



How Did the \$8.50 Citywide Minimum Wage Affect the Santa Fe Labor Market? *A Comprehensive Examination*

by Dr. Aaron S. Yelowitz, University of Kentucky

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The Employment Policies Institute (EPI) is a nonprofit research organization dedicated to studying public policy issues surrounding employment growth. In particular, EPI research focuses on issues that affect entry-level employment. Among other issues, EPI research has quantified the impact of new labor costs on job creation, explored the connection between entry-level employment and welfare reform, and analyzed the demographic distribution of mandated benefits. EPI sponsors nonpartisan research that is conducted by independent economists at major universities around the country.

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Executive Summary

Overview

In June 2004 Santa Fe became one of three cities in the United States to pass a city-wide minimum wage applying to private businesses. The city's increase to \$8.50 an hour—a 65 percent increase—affected all businesses within city limits employing more than 25 people. The wage floor is scheduled to increase to \$9.50 on January 1, 2006, to \$10.50 on January 1, 2008, and then it will be indexed to inflation in the years following. With the wage hike in effect for nearly a year and a half—and with another increase to \$9.50 on the horizon—it is appropriate to empirically assess the labor market effects of Santa Fe's minimum wage.

This paper by Dr. Aaron Yelowitz, a respected labor and health economist at the University of Kentucky, builds upon an earlier work published in September, 2005. It extends the results of the original paper and addresses a number of unfounded criticisms made by supporters of minimum wage increases—specifically those by Drs. Robert Pollin and Jeanette Wicks-Lim.

Employment Effects

Using a “differences-in-differences” method of estimation that utilizes other areas of New Mexico to control for a variety of economic factors, this study finds that Santa Fe's minimum wage had significant and negative effects on the labor market. Even more troubling, the study finds that the negative effects of the wage hike were concentrated on the least-skilled members of the economy—the very individuals the increase was intended to help.

Dr. Yelowitz found that the likelihood of unemployment for employees in Santa Fe went up

by 3.3 percent. For less-educated employees, however, the results were much higher, with their likelihood of unemployment increasing 8.3 percentage points. In addition, the usual hours of work fell by 1.0 hours for the full sample and 3.2 hours for less-educated individuals. All of these results are statistically significant within a 95 percent confidence interval.

Displacement of Low-Skill Employees

If low-wage employees retained employment following the increase, one would expect a significant increase in wages in Santa Fe. Dr. Yelowitz estimated wage models and found that at the 10th percentile, 25th percentile, 50th percentile, and the mean, there were no statistically significant increases in the wage rate. This suggests the possibility that less skilled employees were replaced with more skilled employees—already earning more than \$8.50 an hour. This would result in an increase in the likelihood of unemployment without increased wages. Dr. Yelowitz said, “I find strong evidence that the composition of workers changed after the ordinance.” Specifically, Dr. Yelowitz found that the likelihood that a low-skill employee was an unmarried teenager rose by 5.2 percentage points. Dr. Yelowitz went on to state, “although teenagers may have actually gained due to the ordinance, the distributional consequences were particularly harmful to less skilled adult workers – precisely the group for whom the ordinance is intended to help.”

Criticisms of Earlier Research

Dr. Yelowitz's original research into the Santa Fe minimum wage drew criticism from Drs. Robert Pollin and Jeanette Wicks-Lim.

This paper addresses these criticisms point by point. Importantly, Dr. Yelowitz highlights the fact that Pollin and Wicks-Lim—supporters of living wage and minimum wage increases—replicated his results and found that the Santa Fe minimum wage hike increased the likelihood of unemployment in the city. This marks the first time, to Dr. Yelowitz’s knowledge, that Pollin estimated significantly increased unemployment from an increase in the wage floor.

Dr. Yelowitz also highlights the fact that a large number of the criticisms lodged by Pollin and Wicks-Lim disagree with earlier statements made by the authors. In particular, Pollin and Wicks-Lim criticize Yelowitz for not using labor force participation and employment-to-population, despite the fact that Pollin and Wicks-Lim explicitly reject using these measures

in previous works. This paper documents the series of discrepancies in Pollin and Wicks-Lim work that casts serious doubt on the validity of their criticism.

Conclusion

This paper finds that Santa Fe’s living wage increase led to significant and negative consequences for employees in the city—particularly the least skilled employees. The increased likelihood of unemployment and a decreased number of hours worked were all highest for low-skill employees. Furthermore, there is significant evidence to suggest the displacement of adult employees by unmarried high school age employees. These are all unintended consequences that should give pause to any claims of success of the ordinance.

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Abstract

In June 2004, Santa Fe began enforcing an \$8.50 citywide minimum wage on businesses with 25 or more employees, a 65 percent increase from the previous minimum wage of \$5.15. This study uses a “differences-in-differences” estimator to assess the impact of the ordinance on a host of labor market variables, using other areas of New Mexico as a control group. It does so by using micro-level data from the Current Population Survey, and following labor market outcomes for seventeen months before and after the ordinance started. Several findings emerge. First, there were detectable effects on a host of labor market outcomes, and these effects were concentrated amongst less-educated workers. For example, the likelihood of unemployment increased by 8.3 percentage points in this group and usual weekly

hours of work fell by 3.2 hours. Second, and perhaps more surprisingly, there are no detectable wage gains for the less-educated at the 10th percentile, 25th percentile, or 50th percentile. This finding emerges across a wide variety of empirical specifications. Third, the composition of the less-educated workforce changed, which is known as labor substitution. The likelihood that a less-educated worker was an unmarried teenager enrolled full-time in high school more than doubled. Taken as a whole, these three findings suggest a decline in labor market opportunities for less-skilled adult workers and suggest that the living wage ordinance was poorly targeted. Finally, this study addresses criticisms made on my earlier Santa Fe study that used a similar empirical approach to the current one.

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“Since the purpose of raising minimum wage laws is to improve living standards and create better employment opportunities for the working poor, a rise in unemployment or business flight from the city would obviously be unintended and undesirable consequences of passing such a measure into law.”

—Robert Pollin, 2004, in a report prepared for the Santa Fe living wage trial.

“As with Yelowitz, we find that the ‘probability of unemployment’ within the Santa Fe MSA for labor force participants with high school degrees or less rose by 9 percent from June 2004–June 2005 relative to a pre-living wage base period of January 2003–May 2004.”

“To date, the Santa Fe ordinance has succeeded in achieving its main aims: to improve the quality of jobs for low-wage workers in Santa Fe without reducing their employment opportunities.”

—Robert Pollin and Jeanette Wicks-Lim, 2005, in a comment examining the actual impacts of the Santa Fe ordinance.

I. Introduction

In February 2003, the Santa Fe City Council approved the most expansive living wage ordinance to date. After sixteen months of legal wrangling, on June 24, 2004, a New Mexico state court judge upheld Santa Fe’s so-called “living wage” law, and the ordinance immediately went into effect. The New Mexico Court of Appeals upheld this ruling on November 30,

2005, affirming the lower court ruling that the city had the power to set a minimum wage for private employers.

Since 1994, more than 130 cities have enacted so-called “living wage laws” that increase the minimum wage for workers at businesses performing city contracts. To date, only three cities—Santa Fe, San Francisco, and Washington D.C.—have enacted broad citywide minimum wage laws that raise pay for workers at private businesses in their communities, not just those performing city contracts. A number of other cities have attempted to do so (Madison, Wisconsin and New Orleans, Louisiana), but have ultimately faced state-level preemption laws. Other cities are actively considering city-wide minimum wages, such as Santa Cruz’s proposed \$9.25 hourly wage rate. On the other hand, the voters in Albuquerque recently rejected a city-wide minimum wage rate of \$7.50 by a narrow margin, and voters in Santa Monica rejected an ordinance for private businesses several years ago.

Unlike most living wage ordinances, the Santa Fe living wage ordinance (hereafter, “LWO”) required *all* businesses within city limits with at least 25 workers to pay workers \$8.50 an hour, rather than just businesses with city contracts. Hourly pay rates will increase to \$9.50 on January 1, 2006, to \$10.50 on January 1, 2008, and will be indexed to inflation starting on January 1, 2009.

Nearly a year and a half has passed since the Santa Fe’s LWO was enforced and it is appropriate to explore the recent labor market impact. There are four key motivations for this study. First, Santa Fe is currently debating whether to delay the increase to \$9.50 per hour, and understanding the effects of the existing \$8.50 wage

floor can help inform that debate. Second, the possibility that raising the wage floor could affect the labor market is well grounded in the economic literature. Santa Fe's ordinance raised the wage floor from \$5.15 per hour to \$8.50, a 65 percent increase. Even with a fairly modest employment elasticity (such as the -0.22 elasticity estimate found in Neumark and Wascher's (2000) compelling study of minimum wages in New Jersey in the early 1990s), such a large percentage change in the minimum wage is still likely to lead to substantial job loss. In a recent survey, Adams and Neumark (California Economic Policy, July 2005) conclude that broad living wage laws raise wages but lower employment of low-wage, low-skilled individuals.

Third, it is likely that Santa Fe's ordinance is more binding than other citywide minimum wages, especially with respect to San Francisco's identical \$8.50 citywide minimum wage. According to the 2000 Census, the percentage of households with children was 24.1 percent in Santa Fe County, while it was only 14.5 percent in San Francisco County. Nearly 50 percent of the population was Hispanic or Latino in Santa Fe, compared with 14 percent in San Francisco. Median household income was one-quarter lower in Santa Fe than San Francisco. And finally, median housing prices were less than half as expensive in Santa Fe. These statistics suggest that families in Santa Fe are, on average, less affluent and changes in the minimum wage will have a greater impact.¹

Fourth, and most importantly, the estimates in previous studies—both on local living wage ordinances and statewide minimum wages—may not be terribly relevant for citywide minimum wages. As Adams and Neumark (2005) state:

“Additional questions will arise if cities drastically change their coverage, expanding from narrow living wages to broad minimum wages, as occurred recently in San Francisco and Santa Fe, both of which implemented citywide minimum wages of \$8.50. Conclusions drawn regarding the

effects of narrow living wages do not carry over to the effects of broader minimum wages; in particular, the distributional effects may differ considerably.”

In contrast to most living wage ordinances, the coverage under Santa Fe's ordinance is very expansive since it covers private businesses with no business ties to the city. Unlike statewide minimum wages, the possibility that firms can “escape” the ordinance by relocating outside of the jurisdiction is more plausible, since they can still retain many local customers. The city of Santa Fe encompasses only 37 square miles—just under 2 percent of the county's 1909 square miles. A business at the center of the city could relocate less than 3.5 miles away to escape the ordinance.² Less than half of the residents in Santa Fe County live in the city proper, and the population outside of city lines is growing faster than that within the city itself.

In addition, the *ad hoc* structure of Santa Fe's ordinance—which imposes high costs on firms with 25 or more employees and no costs on firms with 24 or less employees—may create a host of unintended economic behaviors that are not typically considered in minimum wage studies. For example, a firm slightly above the limit can preserve the same number of full-time equivalent workers by laying off some part-time employees and increasing hours of work for other employees. On the other hand, the fact that many establishments face no increase in their wage bill, while others in the same market face dramatically higher costs could severely limit the ability to pass along the increase in labor costs through higher consumer prices. In the recent Appellate Court decision, it is noted that only 9 percent of establishments and 58 percent of employees are affected by the ordinance due to the 25 employee-cut off. Tabulations from the 2003 County Business Patterns show that nearly two-thirds of 374 businesses in “Accommodation and Food Services” have less than 20 employees, while most of the remaining one-third would be subject to the ordinance.³

All of these features—the large increase in the wage floor, the less affluent population, the diminished possibility of higher consumer prices, and the variety of traditional and untraditional avenues of labor market adjustment—make Santa Fe arguably the most interesting test case for citywide minimum wages. The remainder of the paper is arranged as follows. Section II briefly summarizes my earlier work on Santa Fe and addresses the criticisms leveled against it in a recent comment by Robert Pollin and Jeannette Wicks-Lim. This section is lengthy because I focus on areas of agreement and disagreement between those authors and myself.

Section III describes my methods and data. The implementation of the Santa Fe ordinance creates a “quasi-experiment” which I use to assess the labor market impact. Unlike other Santa Fe studies before Yelowitz (2005), I examine the impact in Santa Fe *relative to* other areas of New Mexico using “differences-in-differences” methods. The validity of this approach is reinforced when I estimate separate models for less-educated and more-educated individuals. I use freely available micro-level data from the January 2003 to October 2005 Current Population Survey (“CPS”), and look seventeen months before and seventeen months after the Santa Fe minimum wage was enforced. In addition to allowing others a transparent method for replication of my research—as some advocates have already done with my previous work—the CPS allows an in-depth examination of labor market outcomes, both for the population as a whole as well as an examination by educational attainment.⁴ In addition to examining unemployment and hours of work, the focus of Yelowitz (2005), I also examine employment-relative-to-population and labor force participation—key focuses of the Pollin and Wicks-Lim comment. But in addition to examining their selected measures, as well as my earlier ones, I also examine the three measures used by Pollin, Wicks-Lim, and another coauthor in a separate paper. Heintz, Wicks-Lim, and Pollin recently wrote a report “Decent Work in America” where

they introduce a work environment index. They claim this index ranks states on the basis of the conditions experienced by people who work for a living or are looking for work. Their measures of job opportunity include unemployment—which I used in Yelowitz (2005)—as well as part-time involuntary employment and the duration of unemployment. Neither employment-to-population nor labor force participation are included in their own index of work environment, despite serving as the focus of their critique of my earlier piece. Finally, I investigate the impact of the ordinance on wage rates and labor substitution—two key elements in assessing whether the ordinance is having desirable distributional consequences.

Section IV presents the results. The results on unemployment and hours of work are very similar to that of Yelowitz (2005). For the full sample, the likelihood of unemployment went up by 3.3 percentage points, while it went up by 8.3 percentage points for the less-educated sample. Both results are statistically significant. The results for the more-educated sample are statistically insignificant, and substantively small. Usual hours of work fell by 1.0 hours for the full sample, and 3.2 hours for the less-educated sample; again both results are statistically significant. On the other hand it fell by an insignificant 0.68 hours for the more-educated sample.

The conclusions on the labor market variables suggested by Pollin and Wicks-Lim are considerably less robust than they portray. In the full sample, or stratified by education group, there are statistically insignificant effects on the employment-to-population measure. For example, among the less-educated sample, the 95 percent confidence interval includes drops in the likelihood of employment as high as 5.8 percentage points, or rises in the likelihood of in employment as high as 8.2 percentage points. Thus, Pollin and Wick-Lim’s conclusion that “the Santa Fe ordinance did not produce any decline at all in the availability of jobs” is very misleading. The results are certainly imprecise, but may be *substantively important in either direction*.

They also present findings on labor force participation. For the less-educated sample I find that, in fact, labor force participation rose by 6.2 percentage points—slightly higher than the estimate in their study. On the other hand, the point estimate in the full sample is much smaller, and is always statistically insignificant regardless of the exact model specification. As with the employment-to-population measure, the 95 percent confidence interval incorporates positive and negative values.

Next, I examine two other measures for labor force participants and workers—long-term unemployment and involuntary part-time work. In the full sample, the living wage increased the odds of long-term unemployment or involuntary part-time work, but the result is only statistically significant for part-time work. In the less-educated sample, however, both measures are significantly different from zero at conventional levels. For this group, long-term unemployment went up by nearly 2 percentage points, while involuntary part-time work went up by more than 5 percentage points.

Based on this examination of the labor market, the most dramatic effects are clearly for the less-educated sample. I explore several other implications of the ordinance for this group. A natural question—one that is asserted but never answered by Pollin and Wicks-Lim—is how much did hourly wage rates actually go up by? I estimate wage models for workers and find at the 10th percentile, 25th percentile, 50th percentile, and the mean, there were no statistically significant rises in the wage rate. In fact, for each of those percentiles, the point estimate is negative, not positive. If one interprets the employment-to-population results as Pollin and Wicks-Lim do (that is, treating imprecise estimates as “no effect”), then the wage results in conjunction with the labor force participation and unemployment results suggest the possibility of labor substitution. If firms replace less-skilled workers with more-skilled workers (with inherent earnings potential at or above \$8.50 an hour) after the ordinance was enforced, then less-skilled workers

become unemployed yet wages do not increase. I find strong evidence that the composition of workers changed after the ordinance. In the sample with 12 or fewer years of education, the likelihood that a less skilled worker was an unmarried teenager enrolled full-time in high school rose by 5.2 percentage points after the living wage ordinance, and is statistically significant.

Based on all of the results, a coherent picture emerges in the conclusions in Section V. First, the negative effects were concentrated in the less-educated group, but some results emerge in the full sample as well. Second, despite the statistically insignificant effect on employment-to-population, the results on hours of work clearly demonstrate that full-time-equivalent employment fell due to the ordinance. Third, all three measures used by Heintz, Pollin, and Wicks-Lim to construct job opportunities in their work environment index show deterioration after the ordinance was introduced—especially for less-skilled workers. Fourth, there are no detectable wage gains due to the ordinance; rather there appears to be labor substitution towards unmarried, teenage students who were enrolled full-time in high school. Although teenagers may have actually gained due to the ordinance, the distributional consequences were particularly harmful to less skilled adult workers—precisely the group for whom the ordinance is intended to help.

II. Addressing the criticisms of Yelowitz (2005)

In a previous paper entitled “Santa Fe’s Living Wage Ordinance and the Labor Market” (Yelowitz, 2005), I used CPS data from January 2003 to June 2005 to assess the impact of the Santa Fe LWO. I found that for the population as a whole, Santa Fe’s living wage ordinance was responsible for a 3.2 percentage point increase in the city’s unemployment rate. Further probing revealed that the entire negative effect in terms of unemployment was felt by Santa Fe’s least educated residents. Those with 12 years of

education or fewer suffered an extremely large and negative effect, while those with 13 years of education or more felt virtually no effect. The labor market consequences manifested themselves not only in terms of unemployment, but hours of work as well. On the whole, the LWO reduced hours worked by 1.6 hours per week. Similar to the unemployment results, the hour reductions were felt most by the least-educated employees. Those with 12 years or fewer of education saw their hours reduced by 3.5 hours per week.

In a comment on my study, “Comments on Aaron Yelowitz, ‘Santa Fe’s Living Wage Ordinance and the Labor Market,” (Pollin and Wicks-Lim, 2005), Robert Pollin and Jeannette Wicks-Lim dismiss my findings, claiming that I offer a “presentation of evidence that is misleading and incomplete, misusing the available data.” Before addressing the areas of disagreement between those authors and me, it is useful to discuss five principal areas of agreement. The reason to highlight these areas of agreement is that they help motivate the approaches I take in this study.

First, Pollin and Wicks-Lim offer no criticism of the appropriateness of the Current Population Survey (“CPS”) micro-data set for the analysis of the LWO. The CPS is a publicly available dataset administered by the U.S. Census Bureau and Bureau of Labor Statistics, freely available to all interested parties. The survey has been conducted for more than fifty years.

Second, Pollin and Wicks-Lim offer no criticism of the time period analyzed. The Yelowitz (2005) analysis drew upon the thirty months of CPS data between January 2003 and June 2005 (which was the latest available at the time the study was released), including seventeen months before the LWO was enforced and thirteen months after. The motivation to start in January 2003 is because the CPS questionnaire changed between December 2002 and January 2003.

Third, Pollin and Wicks-Lim offer no criticism of the model or empirical methodology used in the paper. Nor do they criticize the so-

cioeconomic or demographic variables that are included in my models. Yelowitz (2005) relied on making comparisons over time between Santa Fe and the rest of New Mexico. In economics, this empirical approach is known as “differences-in-differences.” Rather than simply relying on time series evidence from Santa Fe alone, the approach allows a researcher to net out other time-varying factors that were changing in both Santa Fe and other parts of New Mexico.

Fourth, one of the key motivations for such a “differences-in-differences” approach was, and continues to be, the fact that many advocates are offering very inaccurate assessments of the citywide minimum wage based on time series evidence. In the introduction of Yelowitz (2005), as well as the “Time Series Evidence” section of the study, I discuss these misleading statements and show the frailties of relying on time-series evidence. Specifically, on page 7, I conclude “These divergent results emphasize the need for a control group to account for other statewide factors that are changing over time.” Nonetheless, in September 2005 (prior to the publication of my first study) the front page of the web site www.santafelivingwage.org asserted:

“Two Reports Show Living Wage Working in Santa Fe. Since the Santa Fe Living Wage has come into effect, public assistance is down sharply and *employment is up.*” (emphasis mine)

Even after the publication of Yelowitz (2005), however, advocates continued to rely on time series evidence. For example, in an Op-Ed piece for the *Albuquerque Journal*, Monsignor Jerome Martinez and City Councilor David Coss state:

“*The unemployment rate in Santa Fe in August was 3.8 percent, down from 4.1 percent a year ago. The Santa Fe rate is much better than the state as a whole, which had 5.3 percent unemployment last month.*” (emphasis mine)

These statements, based on time series evidence, seem to insinuate that the minimum wage's impact is minimal, or possibly positive. Pollin and Wicks-Lim offer no defense for such misleading time series analysis, and in fact, offer compelling reasons for using my “differences-in-differences” approach. They state

“However, these figures do not themselves provide a complete picture. This is because they do not control for factors other than the living wage laws that could also be affecting employment growth.”

Fifth, and most notably, Pollin and Wicks-Lim independently replicate the large negative effects of the Santa Fe citywide minimum wage on the labor market. They explicitly present evidence that the probability of unemployment went up by 9.0 percentage points among individuals with 12 or fewer years of education—the same order of magnitude as Yelowitz (2005). Although they could have easily presented similar unemployment results on the full sample or the sample of individuals with 12 or more years of education, they choose not to. Yet they do not dispute the economic magnitudes or statistical significance presented in Yelowitz (2005). And they choose not to present tables on hours of work for *any group*, yet they concede that hours went down dramatically among less-educated individuals:

“Yelowitz also presents evidence that for those workers who have jobs after the ordinance is passed their weekly hours decreased. Specifically, he finds that workers with a high school diploma or less worked 3.5 fewer hours per week after the living wage was enacted. Let us assume for now that this figure is accurate.”

In the remainder of the paper, Pollin and Wicks-Lim do not dispute the hours of effect of 3.5 hours per week, nor do they present their own estimate. Thus, they let their assumption about the correctness of the hours result stand.

Using Pollin's own estimate of 33 hours per week for low-wage Santa Fe workers from his 2004 report on Santa Fe, then hours of work would have fallen nearly 11 percent due to the citywide minimum wage.

Pollin and Wicks-Lim's independent replication is remarkable for two reasons. First, replication of the negative labor market consequences by two pro-living wage advocates should put to rest any skepticism about Yelowitz (2005) findings, or the current study (which uses an identical methodology). Second, to the best of my knowledge, this is the first time that Robert Pollin has published a paper that empirically estimates (or concedes) statistically significant and economically sizable negative effects of a minimum wage/living wage ordinance on unemployment, hours of work, or the labor market more generally. When asked by an attorney in the 2002 New Orleans minimum wage trial “You never yourself conducted a study that showed a negative impact on employment due to a raise in the minimum wage, right?” Pollin answered “Right. I never actually studied minimum wage laws, per se, as against living wage laws” (New Orleans Testimony, dated March 20, 2002, page 192, lines 2-6). In addition, *based on his own earlier statements about the Santa Fe ordinance*, it is clear that Pollin should view his findings in the Pollin and Wick-Lim paper as negative for the labor market, rather than neutral or positive. In his 2004 report on Santa Fe, Pollin stated:

“Since the purpose of raising minimum wage laws is to improve living standards and create better employment opportunities for the working poor, a rise in unemployment or business flight from the city would obviously be unintended and undesirable consequences of passing such a measure into law.” – Robert Pollin, “Santa Fe Living Wage Ordinance, Expert Report of Dr. Robert Pollin” March 2004, page 41.

His statement makes no qualifications that a rise in unemployment is good if it comes from increased job search by formerly discouraged

workers rather than from firms laying workers off. In summary, even though the current Pollin and Wicks-Lim comment sharply disagrees with the idea that rising unemployment should be viewed as negative for the labor market, Pollin's own earlier statements certainly agree with the interpretation in Yelowitz (2005).

Despite these considerable sources of agreement—the appropriateness of data and methodology in Yelowitz (2005), the inappropriateness of relying on time-series correlations, and agreement on the overall magnitude of the minimum wage effect on unemployment and hours of work—most of the Pollin and Wicks-Lim report accuses Yelowitz (2005) of distorting the results, data, and interpretation.

First, their most important accusation is that my “main findings are based on (my) examination of the unemployment rate only.” Instead they argue that the employment-to-population ratio and the labor force participation ratio are alternative measures that can provide a more accurate picture of the labor market. Their accusation is false. In Yelowitz (2005), I examined *both* effects on unemployment and *hours of work* for workers. In fact, the results on hours of work for the less-educated were even more suggestive than that on unemployment. For this group, I estimated that hours fell by 3.54 hours (with a standard error of 1.03). The hours results are important for the interpretation of job loss, because they help make the distinction between a pure *headcount* (the number of individuals with jobs) and *full-time equivalent employment*. To illustrate, if an employer reduced hours of work from 40 hours to 20 hours for all employees, there would be no change in the headcount of the number of people employed, but full-time equivalent employment would fall by half. The most convincing studies that analyze minimum wages do not rely on headcounts, but rather full-time equivalent employment. For example, in Neumark and Wascher's (2000) study, which analyzed the minimum wage in New Jersey and Pennsylvania, the authors requested that parent corporations provide information from their payroll records on the total number of hours

worked by non-management employees. They then converted the hours data into full-time equivalent employees by assuming a full-time workweek of 35 hours, and based most of their conclusions on such a technique.

Although there is disagreement between Pollin and Wicks-Lim and myself over what the most appropriate labor market measures are, this study nonetheless estimates the effect on unemployment, employment-to-population, and labor force participation. It is worth repeating, however, that Pollin's earlier statements regarded unemployment as a *key measure of labor market performance*, and that the employment-to-population measure is a simple headcount, ignoring the intensity of work effort.

Given the insistence of Pollin and Wicks-Lim on using these two alternative measures, one might be surprised to learn that they explicitly rejected using labor force participation and employment-to-population in other recent work. In “The Work Environment Index: Technical Background Paper,” published by James Heintz, Jeannette Wicks-Lim, and Robert Pollin in October 2005, the authors construct a work environment index that they claim captures differences in opportunities for working people and provides a basis for evaluating how well each state does in creating an economy that supports its working population. The authors state that the index has components related to job quality, job opportunities, and workplace fairness. Given that Pollin and Wicks-Lim assert in their abstract “to date, the Santa Fe ordinance has succeeded in achieving its main aims: to improve the *quality* of jobs for low-wage workers in Santa Fe without reducing their employment *opportunities*,” (emphasis mine) I focus on some of the key elements in the first two components of their index. Their job quality measures include average hourly wages, the percent of employed people in jobs with job-related health insurance benefits; and the percent of employed people in jobs with job-related retirement benefits. Only one of these measures—wages—is available in the monthly Current Population Survey; health insurance and pensions are asked in the March CPS Supple-

ment. Surprisingly, Pollin and Wicks-Lim did not examine wages in their Santa Fe comment, even though they clearly believe that wages are a key component of job quality.

The job opportunity measure is more interesting, because all three measures are available in the monthly CPS, and because Pollin and Wicks-Lim repeatedly contend that job opportunity did not decrease due to the living wage ordinance. Yet Pollin and Wicks-Lim only examine one of their measures of job opportunity and ignore the other two in their comment. In constructing the work environment index, Heintz, Wicks-Lim, and Pollin use the state-level unemployment rate, the rate of involuntary part-time employees, and the percent of long-term unemployed persons. In the analysis that follows, I incorporate all three of their measures of job opportunity.

Interestingly, these three authors explicitly *reject* the use of the employment-to-population ratio to measure job opportunity, yet Pollin and Wicks-Lim advocate its use in their comment. The three authors state on pages 8-9:

“An alternative measure of employment opportunities is the employment to population ratio. . . . The employment to population ratio also reflects differences in labor force participation rates that are likely to vary by state for reasons other than the difficulty of individuals who are seeking work to obtain work. . . . Because of this we examine the prevalence of discouraged workers specifically rather than the employment to population ratio.”

In addition, the labor force participation measure is unimportant enough that it does not even warrant a discussion by the three authors. The fact that the Heintz, Wicks-Lim, and Pollin (2005) and Pollin and Wicks-Lim (2005) papers were published within a month of each other makes this inconsistency all the more surprising. Pollin and Wicks-Lim flip-flop in which labor market measures they use, with their use depending on what they are advocating. Their analysis is certainly misleading and incomplete,

based solely on examining other papers that they themselves have published.

In addition to these flip-flops, there are other misleading statements in the Pollin and Wicks-Lim comment that are sources of disagreement. I find some of their contentions baffling. In their section “Distortions in Citations of Professional Literature” (pages 2-3) they take a quotation from Yelowitz (2005) completely out of context. They offer the following snippet:

“virtually no serious economist would argue that a 65 percent increase in the wage floor would lead to employment growth” (Yelowitz, 2005, page 3).

And proceed to criticize me for not recognizing that “the professional debate is not over whether an increase in the minimum wage itself *increases* employment growth.” (Pollin and Wicks-Lim, page 3, italics theirs). A fuller representation of what I said in Yelowitz (2005) is:

“This conclusion should be surprising to those familiar with the minimum wage literature, since virtually no serious economist would argue that a 65 percent increase in the wage floor would lead to employment growth. A key problem (true of time-series studies in general) is that other, unaccounted time-varying factors could create the illusion that the living wage is having zero (or even a positive effect!) effect, when in reality the ordinance is having a negative effect.”

As will be obvious to those who take the time to read the introduction of Yelowitz (2005), my statements clearly refer to the irresponsible use of time-series correlations by advocates such as The Santa Fe Living Wage Network. There is absolutely nothing in my statement that is meant to summarize the current consensus on the range of values that the employment elasticity can take.

They also criticize me, curiously, for an incomplete representation of Neumark and Wascher's (2000) study. They say a "fundamental fact about this Neumark and Wascher estimate (is) that it applies to the *fast-food industry only*," (italics theirs) and proceed to call this a "major misrepresentation" on my part even though the study is mentioned just once in Yelowitz (2005). To put the citation in context, I stated:

"Santa Fe's ordinance raised the wage floor from \$5.15 per hour to \$8.50, a 65 percent increase. Even with a fairly modest employment elasticity (such as the -0.22 elasticity estimate found in Neumark and Wascher's (2000) compelling study), such a large change in the minimum wage is still likely to lead to substantial job loss."

This statement clearly uses Neumark and Wascher's elasticity estimate for illustrative purposes—the key point, as should be clear, is the 65 percent increase in the wage floor. Applying Neumark and Wascher's elasticity to the low-wage population in Santa Fe would lead to 14.3 percent reduction in full-time-equivalent employment among affected workers (which, it turns out, is not too far off). The quotation is not meant to be an all-encompassing literature review on minimum wages, nor is this citation at all critical for the results that follow. The main point is that *any reasonable negative employment elasticity* will tend to lead to job loss with such a large policy change. To be clear, the Yelowitz (2005) study and the current study examine workers in the entire Santa Fe labor market, not the fast food industry. The negative effects found in Yelowitz (2005), and here, are not restricted to workers in the fast food industry. Rather, the results generalize to the entire Santa Fe labor market (excluding those in the Armed Forces).

Next, Pollin and Wicks-Lim agree with Yelowitz (2005) that "the wage floor in Santa Fe rose by 65 percent due to the ordinance," but

then make the claim that the increase in costs to business relative to their sales due to the living wage ordinance was about 1 percent. They state that "the main means through which businesses can absorb cost increases of this modest magnitude is to raise prices by similar magnitudes (assuming no decline in customer demand)."

Although raising prices *may* offset higher costs, Pollin and Wicks-Lim provide absolutely no empirical evidence in their comment about price levels or profitability of businesses after the Santa Fe ordinance was enforced. Nor do they provide any evidence of perfectly inelastic demand, which is one of the assumptions they incorporate in making this statement. Given the structure of the ordinance—which could dramatically raise costs for one business, while a slightly smaller business next door is completely unaffected—the likelihood of the costs being absorbed through higher prices is much lower. In Pollin's own testimony for the New Orleans citywide minimum wage case, he clearly recognizes the role for competition:

"What about those competing within the city, eating and drinking, hotels, personal services? Well, because they're competing within the city, that means their competitors are going to face comparable cost increase. And so that the ability of those firms to pass along the cost in terms of price are pretty high. They can all do it. They all face the same increase." Robert Pollin, New Orleans Testimony, March 20, 2002, page 102, lines 10-18.

In the New Orleans context, the citywide minimum wage did not create the sharp inequalities based on firm size that the Santa Fe ordinance created. When consumers can easily take their business elsewhere as prices at a single firm increases, as is likely in Santa Fe, the ability to pass the costs on to consumers decreases. As is clear from a reading of Pollin's New Orleans testimony, he clearly understands the competitive pressures. Yet Pollin and Wicks-

Lim inappropriately assume perfectly inelastic demand, with no corroborating evidence from Santa Fe.

Finally, Pollin and Wicks-Lim claim that I present the dramatic reduction in hours as “an unambiguous hardship for workers” (Pollin and Wicks-Lim, page 6). This is grossly inaccurate; in Yelowitz (2005), I clearly demonstrate that the impact on total income varies by an individual’s initial wage level. In the discussion of the empirical hours results on page 6, I make no comment that could be construed as “unambiguous hardship.” In my discussion on page 7, I go through examples for less-educated workers who were initially earning \$5.50, \$6.50, and \$8.00, and illustrate the changes in total income. I state that “for a worker previously earning \$5.50 an hour, weekly earnings would go from \$210.10 to \$294.10, an increase of nearly 40 percent.” As one moves higher through the income distribution, however, the effect on total income goes down, and even becomes negative at some point. In addition, the hours reduction does imply that total income grows less quickly than the wage rate; Pollin and Wicks-Lim do not dispute this basic fact.

III. Data and Methods

Data Description⁵

The CPS is a monthly survey of about 50,000 households conducted by the Bureau of the Census for the Bureau of Labor Statistics (hereafter “BLS”). The survey has been conducted for more than fifty years; the current analysis draws on the thirty-four months of CPS data between January 2003 and October 2005 (which is the latest available). The analysis therefore examines seventeen months before and seventeen months after the Santa Fe ordinance was enforced. The CPS data is free to download from the internet.⁶

According to the BLS, the CPS is the primary source of information on the labor force characteristics of the U.S. population. The sample is scientifically selected to represent the civil-

ian noninstitutional population. Respondents are interviewed to obtain information about the employment status of each member of the household 15 years of age and older. The sample provides estimates for the nation as a whole and serves as part of model-based estimates for individual states and other geographic areas.

The CPS asks about employment, unemployment, earnings, and hours of work. Some of these labor market questions are asked of the full monthly sample, and others (including the information on hourly wage rates) are only asked of one-quarter of respondents. In addition, respondents are asked about their age, sex, race, ethnicity, marital status, veteran status, and educational attainment.

Critical for this study, the CPS also provides geographic identifiers for all states, and for many large metropolitan areas. The CPS allows geographic identification of three New Mexico metropolitan areas throughout the entire 2003 to 2005 time span—Santa Fe, Albuquerque, and Las Cruces. New Mexico residents in other parts of the state, by necessity, are grouped together.^{7 8} During the period analyzed, the CPS surveyed roughly 1,800 individuals in New Mexico each month. The sample ultimately consists of 33,139 observations, including 16,010 individuals with 12 or fewer years of education and 17,219 with 13 or more years of schooling.

Table 1 provides summary statistics for the sample as a whole, broken out by the entire adult population, all adults in the labor force, and all adult workers. Tables 2 and 3 show similar summary statistics broken out by education group. Over the entire time period, 5.9 percent of individuals in the labor force were unemployed during a typical month, while those with less education were more than twice as likely to be unemployed as those with more education. Among workers, usual hours of work averaged 39.6 hours per week, with very modest differences by education group.⁹ Slightly more than three percent of the sample is classified as subject to the LWO—meaning that the

individual resided in the Santa Fe metropolitan area in June 2004 or later. Individuals in Santa Fe before June 2004 (as well as all individuals in other areas) are classified as unaffected by the ordinance.¹⁰

This study incorporates several new measures as well. Monthly employment (relative to population) averaged 68.3 percent, and was nearly twenty percentage points higher for the more-educated sample compared with the less-educated sample. Labor force participation averaged 72.6 percent, and was also dramatically higher for the more-educated sample.

Long-term unemployment—a measure motivated by the Heintz, Wicks-Lim and Pollin report—is an indicator variable equal to one if the labor force participant has been unemployed for more than 26 weeks. They motivate this 26-week cutoff as long-term by the fact that it exceeds the number of weeks unemployed persons are generally able to receive unemployment insurance payments.¹¹ In the full sample, long-term unemployment averages 1 percent of labor force participants, but is nearly twice as high for the less educated as it is for the more educated. Involuntary part-time employment—again motivated by the Heintz, Wicks-Lim and Pollin report—is an indicator variable equal to one for workers who are involuntarily employed part-time. Following their work, individuals are considered to be involuntary part-time employees if they gave either of the following two reasons for having less than full-time employment: (1) they are working part-time because of an inability to find full-time work or (2) they are working part-time due to slack business conditions. Roughly 2.4 percent of all workers were classified as involuntary part-time; among the less-educated, it is 3.4 percent of workers and among the more-educated, it is 1.6 percent.

Finally, dramatic differences emerge in hourly wage rates by education group (expressed in constant July 2005 dollars). Wages average \$15.52 for the entire sample of workers, \$11.78 for less-educated workers, and \$18.34 for more-educated workers.¹²

Nearly 7 percent of this CPS sample is located in Santa Fe, more than 11 percent in Las Cruces, 42 percent in Albuquerque, and the remainder is dispersed throughout the rest of the state. Fifty-two percent are married, 48 percent are male, and 48 percent have, at most, a high school diploma. More than 40 percent are of Hispanic origin, and the average age in the sample is 39 years.

Differences-in-Differences Estimation

The basic model estimates an equation of the form:

$$y_{ict} = \beta_0 + \beta_1 LWO_{ict} + \beta_2 X_{ict} + \beta_3 D_{it} + \beta_4 D_{ic} + \varepsilon_{ict}$$

where y_{ict} is the labor market outcome (unemployment, hours of work, employment, labor force participation, long-term unemployment, involuntary part-time employment, hourly wage rates, or indicators for workforce composition), LWO_{ict} is an indicator variable equal to one if the individual is subject to the ordinance, X_{ict} is a vector of other individual characteristics that affect work behavior, and D_{it} and D_{ic} are indicator variables for time (34 different month-year interactions) and location (Santa Fe, Las Cruces, and the rest of the state).¹³ In results not shown, I have varied the specification by including either a time trend or separate month dummies and year dummies in place of the month-year interactions. These variations do not substantively change the conclusions; to the extent that there are statewide omitted variables that change each month, the presented specification is the most appealing. Individual covariates include household size, a full set of dummy variables for age (from 17 to 64, with 16 as the omitted category), and indicators for married, head of household, male, high school dropout, high school graduate, some college, white, Hispanic, and veteran status. In the specifications where I examine workers alone (e.g., usual hours of work and wages), I include dummy variables for industry, occupation, and class of worker.

When LWO_{ict} , D_{it} and D_{ic} are included, the estimate on β_1 provides the “differences-in-differences” estimate of the impact of the

living wage ordinance. The dummy variables for metropolitan area account for fixed, time-invariant differences between Santa Fe and other parts of the state. For example, to the extent that Santa Fe's economy is more prosperous or dependent on tourism (and this remains fixed), then the metropolitan area controls will account for this heterogeneity on the labor market. The dummy variables for year and month account, respectively, for statewide growth in the economy over time and for seasonality. By including both sets of dummy variables, the true effect of the living ordinance, β_1 , is obtained. The equation above essentially estimates how Santa Fe's labor market changed after the ordinance, *relative to other parts of the state*.

Although such a difference-in-difference estimator certainly provides more compelling evidence than time-series data alone, it does have its limitations. In particular, if there were other factors that were changing differently across cities over time, then it will be difficult to separately identify the effect of the living wage from those other factors. I have not been able to pinpoint any obvious explanations that vary in such a way (and affect employment), but the possibility does exist.¹⁴

IV. Findings from CPS Micro-data

Tables 4 through 10 present the full set of results. The tables are arranged by first examining the full sample, and then breaking out the sample by educational attainment. In each case, the first table shows results on six labor market outcomes—employment-to-population, labor force participation, unemployment, long-term layoffs of greater than 26 weeks, involuntary part-time employment, and usual weekly hours of work. The sample sizes consequently vary depending on whether all adults, all labor force participants, or all workers are used. The next table estimates both quantile regression models (with bootstrapped standard errors) and OLS models on hourly wage rates for workers.

Finally, in the case of the less-educated sample, I also estimate probit models on workers, testing for changes in the composition of the workforce.

In all tables, the standard errors are in parentheses, and are corrected for clustering at the MSA/month/year level of aggregation. When the outcome is a binary dependent variable, probit models were estimated and the probability derivatives are in brackets under the standard errors. All specifications include 33 month-year dummies; the models that examine workers only also include industry dummies (Agriculture, forestry, fishing, and hunting; Mining; Construction; Manufacturing; Wholesale and retail trade; Transportation and utilities; Information; Financial activities; Professional and business services; Educational and health services; Leisure and hospitality; Other services; and Public administration), occupation dummies (Management, professional, and related occupations; Service occupations; Sales and office occupations; Farming, fishing, and forestry, occupations; Construction, and maintenance occupations; and Production, transportation, and material moving occupations), and class-of-worker dummies (Government, Private sector, Self employed, Work without pay). Except for the specifications that examine whether the workforce composition changed (Table 8), all specifications include dummy variables for ages 17 to 64.

Table 4 examines labor market outcomes for the full sample. Before exploring the living wage results, it is important to note that the other independent variables have the expected impact on the various labor market measures. For example, being married, head of household, male, more-educated, or white generally have positive effects on employment, labor force participation, and hours of work, and generally have negative effects on unemployment, long-term layoffs, and involuntary part-time work.

The fixed effect for Santa Fe measured relative to Albuquerque, shows that it persistently has a 1.9 percentage point lower unemployment

rate. Nonetheless, the LWO reversed Santa Fe's advantage—the measured impact of the LWO was to increase the unemployment rate by 3.3 percentage points, and this result is statistically significant.¹⁵ Although the estimated coefficient on long-term layoffs suggests they increased in the full sample after the LWO, the result is insignificant. On the other hand, even in the full sample, involuntary part-time work went up, and hours of work fell. Both results are statistically significant. The LWO increased involuntary part-time employment by 1.9 percentage points in the full sample, and reduced usual hours of work by approximately 1 hour per week. The two measures discussed extensively in Pollin and Wicks-Lim are imprecisely estimated; although the full sample would suggest that employment-to-population fell slightly, the standard error is more than twice as large as the coefficient estimates. Similarly, the effects on labor force participation are very imprecisely estimated.

Next, I examine wage effects for the full sample of workers in Table 5. Due to the design of the CPS, the sample sizes are around one-quarter as large as the other specifications for workers. The living wage ordinance did not have detectable effects on wages at the 10th percentile, 25th percentile, 50th percentile, or mean. Even if one were to take the coefficient estimates literally, thereby ignoring the standard errors, the living wage raised wages by approximately 25 cents at the 10th percentile and 60 cents at the median.

One might not expect dramatic effects for the full sample, however, because many individuals have jobs that initially pay substantially more than the mandated wage floor of \$8.50. Tables 6 and 7 therefore examine similar specifications, but restrict the sample to individuals with 12 or fewer years of education. As in Yelowitz (2005), it appears that the full effects of the ordinance are concentrated amongst this group. All three measures used by Heintz, Pollin, and Wicks-Lim to measure job opportunities get worse after the LWO was enforced. For example, the likelihood of unemployment increases by 8.3

percentage points. Long-term layoffs rise by 1.9 percentage points, and the result is statistically significant for the less-educated sample. Involuntary part-time employment goes up by 5.1 percentage points. Hours of work falls by 3.2 hours per week. The effect on employment-to-population is positive, but the standard error is three times larger than the coefficient estimate. Labor force participation does increase, as Pollin and Wicks-Lim note.

The results on hours of work are particularly important, because they are important in computing job loss. In many studies of minimum wages, hours of work is converted into “Full-time-equivalent” employment.¹⁶ The 3.2 hour reduction among workers, in conjunction with initial work effort of 38.3 hours (from Table 2), suggests that full-time-equivalent jobs fell by more than 8 percent among the less educated. Only under the narrowest interpretation—using a *headcount*—are Pollin and Wicks-Lim able to assert that the Santa Fe living wage did not reduce employment opportunities. Under a more conventional view—full-time equivalent workers—there was indeed significant job loss. The labor market for less-educated workers unquestionably worsened after the ordinance was enforced.

Table 7 examines the other side of the coin—the impact on wages. It is possible that policymakers may be willing to accept a worse labor market (where some workers lose their jobs), if a great deal more workers enjoy higher paychecks. If wages go up, policymakers face a tradeoff between efficiency and redistribution, but could very well come down on the side of having an inefficient redistributive policy. Perhaps the largest contribution of this study, then, is to show what happened to wages of less-educated workers.

The table again looks at the 10th, 25th, and 50th percentiles of the wage distribution using quantile regression with 100 bootstrap replications, along with the mean wage using ordinary least squares.¹⁷ Although not presented, I have also estimated models looking at other percentiles

of the wage distribution, models that vary the number of bootstrap replications, models that use robust regression rather than quantile regression, models that vary the time variables included in the specification, and models that include all wage rates (the specifications trim the sample to wages between \$1 and \$100).

The results presented here reflect a general conclusion that emerged across all of these exercises. *For less-educated individuals, there is no detectable increase in the hourly wage rate due to the ordinance.* In the specifications that are shown—the ones that I believe to be the most carefully controlled specifications—the point estimates are actually negative rather than positive.

Given this surprising result, how can one reconcile significant negative effects on the labor market with no detectable wage gains? Table 8 explores the possibility of labor substitution among less-skilled workers. After the ordinance is enforced, some workers with higher inherent earnings ability may enter the labor force and crowd out employment among existing workers. To test for this, I examine the full sample of less-educated workers and construct variables related to this hypothesis. In particular, I create dummy variables for whether an individual worker is aged 16 to 24 and enrolled in high school full time.¹⁸ I then create a similar variable, but add the restriction that the individual is also unmarried. Finally, I add the restriction that the individual is aged 16 to 19 rather than 16 to 24. On average, workers in this demographic group make up 3.8 percent of the sample less-educated workers. I estimate probit models, but omit all demographic variables as explanatory variables (since these are now essentially the outcome of interest). I include as explanatory variables an indicator for the living wage ordinance, controls for geographic location and time, and controls for industry, occupation, and class of worker. The results in all columns are significant and suggest a sizable change in the composition of the workforce, concentrated around teenagers. The results in the third column suggest that the likelihood of a worker being an

unmarried teenager enrolled full-time in high school went up 5.2 percentage points. Relative to the baseline (of 3.8 percent), the composition of unmarried teenagers enrolled full-time in school more than doubled due to the citywide minimum wage. One might conclude then that teenage students, while lacking much formal education, likely have higher lifetime earnings potential and higher reservation wages than older adult workers who did not attend college. If these assumptions are true, then the distributional consequences of the ordinance are particularly undesirable.

Finally, Tables 9 and 10 show results on the more-educated group of adults for employment outcomes and wages. This group largely serves as another “control” group—it is far less likely that raising the wage floor from \$5.15 to \$8.50 will be very binding for them. As Table 3 demonstrates, the average wage level is more than \$18 per hour for group. If we were to find significant results for this more-educated group, it would likely indicate that there were other omitted factors that varied by *both* metro-area and time. As we can see, however, for none of the outcomes is the living wage ordinance statistically significant. Moreover, the magnitudes are generally much smaller. For example, the effect on unemployment is about one-eighth as large as it is for the less-educated, and the effect on hours of work is one-fifth as large. Overall, examining this control group confirms that the basic “differences-in-differences” set-up is picking up the true causal impact of the minimum wage ordinance, rather than something else.

V. Concluding Remarks

This study provides the most comprehensive look at the impact of the Santa Fe living wage ordinance to date. I employ a “differences-in-differences” methodology that uses other areas in New Mexico as a control group for other statewide, time-varying factors that affect the labor market. The results here unquestionably show a decline in labor market opportunities for less-educated adults. This manifests itself

in higher unemployment, longer unemployment spells, more involuntary part-time work, fewer full-time equivalent jobs, labor substitution toward teenagers, and perhaps most surprisingly, in no detectable wage gains.

Living wage advocates argue that there are other avenues, besides the labor market, for firms to adjust to the higher wage floor. In particular, it is possible that firms might be able to pass along some of the higher labor costs in the form of prices. It is also possible that profitability goes down (though if profits become losses, then firms will likely shut down, again resulting in employment losses). There are compelling reasons to believe that it would be more difficult to raise prices in Santa Fe than elsewhere—the city proper is only a small part of Santa Fe county, and the smaller establishments that did not have to raise their wages provide competitive price pressure on larger establishments that were forced to raise wages. Nonetheless, to the extent it is feasible, it would be fascinating to

obtain price and profitability data from firms in Santa Fe and elsewhere in the state (again, to serve as a control) to provide concrete empirical evidence on what actually happened to prices and profitability from the ordinance.

One key element of this study is using widely available public-use government data. Using such data provides a valuable check on the validity of results, because researchers and advocates can attempt to replicate and extend the findings. For example, the fact that Robert Pollin and Jeannette Wicks-Lim were able to replicate my earlier labor market results should alleviate any skepticism that some may have had about the magnitude of my results.

The findings in this study should provide a cautionary tale about moving from \$8.50 an hour in Santa Fe to \$9.50 or \$10.50. Based on the evidence from the initial move from \$5.15 to \$8.50, policymakers should expect pronounced adverse effects on the labor market, especially among less-educated adults.

Endnotes

1. These numbers were obtained from the U.S. Census Bureau. See <http://quickfacts.census.gov/qfd/states/35/3570500.html>, <http://quickfacts.census.gov/qfd/states/06/06075.html>, and <http://quickfacts.census.gov/qfd/states/35/35049.html>.
2. The 3.5 mile figure comes from assuming the city's 37 square miles falls into a circle, and then using the formula for the area of a circle to compute the radius (e.g., $\text{area}=\pi r^2$). To the extent that the land mass in the city does not fall into a circle, the distance would be smaller than 3.5 miles in some directions and larger in other directions.
3. See <http://www.santafelivingwage.org/November%2029,%202005%20Court%20of%20Appeals%20Decision.pdf> and <http://www.census.gov/epcd/cbp/map/03data/35/049.txt>.
4. The use of micro-data is also an important contribution because I find that most of the effects of the citywide minimum wage are concentrated amongst less-educated workers. Most aggregate data on the labor market does not separately break out labor market outcomes by educational groups.
5. This section draws heavily upon the Bureau of Labor Statistics description. See <http://www.bls.census.gov/cps/overmain.htm>.
6. The data used in this study is located at <ftp://www.bls.census.gov/pub/cps/basic/>. The monthly CPS questionnaire was modified in January 2003, which motivated beginning the analysis at that point. The October 2005 CPS was the latest one available at the time of this study. The final three months of data were obtained using the Bureau of Labor Statistics' interactive "DataFerret" extraction tool.
7. Technically, the Santa Fe metropolitan area is more expansive than the city proper. As a result, some individuals in the CPS could be incorrectly be classified as subject to the LWO when, in fact, they are not. Although living wage advocates might attempt to use that fact to undermine this study's credibility, the logic is flawed. The likely result of this misclassification is to create measurement error, which should bias the estimated coefficients toward zero. This means that the empirical estimates are likely too small, not too large.
8. The empirical results are extremely similar, both in statistical significance and in economic magnitude, when the rest of the state is removed, leaving only residents in Santa Fe, Albuquerque, and Las Cruces.
9. In instances when usual hours of work was missing, but actual hours of work was reported, actual hours was used in place of usual hours. This differs from Yelowitz (2005), which excluded missing values.
10. In addition to the fact that not all workers in the Santa Fe area work in the city proper, the ordinance only affected businesses with 25 or more workers. As with the misclassification with metropolitan area, this leads to measurement error and likely understates the true impact of the LWO on affected workers.
11. This measure should be less sensitive to fluctuations in unemployment caused by business cycles because it is not affected by changes in the rate of newly unemployed workers.
12. When reported, the hourly wage rate for individuals was used. When weekly earnings were reported for an individual instead of hourly wages, the hourly rate was calculated by dividing earnings by the usual number of hours worked. Wage values below \$1 per hour or above \$100 per hour were changed to missing. All wage values were converted to constant July 2005 dollars.
13. Albuquerque is the omitted category, and the coefficient estimates for other areas are relative to it.
14. In principle, a "triple-difference" estimator could be formed if one had access to data at the firm level. The LWO should have impacted employment at firms with 25 or more employees in Santa Fe, but had little impact on smaller firms. Thus, one could use the variation over time, across cities, and by firm size to further refine the estimate. Unfortunately, I am not aware of any easily obtainable data that would allow me to conduct such an analysis. In principle, my stratification of the sample by educational attainment provides something similar to an additional layer of control—the LWO should have a much larger impact on the less-educated, because average wage levels are much lower. This is precisely what I find in the tables.

15. Note that in aggregate data, however, Santa Fe's unemployment rate is still lower because it differs in terms of demographics from other metropolitan areas (for example, in terms of educational attainment), and these demographic differences further mask the effect of the LWO. This shows the frailties of relying on time-series data.
16. For example, Neumark and Wascher (2000) convert hours worked by employees into full-time equivalent employees by assuming a full-time workweek of 35 hours, and base most of their conclusions on such a technique.
17. Many, including me, would argue that median wages are more informative than mean wages. Wage distributions are often skewed, so mean wages are less representative of the average worker than are median wages. The use of the median (or other percentiles) also avoids bias that may be introduced by CPS's topcoding procedures. These points motivate Heintz, Wicks-Lim and Pollin to examine the median rather than the mean in constructing their work environment index.
18. Heintz, Wicks-Lim, and Pollin (2005) clearly recognize that workers under 25 years of age are different in terms of interpreting labor market outcomes. They exclude such individuals from their calculations of the work environment index. They state that "many, but certainly not all, young people engage in the labor market differently than do adults. Often young workers receive income transfers, housing, food, payment for college fees and tuition, or other forms of support from their families. In addition, many young workers are covered through their parent's health insurance programs. Therefore, young workers may be willing to work at lower wages or endure longer periods of unemployment than older adults."

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TABLE 1: Summary statistics for full sample

	(1)	(2)	(3)
	All Adults	Adults in labor force	Adult workers
Monthly employment	0.683 (0.465)	0.941 (0.236)	1
Monthly labor force participation	0.726 (0.446)	1	1
Monthly unemployment rate		0.059 (0.236)	0
Long-term unemployed (≥26 weeks)		0.010 (0.102)	0
Usual hours of work per week			39.661 (12.561)
Involuntary part-time			0.024 (0.152)
Hourly wage rate (expressed in constant July 2005 dollars, excludes wage rates below \$1 or above \$100)			15.527 (10.292)
Living wage in effect (in Santa Fe, starting in June 2004)	0.031 (0.173)	0.033 (0.178)	0.033 (0.179)
Santa Fe indicator	0.066 (0.248)	0.07 (0.255)	0.071 (0.257)
Albuquerque indicator	0.417 (0.493)	0.433 (0.496)	0.435 (0.496)
Las Cruces indicator	0.112 (0.315)	0.107 (0.309)	0.106 (0.307)
Rest of state indicator	0.405 (0.491)	0.39 (0.488)	0.388 (0.487)
Married	0.515 (0.5)	0.54 (0.498)	0.554 (0.497)
Head of Household	0.5 (0.5)	0.536 (0.499)	0.541 (0.498)
Male	0.479 (0.5)	0.518 (0.5)	0.517 (0.5)
High school dropout	0.202 (0.402)	0.144 (0.351)	0.134 (0.341)
High school graduate	0.281 (0.449)	0.285 (0.451)	0.282 (0.45)
Some college	0.3 (0.458)	0.313 (0.464)	0.315 (0.465)
College graduate	0.217 (0.412)	0.259 (0.438)	0.268 (0.443)
White	0.841 (0.366)	0.855 (0.353)	0.86 (0.347)
Hispanic	0.405 (0.491)	0.393 (0.488)	0.386 (0.487)
Veteran	0.091 (0.288)	0.098 (0.297)	0.1 (0.3)
Age (range is 16 to 64)	39.278 (13.838)	39.788 (12.723)	40.208 (12.616)
Household size	3.151 (1.583)	3.073 (1.53)	3.061 (1.522)

TABLE 1: Summary statistics for full sample (cont.)

Industry			
Agriculture, forestry, fishing, and hunting			0.024 (0.154)
Mining			0.024 (0.152)
Construction			0.083 (0.276)
Manufacturing			0.049 (0.216)
Wholesale and retail trade			0.142 (0.35)
Transportation and utilities			0.051 (0.219)
Information			0.021 (0.143)
Financial activities			0.054 (0.227)
Professional and business services			0.105 (0.306)
Educational and health services			0.238 (0.426)
Leisure and hospitality			0.091 (0.287)
Other services			0.052 (0.223)
Public administration			0.065 (0.247)
Armed Forces			0
Occupation			
Management, professional, and related occupations			0.359 (0.48)
Service occupations			0.174 (0.38)
Sales and office occupations			0.235 (0.424)
Farming, fishing, and forestry occupations			0.011 (0.106)
Construction, and maintenance occupations			0.113 (0.316)
Production, transportation, and material moving occupations			0.107 (0.309)
Armed Forces			0
Class-of-worker			
Government			0.236 (0.424)
Private sector			0.677 (0.468)
Self employed			0.086 (0.281)
Work without pay			0.001 (0.036)
Sample size	33,139	24,061	22,634

Sample consists of civilian adults in New Mexico in the January 2003 to October 2005 monthly Current Population Surveys. In the final column, the sample for usual hours of work is 22,539 and sample for hourly wage rate is 4,885 (the wage questions were asked of one-quarter of CPS respondents).

TABLE 2: Summary statistics for individuals with 12 or fewer years of education

	(1)	(2)	(3)
	All Adults	In labor force	All workers
Monthly employment	0.589 (0.492)	0.914 (0.28)	1
Monthly labor force participation	0.644 (0.479)	1	1
Monthly unemployment rate		0.086 (0.28)	0
Long-term unemployed (≥26 weeks)		0.0140 (0.118)	0
Usual hours of work per week			38.298 (12.012)
Involuntary part-time			0.034 (0.182)
Hourly wage rate (expressed in constant July 2005 dollars, excludes wage rates below \$1 or above \$100)			11.784 (6.897)
Living wage in effect (in Santa Fe, starting in June 2004)	0.027 (0.161)	0.031 (0.174)	0.032 (0.175)
Santa Fe indicator	0.055 (0.227)	0.062 (0.241)	0.063 (0.244)
Albuquerque indicator	0.375 (0.484)	0.391 (0.488)	0.394 (0.489)
Las Cruces indicator	0.116 (0.321)	0.112 (0.315)	0.109 (0.312)
Rest of state indicator	0.454 (0.498)	0.435 (0.496)	0.434 (0.496)
Married	0.459 (0.498)	0.493 (0.5)	0.513 (0.5)
Head of Household	0.418 (0.493)	0.457 (0.498)	0.463 (0.499)
Male	0.496 (0.5)	0.552 (0.497)	0.549 (0.498)
High school dropout	0.419 (0.493)	0.335 (0.472)	0.322 (0.467)
High school graduate	0.581 (0.493)	0.665 (0.472)	0.678 (0.467)
Some college	0	0	0
College graduate	0	0	0
White	0.808 (0.394)	0.819 (0.385)	0.824 (0.38)
Hispanic	0.533 (0.499)	0.534 (0.499)	0.528 (0.499)
Veteran	0.059 (0.235)	0.063 (0.244)	0.066 (0.248)
Age (range is 16 to 64)	36.594 (14.444)	37.296 (13.106)	37.878 (13.019)
Household size	3.453 (1.67)	3.383 (1.61)	3.369 (1.604)
Industry			
Agriculture, forestry, fishing, and hunting			0.029 (0.169)
Mining			0.032 (0.176)
Construction			0.131 (0.337)

**TABLE 2: Summary statistics for individuals with 12 or fewer years of education
(cont.)**

Industry			
Manufacturing			0.062 (0.241)
Wholesale and retail trade			0.175 (0.38)
Transportation and utilities			0.058 (0.234)
Information			0.016 (0.126)
Financial activities			0.049 (0.215)
Professional and business services			0.067 (0.249)
Educational and health services			0.149 (0.356)
Leisure and hospitality			0.122 (0.327)
Other services			0.061 (0.24)
Public administration			0.048 (0.215)
Armed Forces			0
Occupation			
Management, professional, and related occupations			0.124 (0.33)
Service occupations			0.259 (0.438)
Sales and office occupations			0.254 (0.435)
Farming, fishing, and forestry occupations			0.019 (0.136)
Construction, and maintenance occupations			0.175 (0.38)
Production, transportation, and material moving occupations			0.169 (0.375)
Armed Forces			0
Class-of-worker			
Government			0.143 (0.35)
Private sector			0.775 (0.418)
Self employed			0.08 (0.271)
Work without pay			0.002 (0.041)
Sample size	16,010	10,307	9,424

Sample consists of civilian adults in New Mexico in the January 2003 to October 2005 monthly Current Population Surveys. In the final column, the sample for usual hours of work is 9,390 and sample for hourly wage rate is 2,098 (the wage questions were asked of one-quarter of CPS respondents).

TABLE 3: Summary statistics for individuals with 13 or more years of education

	(1)	(2)	(3)
	All Adults	In labor force	All workers
Monthly employment	0.771 (0.42)	0.96 (0.195)	1
Monthly labor force participation	0.803 (0.398)	1	1
Monthly unemployment rate		0.040 (0.195)	0
Long-term unemployed (≥26 weeks)		0.008 (0.087)	0
Usual hours of work per week			40.634 (12.851)
Involuntary part-time			0.016 (0.125)
Hourly wage rate (expressed in constant July 2005 dollars, excludes wage rates below \$1 or above \$100)			18.344 (11.463)
Living wage in effect (in Santa Fe, starting in June 2004)	0.035 (0.184)	0.034 (0.181)	0.034 (0.182)
Santa Fe indicator	0.076 (0.265)	0.076 (0.264)	0.076 (0.265)
Albuquerque indicator	0.456 (0.498)	0.465 (0.499)	0.465 (0.499)
Las Cruces indicator	0.108 (0.31)	0.103 (0.304)	0.103 (0.304)
Rest of state indicator	0.36 (0.48)	0.356 (0.479)	0.356 (0.479)
Married	0.567 (0.496)	0.574 (0.494)	0.584 (0.493)
Head of Household	0.576 (0.494)	0.596 (0.491)	0.597 (0.491)
Male	0.462 (0.499)	0.493 (0.5)	0.495 (0.5)
High school dropout	0	0	0
High school graduate	0	0	0
Some college	0.58 (0.494)	0.547 (0.498)	0.541 (0.498)
College graduate	0.42 (0.494)	0.453 (0.498)	0.459 (0.498)
White	0.872 (0.334)	0.881 (0.323)	0.885 (0.319)
Hispanic	0.286 (0.452)	0.286 (0.452)	0.284 (0.451)
Veteran	0.122 (0.327)	0.124 (0.329)	0.125 (0.33)
Age (range is 16 to 64)	41.787 (12.744)	41.656 (12.097)	41.871 (12.047)
Household size	2.869 (1.442)	2.841 (1.424)	2.842 (1.422)
Industry			
Agriculture, forestry, fishing, and hunting			0.021 (0.142)
Mining			0.018 (0.132)
Construction			0.049 (0.216)

TABLE 3: Summary statistics for individuals with 13 or more years of education (cont.)

Industry			
Manufacturing			0.04 (0.196)
Wholesale and retail trade			0.12 (0.324)
Transportation and utilities			0.045 (0.208)
Information			0.024 (0.154)
Financial activities			0.058 (0.234)
Professional and business services			0.132 (0.339)
Educational and health services			0.302 (0.459)
Leisure and hospitality			0.068 (0.252)
Other services			0.046 (0.209)
Public administration			0.078 (0.267)
Armed Forces			0
Occupation			
Management, professional, and related occupations			0.526 (0.499)
Service occupations			0.114 (0.318)
Sales and office occupations			0.222 (0.416)
Farming, fishing, and forestry occupations			0.006 (0.079)
Construction, and maintenance occupations			0.068 (0.252)
Production, transportation, and material moving occupations			0.063 (0.243)
Armed Forces			0
Class-of-worker			
Government			0.301 (0.459)
Private sector			0.607 (0.489)
Self employed			0.091 (0.288)
Work without pay			0.001 (0.031)
Sample size	17,129	13,754	13,210

Sample consists of civilian adults in New Mexico in the January 2003 to October 2005 monthly Current Population Surveys. In the final column, the sample for usual hours of work is 13,149 and sample for hourly wage rate is 2,787 (the wage questions were asked of one-quarter of CPS respondents).

TABLE 4: Labor Market Results on Full Sample						
	(1)	(2)	(3)	(4)	(5)	(6)
	Employment-to-population	Labor force participation	Unemployment	Long-term layoffs	Involuntary part-time	Usual weekly hours
Dummy for living wage ordinance in Santa Fe	-0.021 (0.057) [-0.007]	0.054 (0.054) [0.017]	0.281 (0.116) [0.033]	0.130 (0.218) [0.002]	0.312 (0.141) [0.019]	-1.009 (0.505)
Dummy for Santa Fe	0.043 (0.045) [0.015]	-0.012 (0.042) [-0.004]	-0.251 (0.089) [-0.019]	-0.05 (0.188) [-0.001]	-0.124 (0.115) [-0.005]	1.305 (0.303)
Dummy for Las Cruces	-0.082 (0.025) [-0.029]	-0.092 (0.024) [-0.03]	0.005 (0.047) [0.001]	-0.029 (0.087) [0]	0.125 (0.057) [0.006]	-0.816 (0.221)
Dummy for rest of state (Albuquerque omitted)	-0.07 (0.018) [-0.024]	-0.068 (0.017) [-0.021]	0.053 (0.027) [0.005]	0.17 (0.041) [0.003]	0.036 (0.033) [0.002]	0.883 (0.155)
Individual is married	0.102 (0.02) [0.035]	0.030 (0.019) [0.009]	-0.311 (0.031) [-0.03]	-0.301 (0.056) [-0.005]	-0.225 (0.043) [-0.01]	0.514 (0.193)
Individual is head of household	0.110 (0.018) [0.038]	0.116 (0.017) [0.037]	-0.043 (0.029) [-0.004]	-0.151 (0.044) [-0.002]	0.008 (0.04) [0]	0.384 (0.187)
Individual is male	0.387 (0.018) [0.133]	0.449 (0.018) [0.141]	0.005 (0.026) [0]	0.139 (0.048) [0.002]	0.021 (0.041) [0.001]	4.417 (0.188)
Individual is high school dropout	-0.858 (0.03) [-0.32]	-0.856 (0.033) [-0.304]	0.469 (0.055) [0.058]	0.458 (0.094) [0.011]	0.583 (0.068) [0.041]	-1.311 (0.346)
Individual is high school graduate	-0.472 (0.028) [-0.171]	-0.474 (0.029) [-0.159]	0.238 (0.051) [0.024]	0.288 (0.088) [0.006]	0.376 (0.054) [0.02]	-0.862 (0.276)
Individual has some college	-0.379 (0.023) [-0.136]	-0.396 (0.024) [-0.131]	0.151 (0.046) [0.015]	0.288 (0.086) [0.005]	0.259 (0.054) [0.013]	-0.498 (0.238)
Individual is white	0.229 (0.023) [0.082]	0.175 (0.024) [0.058]	-0.323 (0.034) [-0.037]	-0.292 (0.063) [-0.006]	-0.008 (0.063) [0]	0.698 (0.273)
Individual is Hispanic	-0.057 (0.017) [-0.02]	-0.016 (0.017) [-0.005]	0.165 (0.029) [0.016]	0.086 (0.051) [0.001]	0.103 (0.045) [0.005]	-0.281 (0.181)
Individual is veteran	-0.126 (0.029) [-0.045]	-0.147 (0.027) [-0.048]	0.019 (0.059) [0.002]	-0.029 (0.102) [0]	-0.139 (0.076) [-0.006]	0.482 (0.275)
Household size	-0.019 (0.007) [-0.007]	-0.03 (0.007) [-0.01]	-0.018 (0.01) [-0.002]	-0.03 (0.018) [0]	-0.007 (0.012) [0]	0.11 (0.067)
Constant term	-0.300 (0.065)	-0.113 (0.056)	-1.071 (0.15)	-6.751 (0.369)	-2.291 (0.216)	15.21 (1.398)

Notes: Standard errors are in parentheses, and are corrected for clustering at the MSA/month/year level of aggregation. Probability derivatives in brackets. Sample is drawn from the monthly Current Population Survey (“CPS”) between January 2003 and October 2005. To be included in the sample, the individual must (a) live in New Mexico, (b) be a civilian aged 16 to 64, and (c) be in the labor force for columns 3-5 or be working in column 6. Columns 1-2 contain all adults, columns 3-5 contain adults in the labor force, and column 6 contains workers. Columns 1-5 were estimated as probit model, while column 6 was estimated using ordinary least squares. Source of data is the Bureau of Labor Statistics web site (<ftp://www.bls.census.gov/pub/cps/basic/>) and the Census Bureau’s DataFerrett extraction tool (<http://dataferrett.census.gov/>). All specifications include 33 Month-Year dummies; column 6 additionally includes Industry dummies (Agriculture, forestry, fishing, and hunting; Mining; Construction; Manufacturing; Wholesale and retail trade; Transportation and utilities; Information; Financial activities; Professional and business services; Educational and health services; Leisure and hospitality; Other services; and Public administration), Occupation dummies (Management, professional, and related occupations; Service occupations; Sales and office occupations; Farming, fishing, and forestry occupations; Construction, and maintenance occupations; and Production, transportation, and material moving occupations), and Class-of-worker dummies (Government, Private sector, Self employed, Work without pay). All specifications include dummy variables for ages 17 to 64.

TABLE 5: Wage Results on Full Sample

	(1)	(2)	(3)	(4)
	10th percentile of hourly wage	25th percentile of hourly wage	50th percentile of hourly wage (Median)	Mean
Dummy for living wage ordinance in Santa Fe	0.249 (0.775)	0.477 (0.674)	0.601 (0.911)	0.468 (0.955)
Dummy for Santa Fe	-0.159 (0.519)	-0.548 (0.478)	-0.235 (0.711)	0.046 (0.672)
Dummy for Las Cruces	-1.346 (0.264)	-1.62 (0.279)	-1.813 (0.352)	-1.964 (0.394)
Dummy for rest of state (Albuquerque omitted)	-1.162 (0.224)	-1.398 (0.2)	-1.511 (0.263)	-1.74 (0.271)
Individual is married	0.503 (0.213)	0.778 (0.164)	1.306 (0.251)	1.664 (0.272)
Individual is head of household	0.208 (0.176)	0.292 (0.198)	0.367 (0.207)	0.301 (0.248)
Individual is male	0.754 (0.256)	1.066 (0.193)	2.141 (0.232)	2.971 (0.279)
Individual is high school dropout	-3.21 (0.464)	-5.042 (0.389)	-7.816 (0.519)	-8.887 (0.502)
Individual is high school graduate	-2.689 (0.397)	-4.184 (0.326)	-6.514 (0.444)	-7.068 (0.39)
Individual has some college	-2.425 (0.353)	-4.124 (0.324)	-6.048 (0.464)	-6.801 (0.348)
Individual is white	-0.28 (0.29)	-0.037 (0.234)	0.316 (0.28)	0.402 (0.356)
Individual is Hispanic	0.14 (0.225)	-0.038 (0.191)	-0.463 (0.234)	-0.729 (0.261)
Individual is veteran	0.269 (0.4)	1.013 (0.433)	0.783 (0.47)	0.421 (0.429)
Household size	-0.126 (0.068)	-0.075 (0.052)	-0.074 (0.075)	-0.063 (0.088)
Constant term	9.613 (1.116)	11.724 (0.965)	14.328 (1.295)	11.816 (2.41)

Notes: Standard errors are in parentheses. Sample is drawn from the monthly Current Population Survey (“CPS”) between January 2003 and October 2005. To be included in the sample, the individual must (a) live in New Mexico, (b) be a civilian aged 16 to 64, (c) be working and (d) have sufficient information to compute a wage rate. All columns contain workers only. Columns 1-3 were estimated as quantile regression models with bootstrapped standard errors (using 100 bootstrap replications), while column 4 was estimated using ordinary least squares. Source of data is the Bureau of Labor Statistics web site (<ftp://www.bls.census.gov/pub/cps/basic/>) and the Census Bureau’s DataFerrett extraction tool (<http://dataferrett.census.gov/>). All specifications include 33 Month-Year dummies, Industry dummies (Agriculture, forestry, fishing, and hunting; Mining; Construction; Manufacturing; Wholesale and retail trade; Transportation and utilities; Information; Financial activities; Professional and business services; Educational and health services; Leisure and hospitality; Other services; and Public administration), Occupation dummies (Management, professional, and related occupations; Service occupations; Sales and office occupations; Farming, fishing, and forestry occupations; Construction, and maintenance occupations; and Production, transportation, and material moving occupations), and Class-of-worker dummies (Government, Private sector, Self employed, Work without pay). All wage rates are expressed in constant July 2005 dollars. Wages below \$1 or above \$100 are excluded. All specifications include dummy variables for ages 17 to 64.

TABLE 6: Labor Market Results for individuals with 12 or fewer years of education

	(1)	(2)	(3)	(4)	(5)	(6)
	Employment-to-population	Labor force participation	Unemployment	Long-term layoff	Involuntary part-time	Usual weekly hours
Dummy for living wage ordinance in Santa Fe	0.031 (0.093) [0.012]	0.175 (0.092) [0.062]	0.466 (0.166) [0.083]	0.498 (0.293) [0.019]	0.514 (0.224) [0.051]	-3.206 (0.813)
Dummy for Santa Fe	0.209 (0.075) [0.079]	0.114 (0.068) [0.041]	-0.444 (0.131) [-0.043]	-0.305 (0.247) [-0.005]	-0.106 (0.201) [-0.006]	1.905 (0.591)
Dummy for Las Cruces	-0.076 (0.036) [-0.03]	-0.057 (0.035) [-0.021]	0.087 (0.059) [0.012]	0.15 (0.096) [0.004]	0.148 (0.083) [0.01]	-0.669 (0.355)
Dummy for rest of state (Albuquerque omitted)	-0.14 (0.019) [-0.054]	-0.138 (0.019) [-0.051]	0.072 (0.037) [0.009]	0.155 (0.069) [0.003]	0.101 (0.044) [0.007]	0.943 (0.225)
Individual is married	0.104 (0.024) [0.04]	0.033 (0.024) [0.012]	-0.298 (0.044) [-0.039]	-0.242 (0.07) [-0.005]	-0.249 (0.058) [-0.016]	0.903 (0.261)
Individual is head of household	0.089 (0.021) [0.034]	0.096 (0.021) [0.035]	-0.024 (0.037) [-0.003]	-0.19 (0.063) [-0.004]	0.06 (0.051) [0.004]	0.593 (0.217)
Individual is male	0.412 (0.023) [0.159]	0.487 (0.023) [0.177]	0.035 (0.034) [0.004]	0.141 (0.066) [0.003]	-0.006 (0.053) [0]	3.693 (0.306)
Individual is high school dropout	-0.392 (0.023) [-0.152]	-0.4 (0.026) [-0.148]	0.214 (0.045) [0.029]	0.189 (0.075) [0.004]	0.211 (0.064) [0.014]	-0.447 (0.313)
Individual is white	0.242 (0.029) [0.095]	0.168 (0.031) [0.063]	-0.405 (0.043) [-0.064]	-0.359 (0.082) [-0.01]	0.024 (0.087) [0.002]	0.126 (0.367)
Individual is Hispanic	-0.127 (0.024) [-0.049]	-0.065 (0.025) [-0.024]	0.262 (0.042) [0.034]	0.049 (0.071) [0.001]	0.168 (0.062) [0.011]	0.148 (0.289)
Individual is veteran	-0.208 (0.045) [-0.082]	-0.25 (0.043) [-0.095]	0.025 (0.098) [0.003]	0.009 (0.153) [0]	-0.1 (0.131) [-0.006]	1.013 (0.465)
Household size	-0.009 (0.009) [-0.003]	-0.021 (0.009) [-0.008]	-0.021 (0.012) [-0.003]	-0.051 (0.024) [-0.001]	-0.015 (0.02) [-0.001]	0.11 (0.083)
Constant term	-0.711 (0.092)	-0.514 (0.077)	-0.83 (0.19)	-6.455 (0.403)	-1.97 (0.224)	1.953 (2.731)

Notes: Standard errors are in parentheses, and are corrected for clustering at the MSA/month/year level of aggregation. Probability derivatives in brackets. Sample is drawn from the monthly Current Population Survey (“CPS”) between January 2003 and October 2005. To be included in the sample, the individual must (a) live in New Mexico, (b) be a civilian aged 16 to 64, (c) have completed 12 or fewer years of education and (d) be in the labor force for columns 3-5 or be working in column 6. Columns 1-2 contain all adults, columns 3-5 contain adults in the labor force, and column 6 contains workers. Columns 1-5 were estimated as probit model, while column 6 was estimated using ordinary least squares. Source of data is the Bureau of Labor Statistics web site (<ftp://www.bls.census.gov/pub/cps/basic/>) and the Census Bureau’s DataFerrett extraction tool (<http://dataferrett.census.gov/>). All specifications include 33 Month-Year dummies; column 6 additionally includes Industry (Agriculture, forestry, fishing, and hunting; Mining; Construction; Manufacturing; Wholesale and retail trade; Transportation and utilities; Information; Financial activities; Professional and business services; Educational and health services; Leisure and hospitality; Other services; and Public administration), Occupation dummies (Management, professional, and related occupations; Service occupations; Sales and office occupations; Farming, fishing, and forestry occupations; Construction, and maintenance occupations; and Production, transportation, and material moving occupations), and Class-of-worker dummies (Government, Private sector, Self employed, Work without pay). All specifications include dummy variables for ages 17 to 64.

TABLE 7: Wage Results for individuals with 12 or fewer years of education

	(1)	(2)	(3)	(4)
	10th percentile of hourly wage	25th percentile of hourly wage	50th percentile of hourly wage (Median)	Mean
Dummy for living wage ordinance in Santa Fe	-0.005 (0.91)	-0.109 (0.717)	-0.452 (1.074)	0.808 (1.158)
Dummy for Santa Fe	0.995 (0.757)	0.256 (0.506)	0.352 (0.917)	0.258 (0.844)
Dummy for Las Cruces	-1.828 (0.33)	-1.795 (0.333)	-1.958 (0.334)	-1.931 (0.46)
Dummy for rest of state (Albuquerque omitted)	-0.826 (0.242)	-1.07 (0.2)	-1.024 (0.278)	-1.081 (0.313)
Individual is married	0.057 (0.227)	0.458 (0.201)	0.461 (0.299)	0.582 (0.309)
Individual is head of household	0.193 (0.227)	0.112 (0.19)	0.278 (0.291)	0.057 (0.286)
Individual is male	0.88 (0.299)	1.067 (0.243)	1.518 (0.264)	2.35 (0.331)
Individual is high school dropout	-0.732 (0.22)	-0.943 (0.194)	-1.207 (0.236)	-1.754 (0.324)
Individual is white	0.191 (0.333)	0.182 (0.266)	0.54 (0.297)	0.449 (0.398)
Individual is Hispanic	-0.143 (0.274)	-0.097 (0.244)	-0.25 (0.3)	-0.68 (0.306)
Individual is veteran	0.653 (0.587)	0.673 (0.464)	1.679 (0.705)	1.029 (0.595)
Household size	0.057 (0.082)	0.063 (0.057)	0.052 (0.075)	-0.043 (0.096)
Constant term	2.128 (1.74)	4.91 (1.93)	6.48 (2.183)	10.624 (2.151)

Notes: Standard errors are in parentheses. Sample is drawn from the monthly Current Population Survey (“CPS”) between January 2003 and October 2005. To be included in the sample, the individual must (a) live in New Mexico, (b) be a civilian aged 16 to 64, (c) have completed 12 or fewer years of education, (d) be working and (e) have sufficient information to compute a wage rate. All columns contain workers only. Columns 1-3 were estimated as quantile regression models with bootstrapped standard errors (using 100 bootstrap replications), while column 4 was estimated using ordinary least squares. Source of data is the Bureau of Labor Statistics web site (<ftp://www.bls.census.gov/pub/cps/basic/>) and the Census Bureau’s DataFerrett extraction tool (<http://dataferrett.census.gov/>). All specifications include 33 Month-Year dummies, Industry dummies (Agriculture, forestry, fishing, and hunting; Mining; Construction; Manufacturing; Wholesale and retail trade; Transportation and utilities; Information; Financial activities; Professional and business services; Educational and health services; Leisure and hospitality; Other services; and Public administration), Occupation dummies (Management, professional, and related occupations; Service occupations; Sales and office occupations; Farming, fishing, and forestry occupations; Construction, and maintenance occupations; and Production, transportation, and material moving occupations), and Class-of-worker dummies (Government, Private sector, Self employed, Work without pay). All wage rates are expressed in constant July 2005 dollars. Wages below \$1 or above \$100 are excluded. All specifications include dummy variables for ages 17 to 64.

TABLE 8: Workforce composition for individuals with 12 or fewer years of education

	(1)	(2)	(3)
	Aged 16-24, enrolled full time in high school	Aged 16-24, enrolled full time in high school unmarried	Aged 16-19, enrolled full time in high school unmarried
Dummy for living wage ordinance in Santa Fe	0.57 (0.241) [0.052]	0.573 (0.24) [0.052]	0.573 (0.239) [0.052]
Dummy for Santa Fe	-0.388 (0.204) [-0.015]	-0.389 (0.204) [-0.015]	-0.383 (0.204) [-0.015]
Dummy for Las Cruces	0.067 (0.07) [0.004]	0.067 (0.07) [0.004]	0.064 (0.07) [0.004]
Dummy for rest of state (Albuquerque omitted)	0.064 (0.041) [0.003]	0.061 (0.04) [0.003]	0.067 (0.041) [0.004]
Constant term	-1.052 (0.46)	-1.052 (0.46)	-1.049 (0.458)

Notes: Standard errors are in parentheses, and are corrected for clustering at the MSA/month/year level of aggregation. Probability derivatives in brackets. Sample is drawn from the monthly Current Population Survey (“CPS”) between January 2003 and October 2005. To be included in the sample, the individual must (a) live in New Mexico, (b) be a civilian aged 16 to 64, (c) have completed 12 or fewer years of education, and (d) be working. All columns contain workers only and were estimated with a probit model. Source of data is the Bureau of Labor Statistics web site (<ftp://www.bls.census.gov/pub/cps/basic/>) and the Census Bureau’s DataFerrett extraction tool (<http://dataferrett.census.gov/>). All specifications include 33 Month-Year dummies, Industry dummies (Agriculture, forestry, fishing, and hunting; Mining; Construction; Manufacturing; Wholesale and retail trade; Transportation and utilities; Information; Financial activities; Professional and business services; Educational and health services; Leisure and hospitality; Other services; and Public administration), Occupation dummies (Management, professional, and related occupations; Service occupations; Sales and office occupations; Farming, fishing, and forestry occupations; Construction, and maintenance occupations; and Production, transportation, and material moving occupations), and Class-of-worker dummies (Government, Private sector, Self employed, Work without pay).

TABLE 9: Labor Market Results for individuals with 13 or more years of education

	(1)	(2)	(3)	(4)	(5)	(6)
	Employment-to-population	Labor force participation	Unemployment	Long-term layoffs	Involuntary part-time	Usual weekly hours
Dummy for living wage ordinance in Santa Fe	-0.056 (0.062) [-0.016]	-0.021 (0.059) [-0.005]	0.143 (0.156) [0.011]	-0.092 (0.294) [-0.001]	0 (0.217) [0]	0.683 (0.577)
Dummy for Santa Fe	-0.101 (0.049) [-0.03]	-0.142 (0.048) [-0.038]	-0.101 (0.109) [-0.006]	0.081 (0.191) [0.001]	-0.146 (0.154) [-0.004]	0.635 (0.41)
Dummy for Las Cruces	-0.082 (0.029) [-0.024]	-0.118 (0.029) [-0.031]	-0.108 (0.058) [-0.006]	-0.433 (0.183) [-0.004]	0.126 (0.071) [0.004]	-0.691 (0.38)
Dummy for rest of state (Albuquerque omitted)	0.021 (0.028) [0.006]	0.031 (0.026) [0.008]	0.03 (0.04) [0.002]	0.19 (0.057) [0.003]	-0.049 (0.052) [-0.001]	0.713 (0.223)
Individual is married	0.11 (0.028) [0.032]	0.037 (0.027) [0.009]	-0.338 (0.049) [-0.023]	-0.439 (0.101) [-0.007]	-0.203 (0.066) [-0.006]	0.031 (0.27)
Individual is head of household	0.128 (0.026) [0.037]	0.135 (0.025) [0.035]	-0.05 (0.045) [-0.003]	-0.051 (0.072) [-0.001]	-0.041 (0.054) [-0.001]	0.094 (0.257)
Individual is male	0.358 (0.024) [0.101]	0.402 (0.026) [0.101]	-0.04 (0.039) [-0.003]	0.141 (0.081) [0.002]	0.07 (0.06) [0.002]	4.846 (0.227)
Individual has some college	-0.389 (0.026) [-0.108]	-0.397 (0.027) [-0.098]	0.186 (0.049) [0.012]	0.304 (0.087) [0.004]	0.286 (0.058) [0.008]	-0.077 (0.247)
Individual is white	0.22 (0.029) [0.067]	0.176 (0.03) [0.048]	-0.263 (0.049) [-0.021]	-0.214 (0.09) [-0.004]	-0.07 (0.075) [-0.002]	1.081 (0.39)
Individual is Hispanic	0.031 (0.024) [0.009]	0.057 (0.025) [0.014]	0.063 (0.042) [0.004]	0.113 (0.078) [0.002]	0.01 (0.069) [0]	-0.322 (0.228)
Individual is veteran	-0.085 (0.038) [-0.025]	-0.091 (0.038) [-0.024]	0.04 (0.077) [0.003]	-0.036 (0.141) [0]	-0.186 (0.083) [-0.005]	0.236 (0.304)
Household size	-0.039 (0.009) [-0.011]	-0.054 (0.009) [-0.014]	-0.019 (0.019) [-0.001]	0.016 (0.029) [0]	0.014 (0.02) [0]	0.101 (0.094)
Constant term	-0.334 (0.078)	-0.256 (0.084)	-2.078 (0.368)	-2.386 (0.356)	-2.258 (0.392)	23.914 (2.434)

Notes: Standard errors are in parentheses, and are corrected for clustering at the MSA/month/year level of aggregation. Probability derivatives in brackets. Sample is drawn from the monthly Current Population Survey (“CPS”) between January 2003 and October 2005. To be included in the sample, the individual must (a) live in New Mexico, (b) be a civilian aged 16 to 64, (c) have completed 13 or more years of education and (d) be in the labor force for columns 3-5 or be working in column 6. Columns 1-2 contain all adults, columns 3-5 contain adults in the labor force, and column 6 contains workers. Columns 1-5 were estimated as probit model, while column 6 was estimated using ordinary least squares. Source of data is the Bureau of Labor Statistics web site (<ftp://www.bls.census.gov/pub/cps/basic/>) and the Census Bureau’s DataFerrett extraction tool (<http://dataferrett.census.gov/>). All specifications include 33 Month-Year dummies; column 6 additionally includes Industry (Agriculture, forestry, fishing, and hunting; Mining; Construction; Manufacturing; Wholesale and retail trade; Transportation and utilities; Information; Financial activities; Professional and business services; Educational and health services; Leisure and hospitality; Other services; and Public administration), Occupation dummies (Management, professional, and related occupations; Service occupations; Sales and office occupations; Farming, fishing, and forestry occupations; Construction, and maintenance occupations; and Production, transportation, and material moving occupations), and Class-of-worker dummies (Government, Private sector, Self employed, Work without pay). All specifications include dummy variables for ages 17 to 64.

TABLE 10: Wage Results for individuals with 13 or more years of education

	(1)	(2)	(3)	(4)
	10th percentile of hourly wage	25th percentile of hourly wage	50th percentile of hourly wage (Median)	Mean
Dummy for living wage ordinance in Santa Fe	-0.263 (1.357)	0.013 (1.429)	1.408 (1.732)	0.043 (1.422)
Dummy for Santa Fe	0.094 (0.844)	-0.844 (0.873)	-1.34 (1.092)	-0.101 (0.98)
Dummy for Las Cruces	-1.041 (0.428)	-1.536 (0.505)	-1.609 (0.76)	-2.032 (0.608)
Dummy for rest of state (Albuquerque omitted)	-1.325 (0.358)	-1.667 (0.384)	-1.963 (0.484)	-2.188 (0.419)
Individual is married	0.723 (0.323)	1.242 (0.376)	2.078 (0.451)	2.531 (0.433)
Individual is head of household	0.211 (0.309)	0.341 (0.345)	0.393 (0.348)	0.477 (0.383)
Individual is male	0.886 (0.375)	0.939 (0.352)	2.445 (0.46)	3.316 (0.422)
Individual has some college	-2.201 (0.475)	-3.594 (0.42)	-5.636 (0.449)	-6.494 (0.422)
Individual is white	0.225 (0.491)	0.12 (0.466)	-0.09 (0.615)	0.353 (0.573)
Individual is Hispanic	0.282 (0.333)	0.288 (0.377)	-0.42 (0.355)	-0.561 (0.403)
Individual is veteran	0.316 (0.539)	0.365 (0.592)	-0.583 (0.69)	-0.271 (0.597)
Household size	-0.339 (0.13)	-0.25 (0.136)	-0.206 (0.134)	-0.143 (0.146)
Constant term	10.252 (2.552)	15.296 (2.709)	16.97 (2.284)	19.45 (3.019)

Notes: Standard errors are in parentheses. Sample is drawn from the monthly Current Population Survey (“CPS”) between January 2003 and October 2005. To be included in the sample, the individual must (a) live in New Mexico, (b) be a civilian aged 16 to 64, (c) have completed 13 or more years of education, (d) be working and (e) have sufficient information to compute a wage rate. All columns contain workers only. Columns 1-3 were estimated as quantile regression models with bootstrapped standard errors (using 100 bootstrap replications), while column 4 was estimated using ordinary least squares. Source of data is the Bureau of Labor Statistics web site (<ftp://www.bls.census.gov/pub/cps/basic/>) and the Census Bureau’s DataFerrett extraction tool (<http://dataferrett.census.gov/>). All specifications include 33 Month-Year dummies, Industry dummies (Agriculture, forestry, fishing, and hunting; Mining; Construction; Manufacturing; Wholesale and retail trade; Transportation and utilities; Information; Financial activities; Professional and business services; Educational and health services; Leisure and hospitality; Other services; and Public administration), Occupation dummies (Management, professional, and related occupations; Service occupations; Sales and office occupations; Farming, fishing, and forestry occupations; Construction, and maintenance occupations; and Production, transportation, and material moving occupations), and Class-of-worker dummies (Government, Private sector, Self employed, Work without pay). All wage rates are expressed in constant July 2005 dollars. Wages below \$1 or above \$100 are excluded. All specifications include dummy variables for ages 17 to 64.

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