINESS AND
ECONOMIC RESEARCH



The University of New Mexico

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Executive Summary

In June of 2004, the living wage ordinance in Santa Fe increased the minimum wage for businesses with 25 or more employees from \$5.15 to \$8.50, a 65 percent increase. Previous economic studies of minimum wage impacts have found either no impact or some negative impact. This is a debate that has existed since the first minimum wage laws more than 60 years ago. A variety of differences between Santa Fe and other minimum wage areas make the effect of the living wage ordinance on employment particularly unclear, even neglecting the lack of consensus on the impacts of the minimum wage in general. Previously, BBER has examined trends in employment data and survey results in an effort to ascertain the effects of the living wage ordinance on local businesses and residents in Santa Fe. In this analysis, we follow a number of methodologies in the burgeoning economic literature on minimum wage impacts, in particular comparing changes in employment levels and growth rates before and after the living wage ordinance with the same changes in Albuquerque as a control region.

The first analysis compares the change in employment for each business with 25 or more employees before and after the living wage ordinance in Santa Fe to the same change in Albuquerque. Overall, employment for businesses in Santa Fe with 25 or more employees was an average of 0.35 employees higher per firm after the living wage ordinance than before it. Relative to Albuquerque, these same Santa Fe businesses had an increase of 2.7 employees. The change in specific industries in Santa Fe was not appreciably different from the change in Albuquerque except in the case of construction, for which negative employment changes were consistently found. However, it is difficult to tell whether this loss is due to the living wage ordinance or to falling investment in new buildings. In the accommodation and food services industry, which had the highest portion of its' workforce earning less than \$8.50 before the living wage ordinance (45 percent), results are actually positive relative to Albuquerque, showing a loss that is an average of 5.5 employees less per firm than in Albuquerque. Overall, this analysis found that the living wage analysis had no discernible impact on employment per firm, and that Santa Fe actually did better than Albuquerque in terms of employment changes.

A time-series analysis using total employment data from July 2002 to June 2005 found that employment at businesses with 25 or more employees increased after the living wage compared with the two years before. This increase is also positive relative to the change in Albuquerque. Again the significant except was construction, which showed negative employment changes. Here again accommodations and food services found a significant increase in employment levels relative to Albuquerque. A comparison of the differences between employment levels at businesses in

Santa Fe with 25 or more employees and businesses in Santa Fe with less than 25 employees also found no appreciable difference, as did comparing differences between Santa Fe and Albuquerque large businesses with Santa Fe and Albuquerque small businesses. In both of these cases, construction was again the only significant results.

In summary, the analysis shows that overall employment levels have been unaffected by the living wage ordinance. In contrast to prevailing economic theory, the accommodations and food services sector did comparatively better, while the construction sector was relatively negative, but for uncertain reasons. Other industries, such as retail and health care, showed negative changes relative to Albuquerque, but not at a statistically significant level.

I. Introduction

Determining the impact of any policy is a difficult process, often fraught with political and ideological overtones. This is perhaps nowhere more true than in examining the impacts of minimum wage laws. The literature examining the employment impacts of minimum wages is large and generally concludes that minimum wage laws do more harm than good. The significant exception to this is a variety of more recent work by David Card and Alan Krueger and others that indicate the increased minimum wages have very little impact on employment.

However, within the context of the debate on the employment effects of minimum wages, the Santa Fe Living Wage Ordinance (LWO) is unique in several ways. The vast majority of minimum wage laws have been enacted on at least a state-wide level¹, reducing the likelihood of firms moving out of the region to avoid having to pay higher wages. The Santa Fe region is much smaller, and one concern is that the LWO has caused the flight of businesses to just outside the Santa Fe municipality. In addition, minimum wage laws have usually applied broadly to all businesses, sometimes excepting the public sector. In this respect the Santa Fe LWO is also different, applying only to those firms with 25 or more employees. This substantially reduces the number of businesses directly required to increase wages² and limits the impacts of the minimum wage. At the same time businesses with less than 25 workers have no need to relocate to avoid higher wages. Finally, most minimum wage laws are fairly modest increases over the previous minimum wage, but in Santa Fe the increase to \$8.50 represents a 65 percent increase over the previous federal minimum wage of \$5.15. This is the largest one time percent increase in the minimum wage anywhere in the United States. Thus the situation in Santa Fe is one in which a variety of unusual factors may amplify or reduce the employment effects of the LWO, and impacts could therefore be substantially different from those found in other minimum wage increases.

We employ a variety of methods to estimate the impacts of the LWO, first examining employment levels in Santa Fe over the past several years. This provides a context within which to examine employment changes and determine whether those changes were caused by the LWO. A difference-in-differences method examines the before and after change in employment in Santa Fe and compares that change with the change in Albuquerque. A time-series analysis compares employment growth rates after the LWO to

¹ A few examples of city-wide minimum wages exist, including Baltimore, San Francisco, and now Santa Fe.

² A Previous BBER study analyzing survey responses found that small businesses may have increased wages in order to pay a rate that is competitive with those businesses paying the living wage.

growth rates before the LWO. These two types of analysis, within the context of employment trends in Santa Fe in general, provide a variety of evidence regarding the employment impacts of the LWO.

II. Data

The ES-202 employer data set is used throughout this report. The data set is comprised of all firms paying unemployment insurance and is compiled by the New Mexico Department of Labor. Data is collected on the number of employees receiving pay during the pay period including the 12th of each month.

The data was corrected for misspelled city names and missing city and zip codes replaced³. Because many firms that are located outside the Santa Fe municipality list their city as Santa Fe, we restricted the Santa Fe data set to those firms listing Santa Fe as their city and zip codes of 87501, 87505, and 87507⁴. Additionally, we eliminated large firms within the 87505 zip code that were known to be located outside of the Santa Fe City boundary. The Albuquerque data set is determined by those firms listing Albuquerque as their city. All federal, state, and municipal public employers were removed. The resulting data set consists of monthly employment measures for private firms in Santa Fe and Albuquerque.

The difference analysis makes use of two annual employment averages, from July 2003 to June 2004 and from July 2004 to June 2005.

III. Method

Several methods have been utilized over the past several decades to examine the impacts of minimum wage laws. These analyses fall into two camps: the difference-in-differences approach spearheaded by Card and Krueger⁵ and used by Neumark and Wascher, and the analysis of time-series data used in a great number of studies⁶, including Yelowitz (2005) and Pollin and Wicks-Lim (2005).

³ City names were only changed for obvious misspellings. There are many cases where the main and physical addresses are the same or where the physical address is left blank. In these cases, missing physical location zip codes were replaced with main address zip codes

⁴ This is restrictive and eliminates some businesses that actually lie within Santa Fe, but in setting the data set it is better to be restrictive than inclusive. We'd rather miss some firms that should be included than include some firms that should be missed.

⁵ For example, see the debate between Card and Krueger (1994, 1995, 2000) and Neumark and Wascher (1995, 2000).

⁶ See Brown et al. 1982 for a comprehensive review of time-series analysis studies.

The difference-in-differences analysis compares a given control region to the region in which a minimum wage law was enacted. The before-and-after difference in each sample firm's employment in the minimum wage region is compared with the difference in employment for each sample firm in the control region; the idea being that minimum wage effects would be indicated by the "difference-in-differences" between the minimum wage region and the control region. This analysis rests on the assumption that no major shock occurs in the control region that does not occur in the minimum wage region, and vice-versa (except of course the minimum wage law itself). The worth of this analysis depends on the degree to which the minimum wage region and the control region behave similarly.

In our case, Santa Fe has extreme seasonal variability within any given year. In addition, there is substantial variation between years as well. This is largely tied to factors such as snow levels. To address this, we use annual employment averages for each business as our basic unit of measurement. To compare differences in employment levels before and after the living wage, we take the average annual employment before the living wage from July 2003 to June 2004, and after the living wage from July 2004 to June 2005. Any firm with missing employment values, such as those that went out of business or began business, was assigned zero employment in the periods with no entries. Using these annual averages, we compare the difference and proportion change⁷ in the average annual employment before and after the living wage between Santa Fe and Albuquerque.

The restriction of the LWO to businesses with 25 or more employees⁸ provides yet another level of distinction. In addition to a difference-in-differences between businesses with 25 or more employees in Santa Fe and Albuquerque, we analyze a difference-in-differences that includes all businesses. This third level of distinction provides another set of behaviors against which the behaviors of Santa Fe's large businesses are compared. The employment changes for businesses with 25 or more employees in Santa Fe to the changes for large businesses in Albuquerque as well as employment changes for small businesses in Santa Fe and in Albuquerque.

The second method of analysis involves the use of time series data. There are a large number of different time-series methods that have been used to evaluate the impacts of minimum wages on employment. Most often employment levels or annual changes after the living wage are compared with those from before the living wage in a simple time regression. If the

⁷ As in Card and Krueger (1994) and Card and Krueger (2000), we use the average of employment in the two years as the denominator.

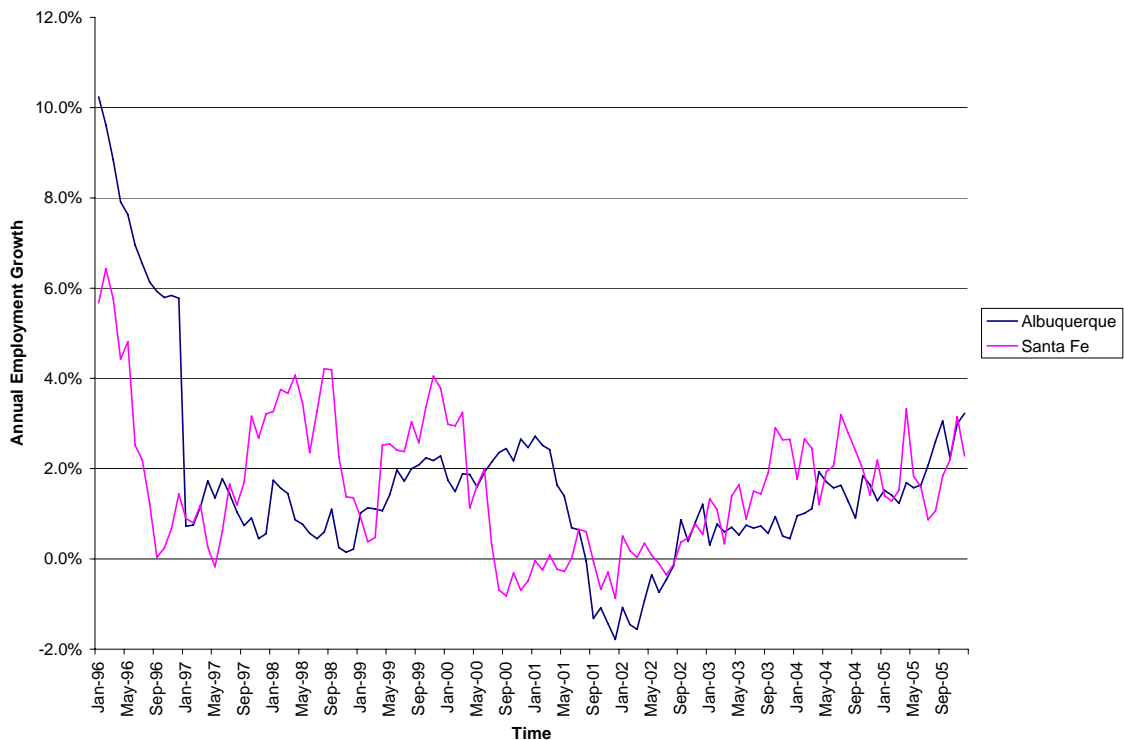
⁸ Throughout this analysis, a business is considered in the large business category if they had 25 or more employees in the period before the LWO took effect.

post-minimum wage indicator is significant, it suggests that levels or differences were changed by the minimum wage. As can be imagined, it is difficult to attribute a significant change directly to the minimum wage law as any number of other shocks could have caused the given impact. Alternatively, one can use a difference in total employment between the minimum wage region and a control region. In this case a significant indicator suggests that difference between the two regions was different after the minimum wage took effect. As with the difference-in-differences analysis, this method rests on the two regions behaving similarly in all other respects.

The time-series analysis makes use of total employment for private firms in Santa Fe and Albuquerque from July 2002 to June 2005. The first method uses an autoregression model to compare employment levels for businesses in Santa Fe with 25 or more employees after the LWO to levels before the LWO. A second method uses an autoregression model to make three comparisons: (1) The difference between employment levels at large businesses in Santa Fe and Albuquerque before and after the LWO, (2) The difference between employment at small and large businesses in Santa Fe before and after the LWO and (3) The difference between large firms in Santa Fe and Albuquerque and small firms in Santa Fe and Albuquerque before and after the LWO. This second method gives the impact of the LWO on Santa Fe employment compared with Albuquerque, while the first merely compares Santa Fe to itself before the LWO.

As with any comparison analysis, the selection of a useful control region is crucial to the conclusiveness of the results. This is particularly difficult in the case of Santa Fe for reasons already noted above, namely that Santa Fe is a small geographic region relatively isolated from comparable metropolitan areas. To determine the best control group, we compared employment in Santa Fe from 1996 to 2005 to employment in several different areas, including Taos, Taos County, Albuquerque, Santa Fe County (less Santa Fe City), Bernalillo County, Bernalillo County less Sandia National Laboratory (Sandia NL), and New Mexico as a whole (less Santa Fe City). In the smaller regions of Taos, Taos County and Santa Fe County, small economies led to substantial variability. We chose the best region based on a simple regression of annual percent change in employment in the potential control region on the annual percent change in employment in Santa Fe. Albuquerque provided the best fit, though Bernalillo County and Bernalillo County less Sandia NL were a close second and third best match. **Figure 1** shows the annual year-by-year percent change in employment in Santa Fe and Albuquerque.

Figure 1: Annual Year-by-Year Percent Employment Change in Santa Fe and Albuquerque



Lastly, a variety of different industry categories are examining in each case. The analysis looks at overall employment effects, but also examines those industries that may typically pay low wages: construction (NAICS code 23), retail (NAICS code 44 and 45), health care (NAICS code 62), and accommodations and food services (NAICS code 72). In addition, each of these industries is examined separately. Survey results from BBER’s earlier studies indicate that for any given business, 10 percent of employees in construction, 24 percent of employees in retail, 15 percent of employees in health care, and 45 percent of employees in accommodations and food services earn less than \$8.50. Hence we would expect the largest impacts to be found in the accommodations and food services industry.

IV. Results

A. Santa Fe Employment Trends

It is useful to set our analysis within the context of what has happened to Santa Fe employment over the period of the analysis. Annual total employment for businesses in Santa Fe with 25 or more employees increased slightly between the year before the LWO and the year after the LWO. Both the average employment for those firms also increased

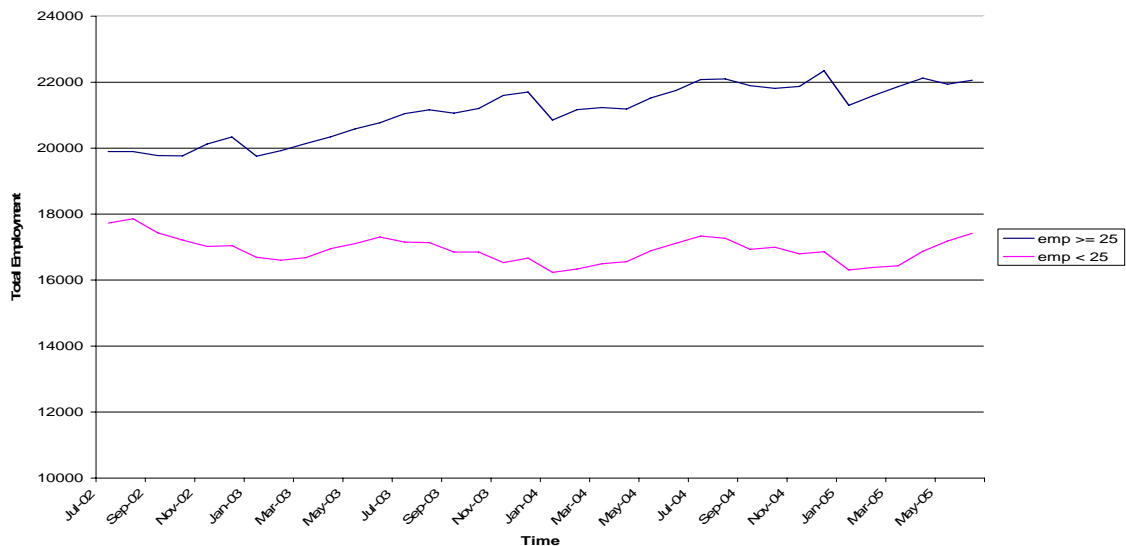
marginally, but the number of businesses fell by four. Small businesses, those with less than 25 employees, behaved very similar, losing two businesses, but having overall more employees and a slightly increased average number of employees per business. These numbers are shown in **Table 1**. At face value, these averages and totals indicate that there isn't much of a difference in the behaviors of small and large businesses in Santa Fe before and after the LWO. In both cases total employment and average employment increased while the number of businesses shrank slightly.

Table 1: Total and Average Employment and Number of Businesses in Santa Fe Before and After the LWO, 25 or More Employees and Less than 25 Employees

	<u>07/03-06/04</u>	<u>07/04-06/05</u>
25 Or More		
# Businesses	323	319
Total Employment	21,413	21,531
Avg. Employment	66.3	67.5
Less Than 25		
# Businesses	3913	3911
Total Employment	18,726	18,894
Avg. Employment	4.8	4.8

Figure 2 shows Santa Fe employment levels for the time period used in the time-series analysis below. Total employment in Santa Fe over time exhibits a regular season trend, shown in **Figure 2** and seen also above in **Figure 1**. Note that for small businesses, employment levels in Santa Fe peak regularly in June and July, falling off until January and then increasing, while employment levels for large businesses seem to peak twice, once around July and August and again around December and January. This belies the importance of the tourist industry and those two important tourist seasons for both small and large businesses. This trend is important because it indicates that beginning our analysis in December or January would include the decreasing portion of the annual employment cycle without including the increasing portion.

Figure 2: Monthly Employment Levels in Santa Fe for Businesses with 25 or More Employees and Businesses with Less than 25 Employees, July 2002 – June 2005



While the overall picture of employment in Santa Fe is that it has increased slightly after the LWO, the analysis in the next two sections will help to determine whether this trend is specific to Santa Fe or whether the behavior of Albuquerque businesses indicates any impacts from the LWO for Santa Fe.

B. Difference-in-Differences

Following the approach used in Card and Krueger, we estimate the difference-in-differences between Santa Fe and Albuquerque. The average difference in employment before and after the living wage for all businesses and just those with 25 or more employees is shown in **Table 2**. Looking just at the second Santa Fe column, the ES-202 data indicates that those businesses with an annual average of 25 or more employees in the year before or the year after the LWO increased their employment levels by .35 employees. This modest increase is larger than the average increase for businesses with less than 25 employees in Santa Fe (column one) and businesses with less than 25 employees in Albuquerque (column two). Furthermore, large businesses in Albuquerque actually decreased their employment by an average of 2.4 employees.

In the specific industry sectors of construction, retail, health care, and accommodations and food services, the change in employment is generally negative for all sizes of businesses in both Santa Fe and Albuquerque, indicating that the positive employment change overall originated in other sectors. The employment change in construction for businesses in Santa

Fe with 25 or more employees is -5.6 employees on average, a substantially more negative number than for small businesses in Santa Fe or Albuquerque, and in contrast to the average increase in employment for businesses with 25 or more employees in Albuquerque. The construction industry has some unique characteristics discussed in earlier reports, and will be discussed further below.

In the health care industry, the average decrease in employment for businesses in Santa Fe with 25 or more employees is quite large at 11.6, but while this is a much stronger negative change compared to smaller businesses in both cities, it is slightly smaller than the loss in Albuquerque, suggesting that the employment decreases are a general regional trend. The retail sector is similar, except that the decrease in Santa Fe for businesses with 25 or more employees is larger than the decrease in Albuquerque. Conversely, Santa Fe businesses with 25 or more employees in the accommodations and food services sector have a decrease that is much smaller than the decrease for similar businesses in Albuquerque.

In addition, the large size of the standard deviations indicates substantial variance in the employment changes among businesses. In Santa Fe 95 percent of businesses with 25 or more employees had employment changes ranging between an increase or decrease of about 50 employees. A large standard deviation is consistent throughout the various specific industries and even more pronounced in Albuquerque. This primarily indicates that between the year before the living wage and the year after the living wage businesses had a variety of employment behaviors ranging from a large expansion of the workforce to a significant reduction.

Table 2: Average Difference in Employment after the Living Wage in Santa Fe and Albuquerque, Businesses with Less Than 25 Employees and Businesses with 25 or more Employees

	Santa Fe		Albuquerque	
	emp<25	emp>=25	emp<25	emp>=25
All Industries	0.036	0.351	0.086	-2.402
4338, 374, 15531, 2295	2.803	27.920	3.332	66.572
Construction	-0.524	-5.607	-0.383	2.080
409, 28, 1131, 242	2.815	16.651	2.970	30.767
Retail	-0.413	-3.482	-0.447	-1.948
573, 66, 1457, 283	1.821	12.463	2.506	24.201
Health Care	-0.320	-11.600	-0.367	-12.836
298, 35, 999, 182	1.862	30.122	2.885	82.924
Accommodation and Food	-1.440	-4.273	-1.769	-9.800
172, 76, 564, 380	4.497	19.368	4.888	43.150

Note: the number of observations is listed underneath each industry by column. Standard deviations are listed in small text.

To examine these thoughts in more detail, we estimate the difference in the level and proportion change in employment between Santa Fe and Albuquerque. The method is identical to that used by Card and Krueger (2000), and allows us to estimate whether or not Santa Fe's employment change and Albuquerque's employment change shown in **Table 2** are significantly different. In particular, we would like to see whether the Santa Fe's higher decreases in the construction and retail sector are statistically significantly higher. **Table 3** shows the results of this analysis based on the employment changes of businesses with 25 or more employees only. The values in column 1 of **Table 3** correspond to the difference between the Santa Fe change (**Table 2**, column 2) and the Albuquerque change (**Table 2**, column 4).

Looking at employment levels, we can see that Santa Fe businesses with 25 or more employees before the living wage had an average employment increase of 2.7 employees relative to the decrease in Albuquerque. As we should expect from previous reports, the decrease in employment for Santa Fe businesses with 25 or more employees in the construction industry is a loss of 7.6 employees relative to the increases in Albuquerque. This value is statistically significant and matches overall trend data for the construction industry in Santa Fe versus Albuquerque. The retail sector for these large businesses in Santa Fe has a 1.5 employee loss relative to Albuquerque, while the health care sector had a 1.2 employee gain, but neither of these values is significant. As we might suspect from **Table 2**, Santa Fe businesses with 25 or more employees in the accommodations and food services industry, though having an average decrease in employment, have an increase of 5.5 employees relative to the decreases in Albuquerque. This result is also statistically significant. By and large, the results are not statistically significant and do not indicate that businesses with 25 or more employees in Santa Fe behaved differently than businesses in Albuquerque. If the results indicate anything, it is that large businesses in Santa Fe increased their employment compared to Albuquerque. The exception to this is the construction industry, which is discussed in the final discussion.

One problem with examining changes in employment levels is that the behavior of very large businesses can disproportionately affect the results. For example, consider that if a business with 500 employees fires 10 percent of them, they have decreased employment by 50 workers. If a business with only 50 employees lets go of 10 percent of its' workforce, it is only firing 5 workers. Businesses may thus be reducing by the same percent, but larger businesses will have larger fluctuations in employment levels. The large standard deviations shown in **Table 1** indicate that this is likely to be a significant problem. One method of addressing this is to examine the proportion change in employment, so that in the above

example both firms would have the same percent decrease. This reduces the impact of large fluctuations in the bigger firms.

Column 2 of **Table 2** repeats the same method using the proportion change in employment for each business. These results indicate that the average Santa Fe business with 25 or more employees increased its' employment by 0.3 percent relative to those in Albuquerque. The extremely large decrease in the average Santa Fe construction business with 25 or more employees of 25 percent relative to Albuquerque is partially do to the large percent increase of businesses in Albuquerque, but is significantly negative nonetheless. Santa Fe businesses in the health care industry with 25 or more employees increased their employment relative to Albuquerque, but had a percentage decrease relative to Albuquerque. This largely due to the fact that Albuquerque has many more large businesses, and hence there are more largely negative outliers. Using percent changes reduces the impact of these outliers, and indicates that taking into account the difference in the size and number of businesses between Santa Fe and Albuquerque suggests little difference in the employment changes between the two cities.

**Table 3: Mean Employment Difference between Santa Fe's and Albuquerque's Employment Change from July 2003 - June 2004
Average to July 2004 - June 2005 Average,
Businesses with 25 or more Employees**

	Change in levels	Proportionate Change
All Industries	2.754	0.003
2669	2.011	0.044
Construction	-7.687	-0.254
270	3.680	0.119
Retail	-1.534	-0.066
349	2.099	0.073
Health Care	1.236	-0.169
217	7.959	0.139
Accommodation and Food	5.527	0.084
385	3.307	0.088

Note: Standard errors are shown in small text and the number of observations is listed beneath each industry. Bold values are significant at the 10% level. The regression includes as the dependent variable the change or proportionate change in employment, with a dummy variable indicating Santa Fe as the only independent factor. A constant is also included in each case.

Another method of examining the differences between Santa Fe's and Albuquerque's employment changes is to include firms with less than 25 employees in the sample. This substantially increases the size of the sample, and provides additional information with which to estimate results. However, these results are very similar to those in **Table 3**, and so are not shown.

In all, the data from the difference-in-differences analysis show little impact from the LWO except possibly in the construction industry. While the accommodations and food services industry has the highest composition of workers earning less than the LWO, the results show that relative to Albuquerque this industry had positive employment changes. Otherwise, level changes show positive overall employment changes relative to Albuquerque, and both positive and negative employment changes for industries with lower wage workers. However, proportion changes indicate that there is little difference between changes in Santa Fe and Albuquerque overall, and significant decreases only in the case of the construction industry.

C. Time-Series Analysis

The time-series analysis consists of measuring the impact of the LWO on employment in Santa Fe by comparing normalized employment and percent annual changes in employment from before and after the LWO. Comparing these results with the results from similar analysis in Albuquerque gives us an idea of whether changes in employment levels in Santa Fe after the LWO are substantially different from changes in Albuquerque over the same time period.

Looking at annual employment growth shown in **Figure 1**, we can see that employment growth in Santa Fe has generally been stronger than that in Albuquerque. Since some time in 2001, growth rates between Santa Fe and Albuquerque have been more similar. This is important because it establishes a context in which we consider the impacts of the LWO on employment in Santa Fe. In order to avoid comparing against the high growth in Santa Fe in the later 1990's, our time-series analysis looks at the three year period from July 2002 to June 2005⁹. This also neutralizes to some extent the effects of the strong seasonal variance in Santa Fe's employment, since it begins and ends with the peak employment season. For this reason, and because it is also the time at which the LWO takes effect, it is more conclusive to examine data over this period than say from January 2002 to December 2005.

As an initial estimate of the effect of the LWO on employment in Santa Fe, we look at total employment in Santa Fe for businesses with 25 or more employees. **Table 4** shows the results of a regression comparing employment and log employment levels after the living wage to before it. The results show that total employment at Santa Fe businesses with 25 or more employees averaged 35 employees higher in the year after the living

⁹ The inclusion of Santa Fe's earlier strong growth years, as we should expect, weights the results in favor of the LWO.

wage took effect than in the two previous years. The log results can be interpreted as about a 0.1 percent increase. As with the differences analysis, construction shows a decrease in employment, reducing employment in Santa Fe by 76 employees after the LWO, roughly a 6.9 percent decrease. The health care industry and the retail industry are similarly negative, while the accommodations and food services sector is again quite positive.

Table 4: Total Employment in Santa Fe After the Living Wage Ordinance as Compared with Employment Before the Living Wage Ordinance, Businesses With 25 or More Employees Only

	Level	Percent
All Industries	35.3	0.001
	301.1	0.014
Construction	-75.6	-0.069
	37.7	0.033
Retail	-27.3	-0.006
	80.6	0.019
Health Care	-37.5	-0.011
	25.7	0.007
Accommodation and Food	98.2	0.020
	82.8	0.018

Note: The sample size consists of 36 monthly employment observations. The regression is the AR(1) prais method of STATA with robust standard error estimation and includes only a constant, a living wage dummy indicator as the independent variable and a time trend variable. Standard errors are shown in small text.

While **Table 4** compares employment at businesses with 25 or more employees in Santa Fe after the LWO to levels before the LWO, it is more reliable to compare this behavior to the behavior of other employment categories. **Table 5** shows the results from three separate regressions. In the first column, the difference between log employment at Santa Fe businesses with 25 or more employees and log employment at Albuquerque businesses with 25 or more employees before the LWO is compared with the difference after the LWO. These results are in line with the difference-in-difference results, indicating that Santa Fe businesses with 25 or more employees had positive employment change relative to Albuquerque after the LWO. As before, the only significant result is that construction employment at large Santa Fe businesses was 8 percent lower after the LWO relative to large Albuquerque businesses. Other results are not statistically significant, and conform to earlier results showing small decreases in health care and retail, and significant increases in accommodations and food services for businesses in Santa Fe relative to Albuquerque.

The second column compares the difference in log employment levels at Santa Fe businesses with 25 or more employees to log employment levels at Santa Fe businesses with less than 25 employees. Though earlier analysis has suggested some wage increase by these smaller businesses (presumably to remain competitive with the wage rates for large businesses), if the LWO had a negative impact on employment levels in large businesses, we would expect that relative to small businesses these levels would have declined after the LWO. The results in column two show that this is generally not true. The only significant result is again in the construction sector, which shows a 7.6 percent decrease in employment levels relative to small businesses in Santa Fe. For all other industries, it appears that for the most part large businesses in Santa Fe had similar changes in employment levels after the living wage as small businesses in Santa Fe.

The third column compares the difference in the difference between Santa Fe and Albuquerque large businesses and the difference between Santa Fe and Albuquerque small businesses. In essence, it combines the methods in columns one and two to compare employment levels at large businesses in Santa Fe to all other businesses in Santa Fe and Albuquerque. The results here suggest that relative to the difference between Santa Fe and Albuquerque small businesses the difference between Santa Fe and Albuquerque large businesses is decreasing for all industries, though again only the results for the construction industry are statistically significant. This indicates that after the LWO, either large Santa Fe businesses are increasing employment more than large Albuquerque businesses or small Albuquerque businesses are increasing employment more than small Santa Fe businesses. Thus the negative value for overall employment is not at odds with the results in column one and column two.

Table 5: Percent Change in Difference After the Living Wage Ordinance

	Large Santa Fe vs. Albuquerque	Santa Fe Large vs. Small	Santa Fe vs. Albuquerque Large vs. Small
All Industries	0.012	0.008	-0.010
	0.142	0.006	0.017
Construction	-0.081	-0.076	-0.106
	0.024	0.010	0.019
Retail	-0.007	0.022	-0.006
	0.014	0.010	0.013
Health Care	-0.002	0.001	-0.021
	0.009	0.008	0.030
Accommodation and Food	0.031	0.026	-0.006
	0.019	0.009	0.015

Note: The sample for employment at businesses with 25 or more employees (first column) consists of 36 monthly differences between Santa Fe and Albuquerque. For all Santa Fe businesses (second column), the sample consists of 36 monthly differences between businesses with 25 or more employees and businesses with less than 25 employees. For all businesses, the sample consists of 36 monthly employment differences in the difference between Albuquerque and Santa Fe businesses with 25 or more employees and Albuquerque and Santa Fe businesses with less than 25 employees. The prais autocorrelation regression with robust errors is used, and includes a constant and a dummy variable indicating the time period after the living wage took effect.

Taken together, **Tables 4** and **5** suggest some interesting trends in Santa Fe employment before and after the LWO. Health care employment is significantly lower for large firms after the LWO, but the results in **Table 5** suggest that this trend is similar to behavior in Albuquerque. This idea is also supported by the values in **Table 2**. Of course, construction losses relative to Albuquerque are the most consistent result, and some further examination of its source is warranted. Since construction is notoriously variable, it is easily possible that projects in Albuquerque stimulated additional employment for large construction businesses in that city, causing the negative value seen in column one.

Other results are less conclusive. While employment levels at businesses in Santa Fe with 25 or more employees increased after the LWO, that increase was not larger but not significantly different from the increase in Albuquerque. smaller than the corresponding increase in construction employment for large businesses in Albuquerque, but not significantly smaller than the increase for small businesses in Santa Fe (column two) or different from all other businesses in both Santa Fe and Albuquerque (column three).

V. Discussion

The first method used in this report is a firm level analysis that compares the average annual employment change before and after the LWO for Santa Fe businesses with 25 or more employees to the same changes in Albuquerque. The results are a comparison of the average change in

employment for Santa Fe businesses versus Albuquerque businesses. They conclusively show that large Santa Fe businesses on average increased their employment levels by 2.7 employees per firm more than Albuquerque did. The behavior for specific industries is not statistically different from Albuquerque except in the case of the construction industry, which shows a loss of 7 employees, and the accommodations and food services industry, which shows a 5 employee increase relative to Albuquerque.

Looking at the percent increase or decrease for the same firms, the average employment change per firm overall and for each industry shows no statistical difference between Santa Fe and Albuquerque. Here the only significant result suggests that large construction businesses in Santa Fe decreased their employment by 25 percent relative to businesses in Albuquerque.

In both the level and percent result, a significant negative effect is conspicuously lacking, indicating that the decline in employment occurs in both Santa Fe and Albuquerque and that there is no statistical difference between the two. Thus under this analysis the LWO cannot have caused any employment loss.

The second analysis includes a third year of data, from July 2002 to June 2003, and looks at monthly employment totals for businesses with 25 or more employees in Santa Fe and in Albuquerque. Except in a few cases, these results are similar to those for our first analysis, showing no statistical difference between the change in employment levels after the LWO in Santa Fe and the same change in Albuquerque except in construction.

The negative construction results are conspicuous, and have been discussed in earlier reports on overall employment trends. Several possible factors could have contributed to the consistent negative results seen throughout this report. Construction as an industry is extraordinarily variable, making comparison between different regions or different time periods unreliable as a method of assessing change. Other economic factors are also at work. In Santa Fe, residential housing units permitted increased in the four quarters after the LWO, indicated strong growth in building. However, non residential construction contracts are lower after the LWO, as are gross receipts¹⁰. In general, it appears that the construction boom in Santa Fe slowed earlier than in Albuquerque. As stated in Reynis et al. 2005. This may have had something to do with mandated living wages, and almost certainly was affected by skyrocketing real estate prices.

In conclusion, employment levels overall appear unaffected by the LWO. While construction employment has decreased, decreasing construction

¹⁰ This discussion is dealt with in depth in Reynis et al. 2005.

activity makes it difficult to tell how much if any of that is due to the LWO may have suffered negative employment impacts. Most unexpectedly, employment change in accommodations and food services is positive after the LWO relative to Albuquerque. As the industry with the highest proportion of low wage workers, we would expect negative effects from the LWO to be particularly strong in that industry. Furthermore, the negative results for some of the low wage industries coupled with overall positive results indicate that there is strong growth in other industries not typically associated with low wage workers. All of this suggests that whatever employment changes, positive or negative, the living wage ordinance may have caused were generally not strong enough to make a significant impact on Santa Fe employment levels.

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