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Scott Adams
David Neumark

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ABSTRACT

Many features of living wage laws may influence the strength of their effects on wages and employment of low-skill individuals. Echoing past research, business assistance living wage laws generate stronger wage increases and employment reductions than contractor-only laws. But broader enforcement or implementation and geographic concentration of living wage laws also appear to strengthen their effects. Finally, geographic concentration may be more significant than the distinction between business assistance and contractor-only living wage laws.

Scott Adams
Department of Economics
University of Wisconsin-Milwaukee
Milwaukee, WI 53201
sjadams@uwm.edu

David Neumark
Public Policy Institute of California
500 Washington St, Suite 800
San Francisco, CA 94111
and NBER
neumark@ppic.org

Living wage laws have become almost commonplace in cities across the United States. The total

number of living wage laws now in effect in the United States—mostly in cities but some in other

jurisdictions—is near 100.[1] Studying the effects of living wage laws at the city level, our research to date

(Neumark and Adams, 2003a and 2003b) has found that the most typical living wage laws that apply only

to city contractors do not have detectable effects on wages or employment of low-skill individuals, nor on

poverty rates, which is perhaps not surprising given the relatively low estimates of coverage of city

contractors that other researchers have reported (see Table 1 in Neumark and Adams, 2003a). In contrast,

it is only for the broader living wage laws that apply also to employers receiving business assistance from

the city that we detect any statistically significant effects. These "business assistance laws" include those

laws that cover firms receiving financial assistance, tax abatements, grants, low interest loans, or other

forms of government assistance from cities, and result in higher wages, lower employment, and net poverty

reductions. Our most up-to-date evidence using data through 2002 (Adams and Neumark, forthcoming)

finds that for these broader living wage laws, for the bottom decile of the wage or skill distribution, the

wage elasticity with respect to the mandated living wage is about 0.07 and the employment elasticity is

about −0.12. The elasticity of the overall poverty rate is about −0.19.[2]

Although our research has found robust evidence of different effects of contractor-only and

business assistance living wage laws, it has not provided a satisfactory explanation of the differences. We

have conjectured that the economic effects of business assistance living wage laws may differ from those of

contractor-only laws. In particular, contractor-only laws typically require that employers pay the mandated

wage only for work done as part of the contract, allowing employers to mitigate the costs of complying

with living wage laws by reallocating their higher wage labor to the contract work and their lower wage

labor to noncontract work, and even reducing wages on noncontract work. But there may be fewer avenues

for mitigating the costs (and therefore the effects) of living wage laws for employers covered under

business assistance provisions. An establishment created with the help of business assistance from a city

would appear to have no choice but to pay all employees no less than the mandated living wage for all of

their work. And while contractors can reduce the share of their business with the city in response to a living wage (and, similarly, cities can shift business to higher-wage employers), business assistance recipients may have less leeway as they may have accepted long-term benefits, such as bond financing or tax relief, in return for locating in the jurisdiction. In some cases at least, relocation costs seem likely to far outweigh costs from shifting business away from city contracts. Yet these explanations are just conjectures.

Moreover, our evidence that business assistance living wage laws have significant effects (and much stronger effects than contractor-only living wage laws) has been viewed skeptically by both researchers (e.g., Brenner, et al., 2002) and more importantly those directly involved with living wage campaigns and living wage implementation, who believe that business assistance living wages laws are in fact a very weak tool, barely increasing the share of workers covered by the contractor provisions of living wage laws, and weakly enforced.

In our view, the strongest and most substantive alternative explanation of our findings that has been offered is that business assistance living wage laws are not fundamentally different or stronger in terms of the underlying economics or the share of workers affected. Rather, the broader business assistance living wage laws may have arisen in cities where a constellation of forces—often related to the dynamics of living wage campaigns—have resulted in stronger living wage laws generally, and perhaps more importantly stronger implementation and enforcement because of both how the cities oversee the laws and how much community and other groups remain engaged.

These concerns have led us, in this paper, to explore the effects of living wage laws in a framework that attempts to account for the wide variety of living wage laws. Aside from contactor-only versus business assistance provisions, living wage laws also differ in terms of factors like the extent of coverage specified, the employers or workers exempted, enforcement and implementation, provisions for community hiring or labor peace agreements, and whether living wage laws exist in nearby jurisdictions that might amplify their effects. Our analysis addresses both a narrow and a broad question. The narrow question is whether the contractor-only versus business assistance distinction is the core distinction, or whether instead

variation in this distinction is associated with other features of living wage laws that are the ones that really matter. The broad question is how the many different features of living wage laws influence the effects these laws have on urban labor markets. In particular, in this paper we try to identify those characteristics of living wage laws that are most strongly associated with wage and employment effects.

Three qualifications or limitations should be noted at the outset. First, there are not a great many observations on cities with different types of living wage laws from which to draw strong statistical inferences. Living wage laws have only been around since the mid-1990s, and although they have grown to cover a large number of cities, much of this growth occurred in the last few years, and we can only draw reliable inferences for those cities large enough to provide a reasonable number of observations in national labor market surveys. So especially when we try to take account of a variety of dimensions of living wage laws, statistical power becomes somewhat tenuous and much of our evidence can be viewed as suggestive only. Second, our analysis takes place at the city level, focusing on the net effects of living wage laws on low-wage or low-skill workers. The city-level analysis estimates the effects of alternative policies, treating those policies to some extent as black boxes—although the consideration of varieties of living wage laws and their provisions is intended to help illuminate what goes on inside the black box. Future work needs to augment such city-level analyses with research on the effects of living wages at the firm or establishment level that try to test alternative hypotheses about the effects of different types of living wage laws. And third, there may be features of living wage campaigns that are not reflected in either the laws that result or the observable features of enforcement, but which influence labor market outcomes in their aftermath; an example is changed norms of behavior affecting wage setting. To some extent, these unmeasured influences may be common to all cities with living wage laws, and hence be captured in the estimated effects. But to the extent that they differ across cities, they remain an omitted source of variation in our empirical analysis.

II. Features of Living Wage Laws

Table 1 presents a summary of information on living wage laws that is used in the empirical analysis.[3] The table is divided into cities with contractor-only laws, those with contractor as well as

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business assistance provisions, and the few cities with business assistance provisions but without contractor coverage. There are a few important features or provisions of living wage laws that are not directly displayed in the table. First, the range of living wages is quite large, with living wages quite high in some cities. Current levels of living wages for these cities range from a low of $6.50 in Duluth to a high of $10.86 in New Haven.[4] Second, living wages are a recent phenomenon; the earliest living wage (in Baltimore) was implemented in 1995, and many of the living wage laws covered were implemented in the last few years. And finally, living wage laws are geographically quite dispersed, over-represented in higher-wage and higher-cost parts of the country, but also present in the Midwest, parts of the South, and in some medium-sized cities.

Column (2) of Table 1 summarizes coverage of contractors under each city's living wage law. This coverage varies in terms of the minimum contract covered, the types of contractors covered, and other features, and is classified as narrow or broad relative to most cities. For example, Portland's living wage law applies only to custodial, security, and parking attendants, and is therefore classified as "narrow," while the laws in Los Angeles and Oakland cover some leaseholders (and in the case of Oakland the port), and are therefore classified as "broad."[5]

The next two columns of the table provide descriptions of the business assistance recipients covered. Three of the cities with business assistance living wage laws are coded as having narrow assistance coverage. As an example, San Jose is coded this way because its law only applies to recipients of direct financial assistance, and excludes forms of assistance that in other cities trigger coverage. One important feature of business assistance living wage laws that was suggested to us by a prominent living wage organizer is whether tenants or leaseholders are covered.[6] For example, if a shopping mall is built with financial assistance that makes the developer and builder covered, then a leaseholder provision implies that the employees of the establishments that eventually occupy the mall will also be covered, which should substantially increase the impact of the living wage law. Additional provisions of living wage laws are covered in columns (5)-(7). These include community hiring provisions, labor peace or no strike agreements, and whether the living wage is superseded by collective bargaining agreements.[7]

As noted in the introduction, one of the central hypotheses we consider is that the key distinguishing feature of living wage laws is their enforcement and implementation. We examined details regarding living wage enforcement, including reporting requirements, penalties for violations, etc. These do not differ greatly across cities, and in addition, of course, what enforcement mechanisms are specified and what is actually done may differ. In column (8), therefore, we instead report information from research by Luce (forthcoming) that categorizes enforcement/implementation efforts by city based on a survey of living wage laws and city staff, as well as auxiliary information. Briefly, Luce classifies a city as having "broad" enforcement/implementation when there is at least "one full-time person assigned to oversee ordinance administration, who can answer questions about the law and who can be held accountable for problems" and the "staff actively monitors the ordinance by reviewing payroll records and inspecting worksites" (p. 96). In these cases, according to Luce, staff are engaged in trying to improve the ordinance, creating benchmarks, and making information public. In contrast, she classifies cities without full-time staff, in which it is difficult to find someone to answer questions, and where cities do the minimum to fulfill technical requirements, as having "narrow" enforcement/implementation. She also classifies some intermediate cases as "medium." Based on Luce's discussion of how and why implementation and enforcement differ across cities, we believe that her classification helps to capture differences that arise from the dynamics of living wage campaigns and the efforts of community and other groups to remain engaged. This classification of living wage enforcement/implementation as "narrow," "medium," or "broad" in column (8) of Table 1 is taken directly from Luce's Table 5.2.[8]

Finally, columns (9) and (10) of Table 1 record whether the city living wage law is also in a county with a living wage law, as well as whether there are one or more nearby cities with living wage laws. In both cases the year in which a nearby living wage was first implemented is noted; this variation in timing is also used in the empirical analysis.[9] Both of these characteristics of living wage laws are meant to capture whether a city's living wage law is likely to have its effect amplified by the presence of nearby living wage laws. Part of the importance of this distinction arises from the nature of the data. In particular, we use Current Population Survey data that classify people by where they live, not where they work. Thus, any

effect of living wage laws is likely to be amplified when there are nearby living wage laws, simply because more workers in the particular city are in fact covered by a living wage law. But nearby living wage laws may also amplify the effects of any city's living wage law because of the underlying economics, and we suspect this is the more important phenomenon. For example, consider an employer who has business with multiple cities; given the nature of businesses that typically do business with a city, this is likely. If a small share of the business is covered by a living wage law, because only one of the cities with which the employer has contracts is covered, then there will be more scope for mitigating the effects of a living wage law. But if nearby cities have living wage laws, more of the employer's work is likely to be covered by such laws and therefore the employer would have less scope for reducing wages on other work done by its employees, less scope for shifting high-wage workers to the covered contract, and also less scope for shifting business away from the city that imposes the living wage law. Finally, the fact that nearby cities have a living wage ordinance may be a sign that a broader living wage movement took place in the area, perhaps resulting in greater attention paid to the laws by both businesses and government.

The parsimonious descriptions of living wage laws provided in Table 1 are useful in giving an impression of how contractor-only and business assistance living wage laws differ along other dimensions, which is useful in highlighting the other characteristics of living wage laws that might explain the differences between these two broad categories of laws. Table 1 suggests that on some dimensions, contractor-only and business assistance laws do not look very different. For example, roughly equal shares are in counties with their own living wage laws, and the shares with provisions for supersession by collective bargaining are similar. However, business assistance laws are considerably more likely to be in cities for which nearby cities also have living wage laws, and in cities with community hiring provisions. With regard to enforcement/implementation, the differences do not appear sharp, although more of the contractor-only living wage laws are classified as having weak enforcement/implementation.

The empirical analysis described in the next two sections explores how the wage and employment effects of living wage laws vary with these different features or provisions of living wage laws, and asks whether this variation helps to explain evidence that business assistance living wage laws appear to have

much stronger effects. Note that a few of the features of living wage laws listed in Table 1 apply only to business assistance living wage laws (assistance coverage, leaseholder coverage, and labor peace agreements). While these differences therefore cannot explain differences relative to contractor-only living wage laws, they can help us examine which features of business assistance living wage laws mute or amplify their effects, and given prior expectations of the directions of these effects, such results can provide additional evidence on whether the estimated effects of business assistance living wage laws are real or spurious.

III. Empirical Approach

Data

The data on wages, employment, and other worker-related characteristics come from the Current Population Survey (CPS) monthly Outgoing Rotation Group files (ORGs) extending from January 1996 through December 2002. The ORG files are preferable to the March Annual Demographic files for the analysis of wages and employment because they have information on current wages and provide a sample three times as large. Because cities cannot be identified in the ORG files for a period in 1995, coupled with the fact that most living wage laws came into effect in 1996 or after, we restricted the sample to begin in 1996.[10]

In these files, residents of all MSAs, encompassing all large- and medium-sized cities in the United States, can be identified. We extracted data on these residents for our empirical analysis. In some respects, we would like to know where people work rather than where they live, but such information is not available, and employees of firms covered by living wage laws need not work in the MSA. The correspondence between cities and MSAs is imperfect, but because many suburban residents work in the city, this is not necessarily inappropriate; for ease of exposition we often refer to cities instead of MSAs.[11]

The CPS has some disadvantages and some advantages for studying the effects of living wages. Given that the CPS is a household-based survey with virtually no information on employers, it is not possible to identify covered and uncovered workers. Instead, all we can identify (and therefore the only information we exploit in the empirical analysis) is the city in which a worker lives and the type of law

prevailing there. Obviously, then, CPS data are not useful in exploring the microeconomic effects of living

wages at the firm or establishment level (i.e., questions such as whether firms engage in substitution away

from low-wage labor, how much wages are increased for their lowest-wage workers, how employment

responds, whether turnover falls, etc.). Such questions are best addressed using direct survey data on

covered employers and ideally a control group of uncovered or unaffected employers, as has begun to occur

in some recent research on living wages (e.g., Brenner, this issue; Fairris, this issue), although not with

respect to studying the effects of different types of living wage laws. On the other hand, the CPS data are

the best data available for addressing the overall effects of living wage policies on low-wage workers,

because they permit us to estimate the net effects, including indirect or perhaps "general equilibrium"

effects, of such laws in the cities where they are passed, relative to other cities. Ultimately, though, the two

types of data and research are complementary and can inform each other, with firm-level data allowing

researchers to test propositions about the individual-level behavioral responses of employers and workers to

the imposition of living wages and city-level data allowing researchers to assess the overall policy

consequences.[12]

Estimating Wage and Employment Effects

For wages, our basic strategy is to estimate a wage equation for the low-wage workers on whom

living wages are most likely to have an impact; we focus in particular on workers who fall below the 10th

centile in any given city-month cell.[13] Considering initially, for simplicity, the case where there is a single

living wage, we pool data across cities and months and estimate the following regression for this particular

centile range

$$\ln(w^p_{ijst}) = \alpha + X_{ijst}\omega + \beta \cdot \ln(w^{min}_{jst}) + \gamma \cdot \max[\ln(w^{liv}_{jst}), \ln(w^{min}_{jst})]$$
$$+ \delta_Y Y_t + \delta_M M_s + \delta_C C_j + \theta \cdot T + \theta_{LW} \cdot T \cdot LW_{js} + \varepsilon_{ijst}.$$

(1)

In this specification w^p is the hourly wage for individuals in the specified range (p) of the wage

distribution, in this case below the 10th centile. The subscripts 'i', 'j', 's', and 't' denote individual, city,

month, and year. ε is a random error term. X is a vector of individual characteristics (age, sex, race,

education, and marital status),[14] w^{min} is the higher of the federal or state minimum wage,[15] and w^{liv} is the higher of the living wage or the minimum wage. Y, M, and C are vectors of year, month, and city (MSA) dummy variables.[16] T is a linear time trend. LW_{js} is an indicator for cities that adopt a living wage law at any time during the sample period and has only a 'js' subscript to indicate that it is zero or one for the entire sample period.

The living wage variable that multiplies γ is specified as the maximum of the (logs of the) living wage and the minimum wage. We control for minimum wages separately because many cities with living wages are in states with high minimum wages, and we want to estimate the independent effects of living wages. This specification of the living wage effect, coupled with the inclusion of the minimum wage, imposes the minimum as the wage floor in the absence of a living wage. However, because living wages may have effects different from minimum wages, the coefficient is allowed to differ from that of the standard minimum wage floor.[17] If living wages boost the wages of low-wage workers, we would expect to find positive estimates of γ when we are looking at workers at the bottom of the wage distribution. In the specifications we estimate, we lag $\ln(w^{min})$ and $\ln(w^{liv})$ by 12 months to allow for slower, adaptive responses to changes in minimum wages and living wages. In our earlier work we never found much evidence of contemporaneous effects of living wages or effects at shorter lags, presumably in part because the effects of the laws accumulate as contracts are renewed each year.[18]

It is important to clarify the interpretation of equation (1). As the preceding discussion makes clear, we are estimating the equation for those with wages below a given threshold. The selection on those below a given threshold is not problematic as long as we interpret the regression as estimating effects on a conditional mean. Note also that even if living wages tend to be above the 10th centile of the wage distribution, if the laws raise wages of some workers initially below the 10th centile to above the 10th centile, then the average wage of workers below the 10th centile will clearly increase.[19] And, similarly, if some workers drop below the 10th centile, then the average wage below the 10th centile has to have fallen, because those workers' wages must be below the wages of some workers previously at or below the 10th centile.[20]

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We use the same basic empirical framework to study employment, with only two differences. First, we estimate linear probability models for individual employment status. Second, we cannot classify non-working individuals based on their position in the wage distribution. Instead, we impute wages for everyone and group individuals based on their position in the distribution of imputed wages, or "skills."[21]

The year and month dummy variables control for common changes across cities in the sample that could otherwise be confounded with living wage effects, because living wages were typically enacted later in the sample period. The city dummy variables control for the possibility that living wage laws were passed in cities with either particularly high or low wages, which would again confound the estimation of their effects. Thus, equation (1) identifies an effect of the living wage when the dependent variable changes differentially in cities that pass living wage laws (or increase their living wage) relative to cities that did not pass living wage laws—a difference-in-differences research design.

The difference-in-differences strategy is predicated on the assumption that absent the living wage and aside from differences captured in the other control variables, the treatment and control groups are comparable. Note, though, that explicit controls for local labor market conditions are not included. Although local labor market conditions can surely matter, they are also potentially endogenous if, for example, living wages cause some job loss. Fixed differences in economic conditions between the treatment and control groups are captured in the city dummy variables, and the year and month dummy variables capture changes in economic conditions common to all cities. However, a potential problem arises if economic conditions are changing differentially by location. For this reason, to capture some dimensions of differing changes in economic conditions across cities, equation (1) also includes differential linear time trends for cities that did and did not pass living wage laws over the sample period. The difference in the trend for cities passing living wage laws is captured in the term $\theta_{LW} \cdot T \cdot LW_{js}$. Although these trends do not capture every possible variation in local economic conditions, they will capture systematic differences between the different groups of cities in the rates of change of wages (and employment).

For cities that had very few observations for a given month, determining whether a worker fell in a

particular range of the distribution is unreliable. We therefore restrict our sample for each analysis to workers in city-month cells with at least 25 observations (although most have far more observations). All observations on MSA-month pairs identified in the CPS and meeting the sample size restrictions are included in the analysis.

Estimating the Effects of Different Features of Living Wage Laws

The key issue that this paper explores is how the effects of living wage laws differ depending on the features or provisions of living wage laws. This analysis proceeds in four steps. First, we consider dichotomous distinctions between living wage laws: e.g., contractor-only versus business assistance laws,[22] living wage laws that are coupled with those in nearby cities versus those that are not, etc. We estimate the separate effects using specifications of the form

$$\ln(w^p_{ijst}) = \alpha + X_{ijst}\omega + \beta \cdot \ln(w^{min}_{jst})$$
$$+ \gamma_1 \cdot \max[\ln(w^{liv}_{jst}) \cdot L_1, \ln(w^{min}_{jst})] + \gamma_2 \cdot \max[\ln(w^{liv}_{jst}) \cdot L_2, \ln(w^{min}_{jst})]$$
$$+ \delta_Y Y_t + \delta_M M_s + \delta_C C_j + \theta \cdot T + \theta_{1,LW} \cdot T \cdot LW_{js} \cdot L_1 + \theta_{2,LW} \cdot T \cdot LW_{js} \cdot L_2 + \varepsilon_{ijst}.$$

$$(2)$$

What is different in this specification is the interactions with L_1 and L_2, which are dummy variables for the two different types of living wage laws under consideration.[23] First, we add a second variable with the max of the logs of the living and minimum wages, in each case interacting the living wage variables with these two dummy variables; the interaction occurs inside the max operator so that in the absence of a living wage the floor is the minimum wage, for reasons discussed earlier. The parameters γ_1 and γ_2 then capture the differences in the effects of wage floors generated by living wages, allowing these to differ depending on the type of living wage law. Second, we add a separate interaction between the time trend and the indicator for passage of a living wage law; each of these is interacted with L_1 and L_2, which allows the cities with different types of living wage laws to have different underlying trends, for the reasons outlined above.[24]

The second step in the analysis addresses more directly the question of whether the differences we have found in past research between the effects of business assistance and contractor-only laws might in

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fact be explained by other features of living wage laws that are either more or less frequently associated

with business assistance living wage laws. To do this, we use a version of equation (2), but we augment it

to consider three types of living wage laws. Paralleling L_1 and L_2 in equation (2), we include indicators—

L_B and L_C—and the associated interactions for contractor-only living wage laws and business assistance

living wage laws; as in equation (2), these classifications of living wage laws are mutually exclusive. In

addition, though, we include an indicator and the corresponding interactions for another provision of living

wage laws, such as whether there is a county law. Calling the indicator of such provisions L_P, what is

different is that L_P can be equal to one when either L_B or L_C is equal to one. Then equation (2) is

augmented as

$$
\begin{aligned}
\ln(w^p_{ijst}) = {}& \alpha + X_{ijst}\omega + \beta \cdot \ln(w^{min}_{jst}) \\
& + \gamma_B \cdot \max[\ln(w^{liv}_{jst}) \cdot L_B, \ln(w^{min}_{jst})] + \gamma_C \cdot \max[\ln(w^{liv}_{jst}) \cdot L_C, \ln(w^{min}_{jst})] \\
& + \gamma_P \cdot \max[\ln(w^{liv}_{jst}) \cdot L_P, \ln(w^{min}_{jst})] + \delta_Y Y_t + \delta_M M_s + \delta_C C_j + \theta \cdot T \\
& + \theta_{C,LW} \cdot T \cdot LW_{js} \cdot L_C + \theta_{B,LW} \cdot T \cdot LW_{js} \cdot L_B + \theta_{P,LW} \cdot T \cdot LW_{js} \cdot L_P + \varepsilon_{ijst}.
\end{aligned}
\tag{3}
$$

This specification lets us ask—continuing with the county living wage law example—whether the

effects of business assistance living wage laws continue to look different from the effects of contractor-only

living wage laws even after we allow for different effects of living wage laws based on whether or not there

is a county living wage law. Note also that, as in equation (2), a separate trend has been added for cities

whose living wage laws include the particular provision under consideration.

The preceding analysis tells us whether allowing living wage laws with some particular feature

(such as an accompanying county living wage) results in a finding that contractor-only and business

assistance living wage laws no longer look so different, and instead that the important difference is between

those living wage laws accompanied and not accompanied by county living wages. Such a finding would

suggest that the earlier evidence on differences between contractor-only and business assistance living

wage laws actually reflected the fact that these two types of laws were differentially accompanied by

county living wages. Note that while the implication of this finding would be that the key difference

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between living wage laws is whether or not there is also a county living wage, it is possible that business assistance living wage laws still have detectable effects.

Moreover, the effects of business assistance living wage laws may for some reasons be considerably stronger when coupled with a county living wage. Our third analysis explores this question by expanding the specification to allow the differential in the effects of business assistance versus contractor-only living wage laws to vary with the presence or absence of the provision under consideration, as in

$$
\begin{aligned}
\ln(w^p_{ijst}) = {} & \alpha + X_{ijst}\omega + \beta\cdot\ln(w^{min}_{jst}) \\
& + \gamma_B\cdot\max[\ln(w^{liv}_{jst})\cdot L_B, \ln(w^{min}_{jst})] + \gamma_C\cdot\max[\ln(w^{liv}_{jst})\cdot L_C, \ln(w^{min}_{jst})] \\
& + \gamma_P\cdot\max[\ln(w^{liv}_{jst})\cdot L_P, \ln(w^{min}_{jst})] + \gamma_{BxP}\cdot\max[\ln(w^{liv}_{jst})\cdot L_B\cdot L_P, \ln(w^{min}_{jst})] \\
& + \delta_Y Y_t + \delta_M M_s + \delta_C C_j + \theta\cdot T + \theta_{B,LW}\cdot T\cdot LW_{js}\cdot L_B + \theta_{C,LW}\cdot T\cdot LW_{js}\cdot L_C \\
& + \theta_{P,LW}\cdot T\cdot LW_{js}\cdot L_P + \theta_{BxP,LW}{}'\cdot T\cdot LW_{js}\cdot L_B\cdot L_P + \varepsilon_{ijst}.
\end{aligned}
\tag{4}
$$

Note that, paralleling the earlier specifications, equation (4) allows for different underlying trends for each group of cities categorized by type of living wage law and provision.[25]

The description of equation (4) pertains to provisions that can apply to either contractor-only or business assistance living wage laws—for example, whether nearby cities have a living wage. But some features of living wage laws arise only in the context of business assistance laws. As shown in Table 1, these include labor peace provisions, narrow business assistance coverage, and coverage of leaseholders. Although not central to the question of understanding the source of differences between estimated effects of contractor-only and business assistance living wage laws, these provisions that are unique to business assistance laws are of interest in exploring under what conditions business assistance laws have more or less impact. Thus, in our fourth analysis, to estimate the effects of such provisions we estimate versions of equation (4) that include interactions between these provisions and L_B, but drop L_P as it would be perfectly collinear with L_B.

IV. Results

Basic Wage and Employment Effects

The basic evidence on the effects of living wages on wages and employment is reported in Table 2; this replicates some of the findings in Adams and Neumark (forthcoming). The upper panel reports estimates for the subsamples on which we focus—those in the bottom decile of the wage (or predicted wage) distribution. The odd-numbered columns report estimates for a single living wage variable, corresponding to equation (1), whereas the even-numbered columns break out separate effects for the generally broader living wage laws that extend to employers receiving business assistance and the narrower contractor-only living wage laws, corresponding to equation (2). In the lowest range of the wage distribution—at or below the 10th centile in the MSA-month cell—we find a positive effect; specifically, the estimated coefficient on the 12-month lag, 4.01 in column (1), implies an elasticity of about 0.04 but is not statistically significant at the 10% level. However, when we estimate separate effects for business assistance and contractor-only living wage laws we find a significant impact of business assistance laws. As shown in column (2), the estimated elasticity is 0.07, significant at the 10% level.[26]

The employment results are reported in columns (3) and (4). For living wages generally, in column (3), we find an estimated negative net employment effect that is significant at the 5% level. The estimated coefficient of −5.25 implies an elasticity of about −0.12.[27,28] When we estimate separate effects of business assistance and contractor-only living wage laws, in column (4), both estimates are negative, but we find a significant negative net employment effect only for business assistance living wage laws, and the difference in the estimated coefficients is quite pronounced (−7.63 vs. −2.74); the estimate of −7.63 implies an elasticity of −0.18.[29] Thus, the basic results reflect the finding that business assistance living wage laws boost wages but reduce employment among the lowest skilled.[30]

Because many living wages are above the 10th centile of the wage distribution but below the 25th, the lower panel of Table 2 reports results for the same wage and employment specifications using those in the bottom quartile of the wage or skill distribution, rather than the bottom decile. The directions of the effects are similar to those in the upper panel, but are smaller and not statistically significant; this is what

we would expect given that living wages are most likely less binding on this larger set of individuals, although in principle the effects could be stronger if those whose wages are affected by living wage laws are not the lowest-wage workers. For more detail on the effects of living wages at different parts of the wage or skill distribution, see Neumark and Adams (2003a).

Effects of Living Wage Laws Based on Other Distinctions

We next report on alternative specifications of equation (2) where we draw dichotomous distinctions between living wage laws based on the presence or absence of other provisions. It would be ideal, and the evidence perhaps more decisive, if we could estimate the effects of all features of living wage laws simultaneously. However, the data—in particular, the relatively small number of cities with specific features of living wages laws—preclude this. Attempts at this simultaneous estimation yielded uninformative and very imprecise estimates.

In this analysis we do not focus on the contractor-only versus business assistance distinction, but instead on other "pair-wise" comparisons of features of living wage laws. Combined with the information in Table 1, however, the estimates are useful in thinking about which provisions of living wage laws might account for the differences in the estimated effects of contractor-only and business assistance living wage laws, which is taken up subsequently. The results are reported in Table 3.

Differences between cities whose living wage laws are or are not accompanied by county living wage laws are covered in column (1). The results are ambiguous. The findings suggest a large and significant wage effect in living wage cities with a county law, but not in living wage cities without an accompanying county law. The employment effect, on the other hand, is larger (and statistically significant) in the cities without a county living wage law. Given the ambiguity, it is unlikely the case that whether or not a city living wage law is accompanied by a county law is decisive, although we view it as notable that the wage effects are larger in places where workers are more likely to be covered because they may be subject to either a city or a county ordinance.

Next, living wage laws are divided up by whether or not there are living wages in nearby cities. The results, reported in column (2), suggest that this distinction is important. Living wage laws coupled

with those in nearby cities boost wages, with a positive and statistically significant effect (at the 5% level).

Similarly, the negative net employment effects appear only for living wage laws that are coupled with those in nearby cities, with an employment elasticity of −0.23 and an estimated effect that is significant at the 5% level. Note also that this table marks with an asterisk cases where the effects of the two types of living wage laws considered are significantly different from each other at the 5% level; in this case, for both the wage and employment effects we find significant differences in living wage effects with regard to whether or not a nearby city has a living wage law.

Columns (3) and (4) turn to whether living wage laws have community hiring provisions or provisions that they can be superseded by collective bargaining. It is not clear, a priori, what effects these differences should have. Community hiring provisions in some form or another encourage hiring in the city passing the living wage law, and are intended to encourage contractors (for example) to hire city residents. Conceivably, if living wage laws reduce employment, then in cases where there are community hiring provisions the employment impact on the city's workforce could be mitigated if employment reductions are more concentrated among non-residents; of course, since we study MSAs rather than cities, any differences might be muted. Supersession by collective bargaining is sometimes interpreted as simply encouraging employers to be more amenable to unionization, although living wage laws per se should accomplish this because they make the threat point in union negotiations less attractive to employers. At any rate, the evidence in Table 3 suggests that in both cases, living wage laws with these types of provisions tend to have greater positive effects on wages, although the differences are not large relative to the standard errors of the estimates.[31] And correspondingly, living wage laws with these provisions have stronger negative net employment effects; in this case the differences are marked.

Column (5) looks at living wage laws distinguished by whether or not the coverage of contractors is broad. All else the same, to the extent that the contractor provisions of living wage laws have an effect, we would expect the effect to be greater when broader coverage is specified. The estimates reflect this in the employment effects of living wage laws, but not the wage effects. While the former result might appear consistent with expectations, the ambiguity between the wage and employment results suggests that the

evidence of greater negative net employment effects of living wage laws with broader contractor coverage should be viewed cautiously.

Finally, column (6) turns to Luce's classification of living wage laws in terms of enforcement/implementation. Here, like in column (5), the estimated employment effect is large and significant only for those living wage laws with broad enforcement, which is sensible. With regard to the wage effects, the point estimates are larger for these broader living wage laws, although the difference is small and not statistically significant. All in all, though, this evidence is best interpreted as suggesting that the living wage laws Luce classifies as having broader enforcement/implementation do have sharper effects.[32]

Do Other Features of Living Wage Laws Explain the Stronger Effects of Business Assistance Laws?

In this sub-section we ask whether other provisions or features of living wage laws can account for the stronger effects of business assistance living wage laws compared with contractor-only living wage laws. Of course this is likely to be the case only for provisions or features of these laws that differ across business assistance and contractor-only laws, as summarized in Table 1. Moreover, it is likely to be the case for those provisions that appear to be associated with stronger (or weaker) effects of living wage laws. With respect to Table 1, we noted earlier that the differences that appear to stand out are that business assistance laws are considerably more likely to be in cities for which nearby cities also have living wage laws, and in cities with community hiring provisions or with stronger enforcement/implementation. Interestingly, the estimates in Table 3 suggested that the wage and employment effects are sharper when living wages are accompanied by those in nearby cities or include community hiring provisions, and to some extent also when enforcement/implementation is more broad. But here we turn to more direct analysis of this question, and the complete set of results for the different features of living wage laws that we consider.

The first analysis, based on equation (3), is reported in Table 4. Here we maintain separate interactions for contractor-only and business assistance laws, and ask whether the greater wage and employment effects associated with business assistance laws can be explained by other provisions or

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features of living wage laws. The estimates in column (1) indicate that where county living wage laws exist along with city living wage laws, the estimated wage effect of business assistance laws becomes weaker and is no longer statistically significant. But the negative net employment effect becomes stronger and remains statistically significant at the 5% level. Given that county living wage laws do not show up more frequently among cities with business assistance provisions, we find it unlikely that county living wage ordinances drive the stronger results for business assistance cities.

In columns (4), (5), and (6), looking at supersession by collective bargaining agreements, broad contractor coverage, and broad enforcement/implementation, the estimates continue to indicate strong (if anything, stronger) wage and employment effects of business assistance living wage laws. Thus, these differences among living wage laws do not account for the stronger wage effects and negative net employment effects of living wage laws that cover business assistance recipients.

The estimates in columns (2) and (3), for living wage laws in nearby cities and with community hiring provisions, present a somewhat different picture. First, community hiring provisions appear to account for the larger employment effects of business assistance living wage laws, as business assistance laws without these provisions have essentially no detectable employment effect. On the other hand, though, the wage effect of business assistance laws is not explained by this feature of living wage laws. Coupled with the absence of an obvious reason why community hiring provisions should lead to stronger employment effects, we do not view this evidence as overturning in a decisive way the findings regarding business assistance laws.

In contrast, whether or not nearby cities have living wage laws appears to account more successfully for the stronger wage and employment effects of business assistance laws. For both the wage and employment effects, the large point estimates (positive for wages, and negative for employment) exist for living wage laws coupled with living wages in nearby cities, and not for business assistance living wage laws in the absence of living wages in nearby cities. These findings, combined with the expectation that living wage laws are likely to have stronger effects when they also exist in nearby labor markets, suggest

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that geographic concentration of living wage laws may in fact be more significant than the distinction between business assistance and contractor-only living wage laws.

On the other hand, this inference is fragile. Note from Table 1 that many of the cities that have business assistance living wage laws and do not have a living wage in a nearby city are quite small (e.g., Madison and Toledo). Thus, identification of the separate effects of business assistance provisions and living wages in nearby cities comes from a relatively small number of observations. Reflecting this, when we eliminate the three cities with laws that have business assistance provisions but no contractor coverage (Minneapolis, Duluth, and San Antonio), living wages in nearby cities no longer matter, and in fact the differences associated with business assistance living wage laws (irrespective of living wages in nearby cities) re-emerges. The combined evidence therefore suggests that we cannot decisively determine whether or not it is the geographic concentration of living wage laws or business assistance coverage that is decisive, but it raises the possibility that business assistance provisions are not as central as some of our earlier work has suggested. And the fragility of the findings with respect to this question points to the need to revisit this question as more data on living wages become available in the future.

Table 5 takes this analysis one step further, reporting estimates of equation (4), which permits the differences associated with business assistance versus contractor-only living wages to differ depending on whether there is a living wage in a nearby city. We only look at the question of living wages in nearby cities, given that the results just discussed seem to suggest that this is the one feature that may account for the stronger effects of business assistance living wage laws. The motivation for this is to see whether the stronger effects for living wages coupled with those in nearby cities holds across both types of living wage laws, or whether instead it is simply business assistance living wage laws coupled with laws in nearby cities that have stronger effects, which would leave more of an independent role for the business assistance provisions, although the results would still suggest that that, on average, business assistance provisions of living wage laws do not account for their stronger effects. The evidence regarding wage effects is consistent with the second scenario, as it is only the combination of business assistance living wage coverage plus living wages in nearby cities that yields a positive wage effect.[33] On the other hand, for the

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employment effects the evidence indicates that significant employment declines are associated with living wage laws accompanied by living wages in nearby cities, regardless of whether the living wage law covers contractors only or also extends to business assistance. Thus, this analysis, which is more taxing on the data, provides mixed evidence on whether it is the business assistance provisions of living wage laws or the presence of living wages in nearby cities that strengthens the effects of living wage laws. But clearly the geographic concentration of living wage laws is an important part of the story, and this latter distinction among living wage laws may be more significant than the contractor-only/business assistance distinction.

Features of Business Assistance Living Wage Laws

Finally, we explore some features of living wage laws that are unique to laws with business assistance provisions, either by coincidence or construction. In particular, we ask how the effects of business assistance living wage laws vary depending on whether they are accompanied by labor peace provisions (which happen to occur only in the context of business assistance living wage laws), whether the assistance coverage is narrow, and whether leaseholders are covered (the latter two are only defined for business assistance laws).

If the preceding results had indicated that other features of living wage laws fully explained our earlier findings regarding the stronger effects of business assistance living wage laws, then there would be little if any motivation for this analysis. In fact, the previous subsection indicated that part of the reason we tend to find that business assistance living wage laws have stronger wage and employment effects is because these laws also tend to be the ones that are enacted in cities where there are also living wages in nearby cities. But because the evidence was mixed, this final analysis further explores the effects of business assistance living wage laws by asking whether features of these laws that should be associated with variation in their effects are indeed associated with such variation (in the expected directions); this helps both in providing additional evidence on whether the effects of business assistance living wage laws that we find are real or spurious, and also in understanding what features of business assistance living wage laws might strengthen or weaken their effects.

The results are reported in Table 6. It is not clear what to expect regarding labor peace agreements. The point estimates are not very precise, but they suggest that living wage laws coupled with these agreements result in larger positive wage effects; the estimated effect of a business assistance law absent a labor peace agreement is only 3.00, versus 7.21 (3.00 + 4.21) when there is a labor peace agreement. In contrast, the estimated employment effect if negative and little changed whether or not there is a labor peace agreement.

The results for narrow coverage and leaseholder coverage are partially in accord with expectations. The strong positive estimated wage effect of business assistance living wage laws (8.44) is nearly completely offset when the coverage is narrow (as the estimated coefficient on the interaction is −7.05). The same is true for the employment effect, for which the estimated effect is −8.59 for business assistance laws that are not narrow, falling by 5.5 when assistance coverage is narrow. Similarly, the positive wage effect, while imprecise, is larger for business assistance living wage laws that cover leaseholders. However, there is no evidence of a correspondingly larger employment effect. Thus, the evidence is mixed, but the weaker effects associated with narrow coverage and the stronger effects (for wages) associated with leaseholder coverage are consistent with expectations regarding business assistance coverage of living wage laws. Nonetheless, the earlier evidence regarding the business assistance versus the nearby cities distinction indicates that the geographic concentration of living wage laws may be the more important feature determining the strength of the effects of living wage laws.

V. Conclusions

This paper considers a variety of different features of living wage laws—such as the breadth of coverage, community hiring provisions, whether leaseholders are covered, and the existence of living wages in nearby jurisdictions—and how they influence the strength of the effects of living wages on wages and employment of low-wage, low-skill individuals. This question is of general interest in furthering our understanding of living wage laws. It is also motivated by findings in our past research that living wage laws that apply only to city contractors do not have detectable effects on wages or employment of low-skill

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individuals, but that strong wage and employment effects arise for living wage laws that cover recipients of business assistance from the city (almost always in conjunction with coverage of contractors).

Given the small number of living wage laws with which to try to distinguish the effects of alternative features of these laws, the evidence is often not very decisive statistically. In particular, we are unable to simultaneously estimate the effects of the variety of potentially important features of living wage laws that we have identified, and recognize that if we could do this our evidence would be stronger. And in the more limited specifications we do estimate, the estimates are sometimes imprecise. As a result, in our opinion this research is better viewed as opening up a number of questions about the influence of different features of living wage laws, and beginning to try to shed some light on these questions, rather than as providing definitive answers. With that qualification in mind, though, the analysis does provide some intriguing findings.

First, we suggested in the introduction that the strongest and most substantive alternative explanation of our findings regarding the greater strength of business assistance living wage laws is that these laws are not fundamentally different, but have arisen in cities where stronger living wage campaigns have resulted in stronger living wage laws generally. We examine this hypothesis relying on Luce's (forthcoming) categorization of the enforcement and implementation of living wage laws in cities that have passed them. Consistent with this alternative hypothesis, living wage laws for which enforcement/implementation are more broad exhibit stronger negative net employment effects, and perhaps slightly larger wage effects. On the other hand, these stronger effects associated with broader enforcement or implementation do not explain the stronger wage and employment effects of business assistance living wage laws. So while stronger enforcement and implementation matters—which is reassuring from the perspective of assessing whether the living wage effects we identify are real or spurious—the greater impact of business assistance living wage laws is not attributable simply to business assistance laws coinciding with laws with stronger enforcement or implementation.

We also considered a number of other features of living wage laws that might help explain when living wage laws have more "bite," and specifically might account for the apparent stronger effects of

business assistance living wage laws. Simply looking at various features of living wage laws and ignoring the issue of contractor-only versus business assistance laws, we find that living wage laws with community hiring provisions or living wage laws that can be superseded by collective bargaining appear to have greater positive effects on wages and more so stronger employment effects. Living wage laws with broader contractor coverage exhibit stronger employment effects, although not stronger wage effects. Finally, living wage laws have stronger wage and employment effects when they are enacted (or raised) in cities for which neighboring cities also have living wages. When the county also has an ordinance, then the wage effects (but not the employment effects) are stronger. For the most part, the differences among the effects of different types of living wage laws that we do find are consistent with expectations, although the expected differences are not always apparent in the data.

When we turn to the narrower question of whether some of these differences among living wage laws can help explain the difference between the estimated impacts of contractor-only and business assistance living wage laws, we find that a considerably higher share of business assistance living wage laws are in cities whose neighbors also have living wage laws. And whether or not nearby cities have living wage laws appears to help account for the stronger wage and employment effects of business assistance laws, although the inference is fragile. Thus, living wages in nearby cities may be part of the reason why we see stronger effects of living wage laws in cities that cover firms receiving business assistance.

Finally, we look more closely at business assistance living wage laws, and try to assess whether they should be viewed as real or spurious by asking whether features of these laws are correlated with the strength of their wage or employment effects in the directions we might expect. The evidence here is mixed, with some evidence of stronger effects when coverage is broad and when leaseholders are covered.

All told, while the evidence does not point unambiguously in one direction, and is not statistically overwhelming, it does suggest that variation in the effects of living wage laws could have more to do with the concentration of many living wage laws in contiguous or nearby labor markets, rather than with coverage of business assistance recipients. Some may find this source of variation in the strength of living

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wage effects more palatable, in part because of skepticism about the enforcement and implementation of business assistance living wage laws, and in part because the mechanism by which "overlapping" living wage laws enhance their effect is perhaps more obvious than the mechanism by which business assistance provisions enhance their effect. Regardless of the precise conclusion one draws regarding this point, we believe this research points to the potential importance of accounting for variations in living wage laws that—aside from the level of the mandated wage floor—influence their effects on wages, employment, and perhaps other outcomes as well.

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Table 1: Coding of Living Wage Laws[a]

(1)	Contractor coverage (2)	Assistance coverage (3)	Assistance coverage includes tenants/leaseholders (4)	Community hiring (5)	Labor peace (6)	Superseded by collective bargaining (7)	Enforcement / implementation (8)	County (9)	Nearby cities (10)
Contractor only									
Baltimore							Medium		
Boston				Yes			Broad		Yes (1999)
Burlington					Yes		NA		
Chicago							Narrow	Yes (1998)	
Denver							Narrow		
Durham							Narrow		
Jersey City							Narrow	Yes (1999)	
Milwaukee							Narrow	Yes (1997)	
New Haven				Yes	Yes		Medium		Yes (earliest 1999)
Portland	Narrow						Narrow	Yes (1996)	
San Francisco	Broad					Yes	Broad		Yes (many, earliest 1998)
Tucson				Yes			Broad	Yes (2002)	
Business assistance plus contractor									
Ann Arbor			Yes				NA	Yes (2001)	Yes (many, earliest 1998)
Cleveland			Yes	Yes			Medium		
Detroit			Yes	Yes			Narrow		Yes (many, earliest 1999)
Hartford		Narrow			Yes		Narrow		Yes (earliest 1997)
Los Angeles	Broad					Yes	Broad	Yes (1999)	Yes (earliest 1996)
Madison						Yes	NA	Yes (1999)	
Oakland	Broad		Yes			Yes	Medium		Yes (many, earliest 1998)
Rochester							NA		
San Jose		Narrow			Yes	Yes	Broad	Yes (1995)	Yes (many, earliest 1998)
Toledo		Yes (narrow)					NA		
Business assistance only									
Duluth				Yes	Yes		Narrow		
Minneapolis			Yes	Yes			Medium		Yes (1997)
San Antonio		Narrow		Yes			Medium	Yes (2001)	

[a]This table was compiled using information from http://www.epionline.org/livingwage/index.cfm and

http://www.livingwageresearch.org/, and from Luce (forthcoming). In columns (2) and (3), the absence of an entry indicates that the

contractors or assistance coverage was neither particularly narrow nor broad compared to other living wage laws. In columns (4)-(7),

(9), and (10) we have included only "yes" entries; blank spaces indicate the absence of the particular feature of living wage laws to

which the column refers.

Table 2: The Impact of Living Wage Laws on Wages and Employment, Bottom Decile of Wage or Skill Distribution[a]

	Wages		Employment	
Bottom decile of wage/skill distribution:	(1)	(2)	(3)	(4)
Living wage 12 months ago (γ)	4.01 (2.97)	…	-5.25 (1.95)	…
× business assistance coverage (γ_1)	…	6.68 (3.86)	…	-7.63 (1.79)
× contractor-only coverage (γ_2)	…	-0.56 (3.69)	…	-2.74 (3.33)
Sample size	46,374		116,466	
Mean	5.60		43.37	
Bottom quartile of wage/skill distribution:				
Living wage 12 months ago (γ)	1.58 (1.99)	…	-1.92 (1.79)	…
× business assistance coverage (γ_1)	…	2.25 (2.50)	…	-2.06 (1.53)
× contractor-only coverage (γ_2)	…	-0.04 (2.20)	…	-1.71 (3.84)
Sample size	104,475		282,265	
Mean	6.88		52.43	

[a]Reported are the estimated effects of the living wage on the log wage (employment) of individuals in the bottom decile or quartile of the wage (predicted wage) distribution in the MSA-month cell. Estimates of the effects on employment are from linear probability models. The specifications correspond to equation (1) (columns (1) and (3)) and equation (2) (columns (2) and (4)) in the text, and the corresponding coefficient from the specifications are listed in the left-hand column. Standard errors are reported in parentheses. All estimates are multiplied by 100. For an MSA's data to be included in the sample for a particular month, there must be at least 25 observations in that MSA-month cell. Observations for which allocated information is required to construct the dependent variable in the CPS are dropped. The estimations include controls for year, month, MSA, education, age, marital status, race, sex, and the minimum wage at the same lag as the living wage variable. Reported standard errors are robust to non-independence (and heteroscedasticity) within city cells, following the suggestions in Bertrand, et al. (2002).

Table 3: Wage and Employment Effects of Various Provisions, Bottom Decile of Wage or Skill Distribution[a]

| | Living wage law provision: | | | | | |
	County (1)	Nearby cities (2)	Community hiring (3)	Superseded by collective bargaining (4)	Broad contractor coverage (5)	Broad enforcement / implementation (6)
Wage effects: Living wage 12 months ago						
With provision (γ_1)	11.05 (4.84)	9.25* (3.97)	5.73 (5.55)	5.21 (4.84)	-1.57 (3.44)	4.47 (4.34)
Other laws (γ_2)	1.41 (3.78)	-2.14 (3.40)	3.34 (3.45)	4.25 (3.53)	5.66 (3.41)	3.56 (3.79)
Employment effects: Living wage 12 months ago						
With provision (γ_1)	-3.02 (3.57)	-9.84* (2.17)	-12.38* (2.67)	-8.08 (2.20)	-9.70 (1.20)	-9.32 (3.17)
Other laws (γ_2)	-5.80 (2.00)	-1.64 (2.21)	-1.10 (2.12)	-3.88 (2.46)	-4.31 (2.36)	-4.02 (2.68)

[a]See notes to Table 2. Specifications correspond to equation (2) in the text. The asterisks denote that the impact of laws with the

provision/feature is significantly different from the impact of other laws at the 5% level.

Table 4: Wage and Employment Effects of Business Assistance Laws, Controlling for Other Provisions of Laws,

Bottom Decile of Wage or Skill Distribution[a]

	Living wage law provision:					
	County (1)	Nearby cities (2)	Community hiring (3)	Superseded by collective bargaining (4)	Broad contractor coverage (5)	Broad enforcement / implementation (6)
Wage effects: Living wage 12 months ago						
Business assistance (γ_B)	4.53 (4.19)	-1.25 (5.27)	7.85 (4.40)	9.00 (5.37)	10.04 (4.79)	6.73 (5.17)
Contractor-only (γ_C)	-5.10 (4.09)	-2.80 (4.14)	0.37 (3.89)	-0.18 (3.46)	0.31 (3.41)	-0.72 (3.72)
With provision (γ_P)	11.78 (4.55)	10.76 (6.46)	-1.14 (6.68)	-2.47 (6.66)	-9.97 (4.81)	0.04 (5.85)
Employment effects: Living wage 12 months ago						
Business assistance (γ_B)	-7.90 (2.13)	-1.85 (4.03)	-1.75 (2.44)	-6.66 (2.85)	-7.82 (2.42)	-8.29 (2.67)
Contractor-only (γ_C)	-3.85 (3.45)	-0.79 (2.50)	-0.22 (2.16)	-2.47 (3.36)	-2.57 (3.36)	-1.50 (2.85)
With provision (γ_P)	2.89 (3.45)	-8.54 (4.74)	-11.75 (3.43)	-2.28 (3.57)	-2.76 (2.99)	-3.07 (4.51)

[a]See notes to Table 2. Specifications correspond to equation (3) in the text.

Table 5: The Influence of Living Wages in Nearby Cities on the Effects of Contractor-Only and Business Assistance Living Wage Laws, Bottom Decile of Wage or Skill Distribution[a]

	Wage effects (1)	Employment effects (2)
Living wage 12 months ago		
Contractor-only	-0.51 (3.87)	0.07 (2.74)
Business assistance	-5.24 (4.40)	-3.41 (4.35)
Nearby city	-1.71 (8.51)	-13.73 (5.85)
Business assistance × nearby city	17.66 (10.71)	7.75 (7.97)

[a]See notes to Table 2. Specifications correspond to equation (4) in the text.

Table 6: Effects of Features Unique to Business Assistance Laws, Bottom Decile of Wage or Skill

Distribution[a]

	Wage effects			Employment effects		
	Labor peace (1)	Narrow coverage (2)	Leaseholders covered (3)	Labor peace (4)	Narrow coverage (5)	Leaseholders covered (6)
Living wage 12 months ago						
business assistance	3.00 (4.91)	8.44 (3.65)	5.64 (4.73)	-7.33 (1.46)	-8.59 (1.96)	-7.86 (2.59)
business assistance × provision	4.21 (5.29)	-7.05 (6.26)	5.38 (10.52)	-1.60 (5.75)	5.50 (3.96)	1.16 (4.25)

[a]See notes to Table 2. The specification corresponds to equation (4) in the text, but including the L_P terms only when

interacted with L_B, given that features of living wage laws unique to business assistance laws are considered. The

estimated coefficients for contractor-only laws are not shown.

[1] For current information, see www.epionline.org.

[2] The same paper also addresses criticisms of our methods and earlier estimates in Brenner, et al. (2002).

[3] A table with additional details on each living wage law is available from the authors upon request.

[4] In some cases a higher wage is mandated if health insurance coverage is not provided. We show the lower wage, and use it in the estimates reported in this paper; in all of our analyses the results have been insensitive to which of the wages we use.

[5] We also looked at exemptions, which exist for non-profits, trainees or youths, small business, etc. However, these are not easily classified into a small number of groups, and hence are not considered in the analysis.

[6] Private communication with Jen Kern, from ACORN's Living Wage Resource Center (June 2003). This conversation led us to perform the analysis that appears in the final table of the paper, where we examine whether particular features of business assistance laws appear to drive the results for this type of law.

[7] The classification of Tucson's law with respect to community hiring is a bit ambiguous because the law specifies a goal of 60 percent city residents only for eligible employees on eligible contracts, which may be quite narrow. Nonetheless, we coded Tucson as having a community hiring provision, but we verified that the results were not sensitive to classifying Tucson as not having such a provision.

[8] This information is missing for a few of the smaller cities, in which case they are dropped from the empirical analysis reported below.

[9] Column (10) also gives an indication of whether many nearby cities have living wages.

[10] Specifically, for part of 1995, Metropolitan Statistical Area (MSA) codes are unavailable in the ORGs due to phasing in of a new CPS sample based on the 1990 Census.

[11] The CPS is a stratified random sample based on sampling units within strata. However, the sampling units made up of the most populous areas (including large- and medium-sized metropolitan areas) are in strata by themselves, so that these areas are always sampled, and, by design, sampling units are self-representing. That is, the sampling unit covering an MSA is intended to be representative of the population of that MSA, not that MSA plus other sampling units in the strata. Finally, the households sampled within each sampling unit are chosen to be representative of the demographic and socioeconomic characteristics of the sampling unit. As a result, we can use the CPS to construct representative wage and skill distributions for MSAs. In a small number of cases, though, outlying counties are excluded from the CPS sampling frame for an MSA, in which case the data are

representative of the remainder of the MSA. (See U.S. Bureau of Labor Statistics, 2004; U.S. Bureau of the Census, 1997).

[12] A related issue regarding the CPS is whether we have enough observations on workers covered by living wages to reliably estimate the effects of living wage laws. See the discussion of this point in Brenner, et al. (2002) and Adams and Neumark (forthcoming).

[13] For the estimation of wage effects, we restricted our sample to workers with an hourly wage greater than $1 and less than or equal to $100. We also limited the sample to those who were ages 16 to 70. The latter restriction also applied to the employment analysis.

[14] It is appropriate to include these controls in case the workforce in a city shifts over time in such a way as to influence wage levels. However, any such changes are likely to be minor, and the results are robust to the exclusion of these controls.

[15] In the few cases of MSAs that straddle states with different minimum wages in some years (Davenport-Quad Cities, Iowa; Philadelphia, Pennsylvania; Portland, Oregon; and Providence, Rhode Island), we used a weighted average of the minimum wages in the two states, weighting by the shares of the MSA population in each state (averaged over the months of 1996).

[16] Alternatively, we have estimated these specifications using dummy variables for each distinct month-year pair, rather than month and year dummy variables separately. The results were the same.

[17] The idea behind imposing the minimum wage as the floor in the absence of a living wage is that the living wage effect is identified from whatever sectors of the workforce or population have their wage affected by a living wage law, but in the absence of the living wage the minimum wage would still bind for these sectors. The alternative would be to substitute the expression $\gamma' \cdot \max[\ln(w^{liv}_{jst}),0]$ for $\gamma \cdot \max[\ln(w^{liv}_{jst}),\ln(w^{min}_{jst})]$, where in the absence of a living wage w^{liv}_{jst} would equal zero, and $\max[\ln(w^{liv}_{jst}),0]$ would therefore equal zero. Given that the minimum wage most likely binds on workers affected by the living wage, this seems like a misspecification. Nonetheless, we also estimated the models using this latter specification. As we would expect, the estimate of γ' was considerably smaller than the estimate of γ, because the scale of variation of the alternative living wage variable is much larger, with the bottom of the range extending to zero instead of $\ln(w^{min}_{jst})$. However, the results were qualitatively similar in terms of statistical significance and the implied effect of imposing a typical living wage.

[18] For key specifications, we re-estimated the effects without lagging the minimum wage, and we found it resulted in no appreciable change in the results.

[19] Among the MSAs with a living wage effective in a particular month, the living wage was below the 10th centile in 18% of the cases, and between the 10th and 25th centiles in 65% of the cases. We also report results for our basic specifications conditioning on wage or predicted wages lying below the 25th centile, rather than the 10th.

[20] Our work has been subjected over time to alternative analyses and specification checks. For example, when an unconditional quantile regression is estimated, which measures the effects of living wages on those whose wages are low in an absolute sense, effects similar to those we find using equation (1) are obtained. The same is true if we simply estimate equation (1) for the 10th centile. In addition, to address the possibility that living wages are passed concurrently with other policies at the state level that may impact wages positively (or employment negatively), we have used within-state control groups (rather than all other urban workers), which resulted in similar estimates (Neumark and Adams, 2003a). Finally, one of us has attempted to perform an event analysis, where we examine trends before and after the passage of laws (Neumark, 2002). The results were less informative but supported the general findings.

[21] We do this in a simple manner, estimating a standard log wage regression with year and month controls and using predicted log wages from the estimated regression to construct imputed wage distributions for the MSA-month cell. Of course, the market wages faced by those who choose not to work are likely lower than those faced by observationally equivalent individuals who choose to work; this is the standard sample selection problem. We verified that reducing the imputed wages of the non-workers by 5% and 10% leads to results that were qualitatively similar.

[22] The business assistance laws may or may not include contractor provisions as well, although most do (see Table 1).

[23] L_1 and L_2 are a flexible way to denote that we are looking at the effects of laws with and without a given feature. For example, L_1 may be laws with business assistance provisions and L_2 laws without business assistance provisions (contractor-only laws). Alternatively, L_1 might indicate a city with a law that is in a county with a separate living wage law; L_2 would then indicate a city with a law that is in a county without a separate law. Other features, such as nearby cities, community hiring provisions, etc., are similarly examined.

[24] In principle, the L_1 and L_2 variables in the max operators should have 't' subscripts, because some characteristics of living wage laws—in particular, whether nearby cities or the county in which a city is located have living wages—can change over time. The analyses of living wages in the county or nearby cities are the only ones to use variation over time in features of living wage laws.

[25] Note that this specification allows for four different effects of living wage laws: business assistance laws with the provision and without the provision, and contractor-only laws with and without the provision. The model can be parameterized in alternative ways, but the one in equation (4) is most convenient for asking whether the differential effect of business assistance versus contractor-only laws varies with the provision under consideration.

[26] The difference-in-differences approach can lead to spurious findings of statistically significant results in the presence of positive serial correlation in the errors, the influence of which is exacerbated by the positive serial correlation in the measure of the treatment that is typical of difference-in-differences analyses (Bertrand, et al., 2002). In all of the regression tables, we report standard errors that allow for arbitrary autocorrelations across observations for each city, which should eliminate any downward bias in the estimated standard errors. This is one of the solutions Bertrand, et al., propose to the problem of downward bias in the estimated standard errors in difference-in-differences analyses. In an example they consider, this approach generates accurate standard errors and hence inferences as long as there is a large number of groups. In their example they consider 51 groups (corresponding to a state-level analysis) to be large number for which this approach works well; we in fact have far more groups, as we study cities rather than states.

[27] This is calculated by dividing the point estimate of -5.25 by the mean employment rate among the lowest skilled (43.37%, as reported in Table 2).

[28] Note that in the context of raising a wage floor, especially for a subset of workers, the employment effect represents a combination of demand and supply effects, which may include employment reductions among the least-skilled from demand reductions, employment increases among the more-skilled from demand increases, and supply shifts as, for example, wages and hours of family members change.

[29] If this estimated employment effect is compared with the estimated wage effect, the evidence indicates an employment elasticity with respect to the "realized" wage increase of -2.6 ($\{-7.63/.44\}/-6.68$), larger than the -0.5 figure that is taken as a consensus in the labor demand literature (Hamermesh, 1993). (Note that this refers to the overall labor demand elasticity, not the elasticity of labor demand with respect to minimum wages; the latter is necessarily smaller because the minimum wage increases relatively few workers' wages, and even then typically not dollar for dollar.) This suggests that the estimated negative employment effect, insofar as it arises solely due to the "average" wage effect of living wages, is larger than would be expected. However, living wages may entail greater increases in projected future labor costs than the wage increase that identifies the

typical labor demand elasticity, given their frequent indexation. Also, this elasticity focuses on one narrow category of workers, rather than labor overall, so that substitution possibilities may be considerably greater.

[30] This is still true if we exclude those business assistance cities where laws apply only to business assistance recipients and not to firms under contract.

[31] One might actually expect weaker effects on wages when living wage laws can be superseded by collective bargaining. The voice mechanism that unions allow, and the flexibility to forego the wage level mandated by the living wage law, may result in unions using the leverage provided by living wage laws to push for other benefits or conditions of employment rather than higher wages. Fairris (this issue) presents some other evidence for city contractors in Los Angeles suggesting that the positive wage impact of the city's living wage laws was smaller for unionized contractors.

[32] Although laws classified as having narrow enforcement/implementation are more prevalent among contractor-only laws, if we instead contrasted narrow laws with broad/medium laws the results were more anomalous.

[33] The effect of living wages with these characteristics is 10.71 (17.66 – 5.24 – 1.71), and this estimate has a standard error of 4.25.