Waiting to Work: The Effects of Occupational Licensing on Wages and Employment

By Mark Gius, Ph.D.

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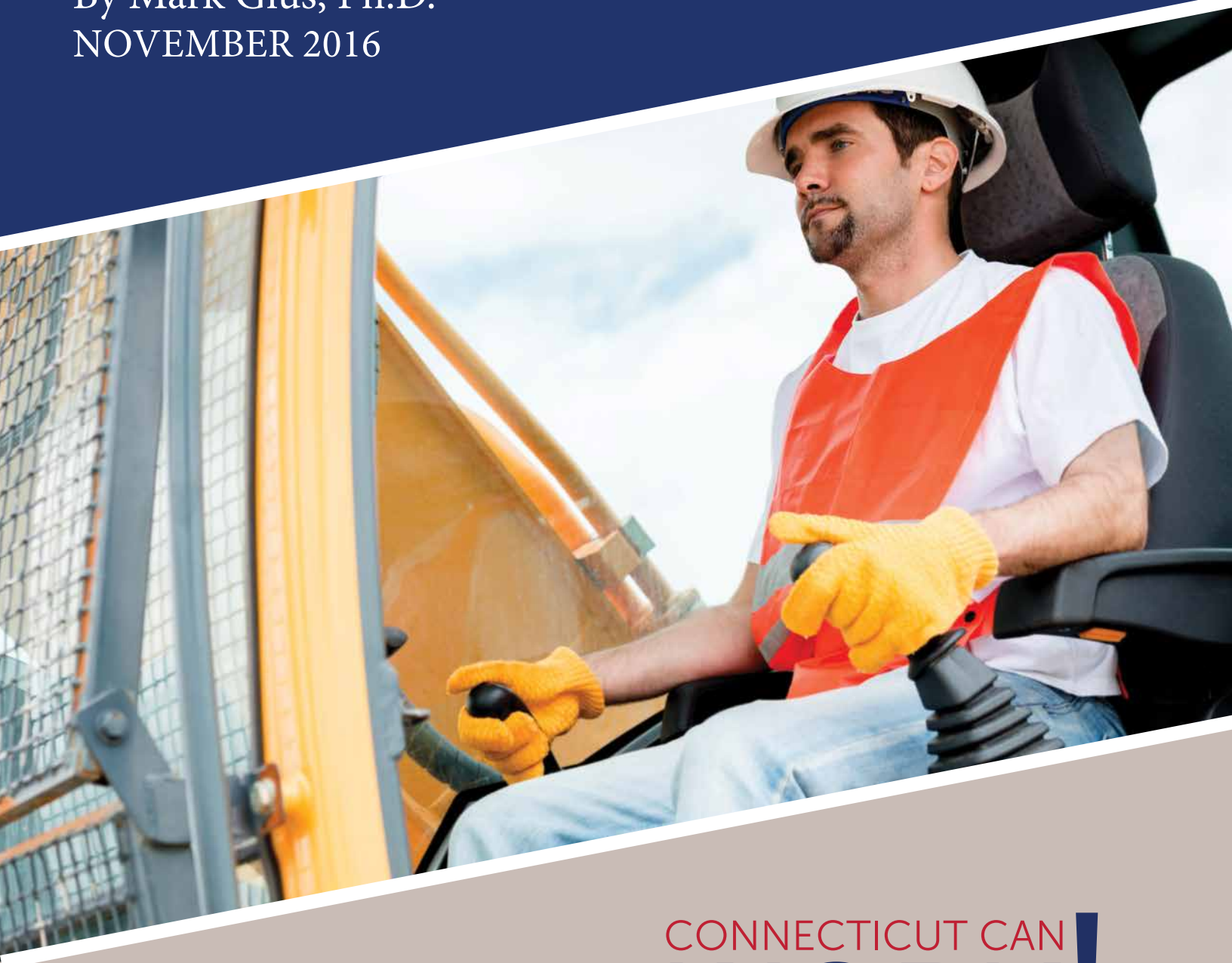

CONNECTICUT CAN WORK!

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Letter from The Yankee Institute

It is time for lawmakers to rethink Connecticut's burdensome regulatory system. Because Connecticut has so many regulations, reform will help spur the state's struggling economy, and open the way for the private sector to create more and better jobs.

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Since 1990, Connecticut has added the fewest jobs of any state in the nation. The state continues to lag behind the nation in per capita income growth and state GDP growth. For Connecticut to re-open for business, it must encourage entrepreneurship and allow aspirational workers a chance to succeed. One way to clear the path for those seeking work is through sensible policy, like reforming our state's burdensome occupational licensing requirements.

Occupational licensing reform has become a prominent issue across the ideological spectrum. The ability to freely choose a trade and earn a living is fundamental to the American Dream. For too many, however, Connecticut's regulatory climate is a maze-like nightmare of red tape and barriers. Unnecessary occupational licensing is one way that the state puts regulatory obstacles between ambitious workers and their dreams.

Imagine the perspective of an entrepreneurially-minded young person. College is expensive. Student debt often outweighs opportunities. This young worker chooses to forgo a four-year degree, instead choosing to join the workforce and get a head start on his career. He wants to install auto glass, but before being allowed to work in his chosen trade, the young worker must complete a year-long apprenticeship, including 144 hours of classroom time, work at least two years as a journeyman, pay hundreds of dollars of fees and take multiple exams. Only then can he become a fully-licensed automotive glass contractor. By contrast, a mechanical engineering degree from UConn only requires 95 credit hours specific to the curriculum.

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Likewise, a stay-at-home mom might want to supplement her family's income by becoming a massage therapist. Unfortunately for her, to be a licensed massage therapist, the state requires her to pay a $375 fee, complete 500 hours of education, and pass an exam, just for the privilege of working in Connecticut. This kind of regulatory regime hurts our state's economy overall, particularly workers.

In the following research paper, Mark Gius, Ph.D., an economics professor at Quinnipiac University, notes that occupational licensing has increased substantially nationwide since 1950, so that one in three occupations in the United States now require a state-issued license. One supposed justification for licensure is enhancing consumer safety. But if safety truly is the rationale, why must an athletic trainer complete a four-year degree, while an emergency medical technician needs only 30 days of training? Why would the athletic trainer's licensing fees cost more than five times the EMT's?

In too many cases, Connecticut is an outlier. For example, Connecticut is the only state in the nation that requires

Connecticut needs to become a place where workers' primary concern is finding a job and serving their customers, not surviving a regulatory obstacle course.

conveyor operators and forest workers to be licensed. Unless Connecticut conveyors and forests are uniquely dangerous, these additional requirements hardly seem justified.

Gius' research demonstrates that occupational licensing affects both the wages for those working in a licensed occupation, and also the occupation's per capita employment rates. He notes that if licensing does, in fact, erect barriers of entry for job-seeking individuals, then two assumptions should generally prove to be true: states requiring a license should see both (1) higher wages for those in a licensed occupation; and (2) lower rates of employment in a given occupation, than states without a licensing requirement.

Gius shows that occupational licensing does affect the wages and employment rates for a number of the jobs examined. Although "higher wages" for a given occupation may sound desirable, there are two points worth noting. First, licensing produces artificially inflated wages at the cost of disqualifying individuals who are willing to do the same work for more competitive rates, thereby resulting in higher prices than the market otherwise would bear. Second, the increased financial burdens placed on service workers by licensure are ultimately passed along to the consumer.

In fact, even as they frustrate willing workers and result in increased costs to consumers, it is unclear that additional licensure requirements produce any safety benefit for either. Connecticut needs to become a place where workers' primary concern is finding a job and serving their customers, not surviving a regulatory obstacle course.

- Yankee Institute

Abstract

The present study examines a wide variety of occupations in order to determine if licensing requirements have any statistically significant effects on occupational earnings and employment. State-level data for the years 2000-2012 were used in a random effects analysis; control variables used include per capita income, educational attainment, union coverage, and other socioeconomic factors. Data was obtained from the Occupational Employment Statistics Survey and various Census Bureau reports. Results suggest that licensing increases wages for bartenders, child care workers, crane operators, and opticians, and reduces per-capita employment for opticians, pharmacy technicians, taxi drivers, teacher's assistants, and veterinary technicians. For those affected occupations, licensing increased wages by anywhere from 14.9 percent (bartenders) to 32.5 percent (child care workers). These increased wages, more accurately the premium over what the same occupation earns in other states without licensing requirements, represents increased costs to the consumer. This study is one of the first in this area to use a random effects analysis and finds that occupational licensing requirements have negative impacts on several occupational labor markets.

JEL Codes: J28, J38, J44

Keywords: occupational licensing; random effects; wages; employment

Introduction

According to a recent article by Meehan (2015), one in three occupations in the United States requires a state-issued license. This ratio is up substantially from the 1950s. Given that occupational licensing may have impacts on both goods and labor markets, this increase in occupational licensing is significant. In general, there are two schools of thought regarding the economic effects of occupational licensing.

The first contends that licensing protects consumers by reducing uncertainty regarding the quality of service provided by certain occupations. Hence, occupational licensing is a form of consumer protection against shoddy workmanship and is a way to ensure consumer safety. In addition, occupational licensing sets minimum standards for training and education, thus reducing the potential asymmetry of the market. Given the shift to a more service-oriented economy, this positive impact is even more relevant than in decades past. Although appealing on their face, there is little research to show that such assertions are, in fact, true.

The second school of thought, however, is well documented. It contends that occupational licensing provides a mechanism by which the state can restrict employment in certain labor markets to favor certain well-organized political groups. Some states require the licensing of occupations that have little to do with quality or safety. For example, according to Carpenter, Knepper, Erickson, and Ross (2012), interior designers have the most onerous licensing requirements (an average of 2,190 days of education required) of any occupation that they examined, and it is unclear what safety or quality issue exists regarding the employment of an interior designer. It is important to note, however, that only three states and the District of Columbia require interior designers to obtain a license. Hence, according to this school of thought, occupational licensing acts as a barrier to entry, which reduces the labor supply of a particular occupation, thus increasing wages and reducing employment in that occupation while at the same time raising consumer costs and reducing availability of providers.

Before proceeding with a discussion of the previous literature in this area, it is important to note several important features about occupational licensing in the United States. First, the vast majority of occupational licensing is done at the state-level. Some larger cities may impose additional licensing requirements, but these are rather limited. Second, although many states require some type of business license, the present study and prior research focus on individual-level occupational licensing requirements. For example, in

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some states, individuals must be licensed in order to perform the duties of a travel agent. In other states, however, only the business itself has to be registered or licensed to operate; individuals working for a travel agency do not have to be licensed. The present study focuses on individual occupational licenses. Third, there is a difference between voluntary occupational certification and mandatory occupational licensure. Certification is not a prerequisite for performing the duties of a particular occupation, but licensure is. States that have certification programs typically allow those individuals who meet certain personal qualifications to obtain the certification and use the title "certified." Given that this is not required in order to perform the duties of a particular occupation, most studies, including the present one, differentiate between certification and licensure, even though the personal qualifications required for either in a given profession can be identical. In 2012, Wyoming had the fewest number of occupations that had a required educational component (11); Arizona had the most (51). Finally, occupational licensing does not appear to be correlated with state-level politics. Many states that have rather onerous occupational requirements would be considered to be rather politically conservative, such as Arizona and Louisiana.

Regarding prior research in this area, thus far, all studies have found that licensing restrains entry into occupations, allows licensees to increase prices to consumers, and thus increases wages. Meehan (2015) looked at state-level data for security guards for the period 1998-2010 and found that experience requirements had a significant and positive but declining effect on average wages. Timmons and Mills (2015) looked at individual-level data for opticians for the years 1940-2012 and found that more stringent licensing requirements increased earnings by 2-3 percent. Thornton and Timmons (2013) looked at individual-level data for massage therapists for the period 2000-2009 and found that licensing increased wages by as much as 16.2 percent. Gittleman and Kleiner (2013) used National Longitudinal Survey of Youth (NLSY) data for 2006-2008 and found that occupational licensing in general increased earnings by 18 percent. Kleiner and Krueger (2013) used survey data from 2008 and found that licensing also increased wages by 18 percent. Another Kleiner and Krueger (2010) study used Gallup survey data from 2006 and found that licensing increased wages by approximately 15 percent. Timmons and Thornton (2010) looked at individual-level data for barbers for the year 2000 and found that licensing increases barbers' earnings between 11 and 22 percent. Finally, Timmons and Thornton (2007) looked at individual-level data for radiologic technologists and found that licensing increased earnings by 3.3-6.9 percent. As can be ascertained from the preceding discussion, most prior studies used individual-level data and looked at only one occupation. In addition, most of the above mentioned articles used OLS regressions; only three prior studies capitalized on the longitudinal nature of their data and used fixed or random effects.

The present study differs from this prior research in several ways. First, this study will examine a number of different occupations in order to determine if licensing has any significant effects on not only wages but also per capita employment. We should observe not only higher wages but relatively fewer individuals engaged in a licensed occupation if the barrier to entry theory holds true. Second, a very large and very recent data set will be used. Third, in order to control for state and year effects, a random effects model will be used to estimate the determinants of wages and employment. Finally, data obtained from the Occupational Employment Statistics Survey will be used in this study.

Empirical Technique and Data

In order to determine if occupational licenses affect wages and per capita employment, a random effects model that controls for both state-level and year effects is used; random, instead of fixed effects, was used primarily because several time invariant variables were used in the regressions. All observations were weighted using state-level population, standard errors were corrected using a clustering method, and, for the wage regression, two functional forms were estimated, linear and log-linear. This technique is similar to that used by other studies in this area.

Given the above, the following equation is estimated in the present study:

$$Y_{i,t} = \alpha_0 + \alpha_i + \gamma_t + \beta' X + \varepsilon_{i,t}$$

In the above equation, y denotes either the wage rate or per capita employment, αi denotes the state-level effects, γ_t denotes the year effects, and X denotes the vector of explanatory variables which includes the occupational licensing dummy variables.

Regarding the occupational licensing dummy variable, if a state requires a license for the occupation in question, then the licensing dummy variable equals one; otherwise, it equals zero. It is important to note, however, that some states have certification, and not licensure, of certain occupations. As noted previously, the difference between licensure and certification is that licensure is required in order to practice the occupation in question in a given state, while certification is not. In states where there is only certification of an occupation, the licensing dummy variable equals zero. In addition, in some states, the occupation itself is not licensed, but rather the business is. In states such as these, individuals working for a business do not necessarily have to be licensed. In states such these, the licensing variable also equals zero.

Regarding the dependent variables estimated in the present study, two measures of labor market performance are examined. The first is the state-level average wage of the occupation in question in a given state. It is common in wage estimation studies to use the log of wages as the dependent variable. Given, however, that state-level data is used, both log-linear and linear models will be estimated in the present study. The second labor market outcome is the per capita employment of the occupation in question. This variable is calculated by dividing the total employment of the occupation in question by the population in the state. Regarding expected results, if licensing acts as a barrier to entry, then it is reasonable to assume that states with occupational licensing will have lower per capita employment and higher wages for the licensed occupation. If, however, licensing is more pertinent for consumer safety and it does act as a barrier to entry, then licensing may not have significant effects on either wages or employment for that specific occupation.

In addition to occupational licenses, it is also assumed that wages and per capita employment are dependent upon state demographics and various other state-level socioeconomic factors. One prior study that used state-level data (Meehan, 2015) used as control variables per capita income, population, the unemployment rate, and the minimum wage. In the present study, the control variables include the percentage of the state population that is African-American, percentage of the state population that is white, percentage of the state population that is Hispanic, per capita real income, percentage of population that is college educated, unemployment rate, population density, percentage of state labor force that is unionized, and a dummy variable denoting whether or not the state is located in the South. The following occupations were examined: bartenders, child care workers, crane operators, massage therapists, opticians, pharmacy technicians, security guards, taxi drivers, teacher's assistants, travel agents, and veterinary technicians. These occupations were selected because of their diversity in state-level licensing requirements and the availability of data.

Data for all fifty states for the period 2000-2012 were collected. State-level data on occupational employment and wages were obtained from the Occupational Employment Statistics Survey, which were provided by the Bureau of Labor Statistics, U.S. Department of Labor. Information on occupational licensing requirements was obtained from Carpenter, Knepper, Erickson, and Ross (2012) and Summers (2007). If there was a discrepancy between these two secondary sources, the relevant state statute regarding occupational licensing was examined in order to verify the licensure requirements. All other state-level data were obtained from relevant Census Bureau reports. All dollar denominated variables were deflated using the Consumer Price Index.

Results and Conclusions

Results are presented on Tables 1-11. These results suggest that licensing increases wages for bartenders, child care workers, crane operators, and opticians and reduces per capita employment for opticians, pharmacy technicians, taxi drivers, teacher's assistants, and veterinary technicians. For these affected occupations, licensing increased wages by anywhere from 14.9 percent (bartenders) to 32.5 percent (child care workers). The coefficient on the licensing variable in the log linear regression is interpreted as being a percentage change in the dependent variable (wages).

It is important to note, however, that for some occupations, states with licensing requirements actually had higher per capita employment levels for those particular occupations. These occupations include child care workers, massage therapists, security guards, and travel agents. Hence, licensing in those states clearly did not restrict employment. Finally, for one occupation (teacher's assistant), states with licensing requirements actually had lower average wages than states without licensing requirements.

Although licensing does not affect all of the occupations examined in the present study, these results were not unexpected. For example, although most states require licensing for massage therapists (37 states), the licensing fees and training periods are very similar across states. Most fees are between $100 and $200, and most training periods are 117 days. Another noteworthy point is that the significance of licensing apparently is not affected by the stringency of the licensing requirement. For example, although the results of the present study suggest that the average wage for bartenders in states with licensing requirements is 14.9 percent higher than the average wage in states without such requirements, most states have no education or training requirement, and the highest licensing fee in 2012 was $58. This is in contrast to massage therapists whose licensing fees were much greater (as high as $775) and whose educational requirements were also very extensive (most licensing states require at least 117 days of training), and yet licensing had no statistically-significant effects on wages.

These results suggest that, even though they are inconsistent across states, licensing requirements may impose significant barriers to entry and may restrict employment and investment opportunities.

These results suggest that, even though they are inconsistent across states, licensing requirements may impose significant barriers to entry and may restrict employment and investment opportunities. In addition, the results of this study suggest that licensing requirements increase wages for certain occupations, thus resulting in higher prices for the services performed by these professionals.

This is one of the first studies on the topic of occupational licensing requirements that looks at several different

occupations, uses state-level data, and controls for both state and year effects. Some of the results obtained in prior studies showing the significant and positive impact of licensing requirements on wages may be due to these differences in data and methodologies. In addition, the present study did not use as explanatory variables any measures of the stringency of state-level licensing requirements. The primary reason for this is because those states with no licensing for a particular occupation would obviously have no licensing requirements (fees or training periods) for that occupation. The inclusion of such variables may result in multicollinearity or a specification bias. Finally, the methodology employed in this study is not useful for examining the effects of state-level licensing for occupations that are universally licensed or for occupations that very few states license.

Nonetheless, occupational licensing does affect the wages and/or employment of a number of occupations examined in the present study. For several of these occupations, such as bartending, it is unclear what consumer safety or informational asymmetry problem is resolved through the use of licensing. Given that bartenders in licensed states earn almost 15 percent more than bartenders in non-licensed states, it is worthwhile to pose the question of whether or not consumers benefit because of these higher wages paid to bartenders. Although that issue is not addressed in the present study, it is an interesting question that a few other studies have tested, showing no increase in quality and which should be addressed in future research (Kleiner, 1992).

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Appendix

The results presented in the following tables can be interpreted as follows: The first number listed in each cell is the coefficient for that particular variable. For example, 0.149 is the coefficient for the variable "License" when the logarithm of wages is the dependent variable. For the explanatory variables that are dummy variables ("License" and "State that is Located in the South"), the coefficient in the "Wages" regressions and the "Per Capita Employment" regressions are interpreted as follows: wages are $0.499 higher and per capita employment is 0.00029 higher in states with licensing requirements than in states without licensing requirements. For all other variables, the coefficients are interpreted as the change in the dependent variable (wages or per capita employment) for every one unit increase in the explanatory variable. For the "Log of Wages" regression, the coefficients on the dummy variables are interpreted as the percentage differences in wages between states that have licensing requirement or are in the South and those that are not. For all other variables, the coefficients are interpreted as the percentage change in the wages for every one unit change in the explanatory variable.

Finally, if there is at least one asterisk in the cell, then that variable is said to be statistically significant. This means that the coefficient was found to be significantly different from 0, and hence that variable actually has an impact on the dependent variable. If there is no asterisk, then that variable is statistically insignificant, and it was found to have no effect on the dependent variable. Variables that are insignificant should be ignored.

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Fixed Effects Regression

Table 1 - Fixed Effects Regression

Bartenders

Variable	Log of wages	Wages	Per capita employment
Constant	4.13 (55.43)***	13.21 (36.82)***	0.00988 (26.45)***
License	0.149 (9.74)***	0.499 (6.79)***	0.00029 (4.21)***
Population density	-0.000005 (-0.16)	-0.00024 (-1.48)	-0.0000036 (-11.53)***
Real per capita median income	-0.00003 (-10.32)***	-0.00011 (-8.77)***	0.00001 (4.65)***
Proportion of population with college degree	1.65 (10.76)***	9.042 (12.25)***	-0.00413 (-5.43)***
Unemployment rate	-3.26 (-12.88)***	-11.36 (-9.31)***	-0.00569 (-5.79)***
Proportion of population that is white	-1.69 (-37.19)***	-7.09 (-32.41)***	-0.00019 (-1.03)
Proportion of population that is black	-5.89 (-55.86)***	-20.04 (-39.65)***	-0.0219 (-22.69)***
Proportion of population that is Hispanic	-3.29 (-57.53)***	-10.56 (-38.44)***	-0.0056 (-15.52)***
Proportion of labor force that is unionized	-0.04 (-0.28)	5.55 (8.18)***	-0.00397 (-5.19)***
State is located in the South	0.113 (4.99)***	0.669 (6.19)***	-0.00274 (-12.62)***

Year and state dummies are not shown. Test statistics are in parentheses.

*5%< p-value < 10%; ** 1%< p-value < 5%; *** p-value<1%

Table 2 - Fixed Effects Regression

Child Care Workers

Variable	Log of wages	Wages	Per capita employment
Constant	2.22 (52.16)***	5.06 (26.10)***	0.0084 (20.62)***
License	0.325 (36.46)***	0.965 (23.27)***	0.00271 (26.60)***
Population density	-0.00006 (-2.86)***	-0.000001 (-0.02)	-0.0000003 (-1.40)
Real per capita median income	-0.000001 (-0.94)	0.000016 (2.39)**	-0.000001 (-1.50)
Proportion of population with college degree	-0.0239 (-0.28)	1.47 (3.72)***	-0.00864 (-10.38)***
Unemployment rate	-0.743 (-5.06)***	-0.536 (-0.81)	-0.00955 (-7.58)***
Proportion of population that is white	-0.328 (-12.80)***	-0.698 (-6.02)***	-0.000045 (-0.20)
Proportion of population that is black	-2.90 (-48.31)***	-8.40 (-30.17)***	-0.0107 (-16.01)***
Proportion of population that is Hispanic	-1.91 (-59.53)***	-5.42 (-36.56)***	-0.0067 (-19.93)***
Proportion of labor force that is unionized	-0.825 (-10.51)***	-0.329 (-0.92)	-0.0126 (-16.25)***
State is located in the South	-0.023 (-1.81)*	-0.00191 (-0.03)	-0.0008 (-5.53)***

Year and state dummies are not shown. Test statistics are in parentheses.

*5%< p-value < 10%; ** 1%< p-value < 5%; *** p-value<1%

Table 3 - Fixed Effects Regression

Crane Operators

Variable	Log of wages	Wages	Per capita employment
Constant	1.84 (10.84)***	6.08 (3.71)***	0.00089 (9.41)***
License	0.042 (1.60)	0.668 (2.49)**	-0.000007 (-0.47)
Population density	-0.00006 (-1.00)	-0.00073 (-1.15)	-0.000001 (-0.20)
Real per capita median income	0.000012 (2.53)**	0.00009 (1.99)**	-0.000001 (-2.58)***
Proportion of population with college degree	0.414 (1.28)	4.25 (1.33)	-0.0008 (-4.03)***
Unemployment rate	1.25 (3.55)***	13.57 (4.25)***	-0.00172 (-6.06)***
Proportion of population that is white	-0.075 (-0.64)	-1.08 (-0.99)	0.00004 (0.77)
Proportion of population that is black	0.148 (0.72)	0.704 (0.34)	-0.0014 (-9.75)***
Proportion of population that is Hispanic	0.336 (3.14)***	3.72 (3.21)***	-0.00096 (-12.39)***
Proportion of labor force that is unionized	0.785 (2.84)***	10.57 (3.68)***	-0.000009 (-0.05)
State is located in the South	-0.098 (-2.38)**	-0.858 (-1.98)**	0.00016 (5.24)***

Year and state dummies are not shown. Test statistics are in parentheses.

*5%< p-value < 10%; ** 1%< p-value < 5%; *** p-value<1%

Table 4 - Fixed Effects Regression

Massage Therapists

Variable	Log of wages	Wages	Per capita employment
Constant	1.61 (8.12)***	4.23 (2.29)**	0.0006 (10.04)***
License	0.009 (0.33)	0.094 (0.37)	0.000047 (6.52)***
Population density	-0.000004 (-0.05)	-0.00024 (-0.33)	-0.0000003 (-9.78)***
Real per capita median income	0.000002 (0.44)	-0.0000053 (-0.10)	0.000001 (2.57)***
Proportion of population with college degree	0.91 (2.29)**	9.09 (2.48)**	0.00042 (3.32)***
Unemployment rate	-0.56 (-1.46)	-7.62 (-2.08)**	-0.00019 (-0.95)
Proportion of population that is white	0.17 (1.31)	1.40 (1.14)	-0.00061 (-17.52)***
Proportion of population that is black	-0.075 (-0.32)	-0.315 (-0.15)	-0.00065 (-10.12)***
Proportion of population that is Hispanic	0.105 (0.69)	0.606 (0.44)	-0.00026 (-5.43)***
Proportion of labor force that is unionized	1.12 (3.03)***	12.39 (3.70)***	0.00049 (4.23)***
State is located in the South	0.007 (0.13)	0.167 (0.34)	-0.00014 (-7.91)***

Year and state dummies are not shown. Test statistics are in parentheses.

*5%< p-value < 10%; ** 1%< p-value < 5%; *** p-value<1%

Table 5 - Fixed Effects Regression

Opticians

Variable	Log of wages	Wages	Per capita employment
Constant	1.53 (11.34)***	4.29 (3.45)***	0.00126 (22.03)***
License	0.161 (6.96)***	1.205 (6.00)***	-0.00019 (-16.95)***
Population density	0.00016 (2.86)***	0.00159 (3.16)***	-0.000001 (-1.77)*
Real per capita median income	0.0000034 (0.96)	-0.0000055 (-0.16)	0.000001 (3.90)***
Proportion of population with college degree	0.944 (4.66)***	6.57 (2.76)***	-0.000024 (-0.21)
Unemployment rate	-0.533 (-2.07)**	-5.268 (-2.20)**	-0.00143 (-7.69)***
Proportion of population that is white	0.122 (1.50)	0.536 (0.65)	-0.00029 (-8.35)***
Proportion of population that is black	0.100 (0.79)	0.145 (0.09)	-0.00166 (-20.12)***
Proportion of population that is Hispanic	-0.108 (-2.04)**	-0.00578 (-0.01)	-0.00119 (-26.41)***
Proportion of labor force that is unionized	0.904 (5.83)***	6.38 (2.96)***	-0.00243 (-22.47)***
State is located in the South	0.0267 (1.12)	-0.00299 (-0.01)	-0.00017 (-9.63)***

Year and state dummies are not shown. Test statistics are in parentheses.

*5%< p-value < 10%; ** 1%< p-value < 5%; *** p-value<1%

Table 6 - Fixed Effects Regression

Pharmacy Technician

Variable	Log of wages	Wages	Per capita employment
Constant	1.41 (8.11)***	3.53 (3.84)***	0.00199 (15.50)***
License	0.021 (0.83)	0.13 (0.84)	-0.00013 (-5.14)***
Population density	-0.00011 (-1.79)*	-0.00073 (-2.05)**	0.0000007 (13.11)***
Real per capita median income	0.000015 (2.82)***	0.000082 (3.19)***	-0.000001 (-5.90)***
Proportion of population with college degree	0.224 (0.68)	1.169 (0.65)	-0.0029 (-11.39)***
Unemployment rate	1.159 (3.16)***	5.83 (3.29)***	-0.00291 (-6.66)***
Proportion of population that is white	-0.0597 (-0.50)	0.054 (0.09)	0.00044 (5.90)***
Proportion of population that is black	-0.235 (-1.13)	-1.128 (-0.95)	-0.00161 (-8.92)***
Proportion of population that is Hispanic	0.31 (2.84)***	2.25 (3.32)***	-0.00115 (-11.92)***
Proportion of labor force that is unionized	0.381 (1.36)	3.43 (2.10)**	0.00056 (2.36)**
State is located in the South	-0.019 (-0.45)	-0.088 (-0.35)	0.00032 (8.34)***

Year and state dummies are not shown. Test statistics are in parentheses.

*5%< p-value < 10%; ** 1%< p-value < 5%; *** p-value<1%

Table 7 - Fixed Effects Regression

Security Guard

Variable	Log of wages	Wages	Per capita employment
Constant	1.044 (3.69)***	2.14 (2.41)**	0.00214 (4.81)***
License	0.0102 (0.24)	0.0442 (0.37)	0.00031 (2.10)**
Population density	-0.00012 (-1.19)	-0.0006 (-2.09)**	0.0000018 (5.64)***
Real per capita median income	0.000034 (4.14)***	0.00012 (4.29)***	0.00001 (2.14)**
Proportion of population with college degree	-0.589 (-1.09)	2.022 (1.22)	-0.00298 (-3.32)***
Unemployment rate	1.802 (3.10)***	6.76 (3.51)***	-0.00454 (-3.78)***
Proportion of population that is white	0.142 (0.73)	0.542 (0.87)	-0.00184 (-8.15)***
Proportion of population that is black	-0.148 (-0.43)	-0.665 (-0.64)	0.00193 (1.92)*
Proportion of population that is Hispanic	-0.186 (-1.00)	-0.931 (-1.80)*	0.00142 (3.49)***
Proportion of labor force that is unionized	-0.035 (-0.07)	0.676 (0.48)	0.0107 (12.07)***
State is located in the South	-0.0249 (-0.35)	-0.0248 (-0.12)	0.00138 (6.26)***

Year and state dummies are not shown. Test statistics are in parentheses.

*5%< p-value < 10%; ** 1%< p-value < 5%; *** p-value<1%

Table 8 - Fixed Effects Regression

Taxi Driver

Variable	Log of wages	Wages	Per capita employment
Constant	1.32 (8.77)***	3.71 (4.31)***	0.0013 (6.85)***
License	-0.0139 (-0.40)	-0.099 (-0.52)	-0.00057 (-4.18)***
Population density	0.00004 (0.74)	0.00017 (0.57)	-0.0000012 (-6.37)***
Real per capita median income	0.0000017 (0.38)	-0.000014 (-0.57)	0.000001 (4.79)***
Proportion of population with college degree	0.629 (2.16)**	5.15 (3.10)***	0.00124 (3.24)***
Unemployment rate	-0.139 (-0.45)	-2.18 (-1.20)	-0.0011 (-2.39)**
Proportion of population that is white	-0.022 (-0.22)	-0.336 (-0.58)	-0.00016 (-1.83)*
Proportion of population that is black	0.133 (0.72)	0.58 (0.56)	-0.00123 (-2.31)**
Proportion of population that is Hispanic	0.149 (1.47)	0.702 (1.24)	-0.0007 (-3.95)***
Proportion of labor force that is unionized	0.769 (3.00)***	4.38 (3.04)***	0.00056 (1.48)
State is located in the South	-0.017 (-0.44)	-0.00152 (-0.01)	-0.00088 (-7.25)***

Year and state dummies are not shown. Test statistics are in parentheses.

*5%< p-value < 10%; ** 1%< p-value < 5%; *** p-value<1%

Table 9 - Fixed Effects Regression

Teacher's Assistant

Variable	Log of wages	Wages	Per capita employment
Constant	2.92 (44.99)***	7.48 (21.33)***	0.0174 (23.94)***
License	-0.235 (-7.41)***	-0.932 (-5.57)***	-0.00283 (-5.43)***
Population density	-0.000013 (-0.36)	-0.00008 (-0.42)	-0.000006 (-11.63)***
Real per capita median income	0.000009 (4.76)***	0.000085 (7.58)***	0.00000017 (7.98)***
Proportion of population with college degree	-0.691 (-5.10)***	-1.98 (-2.71)***	0.00227 (1.50)
Unemployment rate	-0.992 (-5.12)***	-0.269 (-0.26)	-0.00698 (-3.67)***
Proportion of population that is white	-0.348 (-10.05)***	-1.02 (-5.44)***	-0.00112 (-2.94)***
Proportion of population that is black	-5.47 (-47.18)***	-18.74 (-30.48)***	-0.04154 (-23.84)***
Proportion of population that is Hispanic	-2.49 (-45.31)***	-8.76 (-29.76)***	-0.0142 (-20.14)***
Proportion of labor force that is unionized	0.609 (4.88)***	8.82 (13.13)***	-0.021 (-14.24)***
State is located in the South	0.0664 (2.66)***	0.462 (3.49)***	-0.00429 (-11.25)***

Year and state dummies are not shown. Test statistics are in parentheses.

*5%< p-value < 10%; ** 1%< p-value < 5%; *** p-value<1%

Table 10 - Fixed Effects Regression

Travel Agent

Variable	Log of wages	Wages	Per capita employment
Constant	1.603 (9.37)***	4.94 (4.22)***	0.00152 (17.30)***
License	-0.0207 (-0.59)	-0.0697 (-0.27)	0.00027 (9.65)***
Population density	-0.00004 (-0.71)	-0.00023 (-0.56)	-0.000001 (-2.10)**
Real per capita median income	0.000019 (3.57)***	0.00011 (3.17)***	0.00001 (0.59)
Proportion of population with college degree	-0.151 (-0.47)	-0.441 (-0.20)	0.0003 (1.70)*
Unemployment rate	0.509 (1.39)	2.089 (0.86)	-0.00109 (-3.76)***
Proportion of population that is white	0.019 (0.16)	0.1009 (0.12)	-0.00094 (-18.48)***
Proportion of population that is black	0.0178 (0.09)	0.378 (0.26)	-0.00196 (-14.97)***
Proportion of population that is Hispanic	0.0425 (0.39)	0.379 (0.48)	-0.00114 (-16.34)***
Proportion of labor force that is unionized	0.123 (0.45)	1.19 (0.60)	-0.00082 (-4.92)***
State is located in the South	0.0157 (0.38)	0.053 (0.18)	-0.00026 (-9.21)***

Year and state dummies are not shown. Test statistics are in parentheses.

*5%< p-value < 10%; ** 1%< p-value < 5%; *** p-value<1%

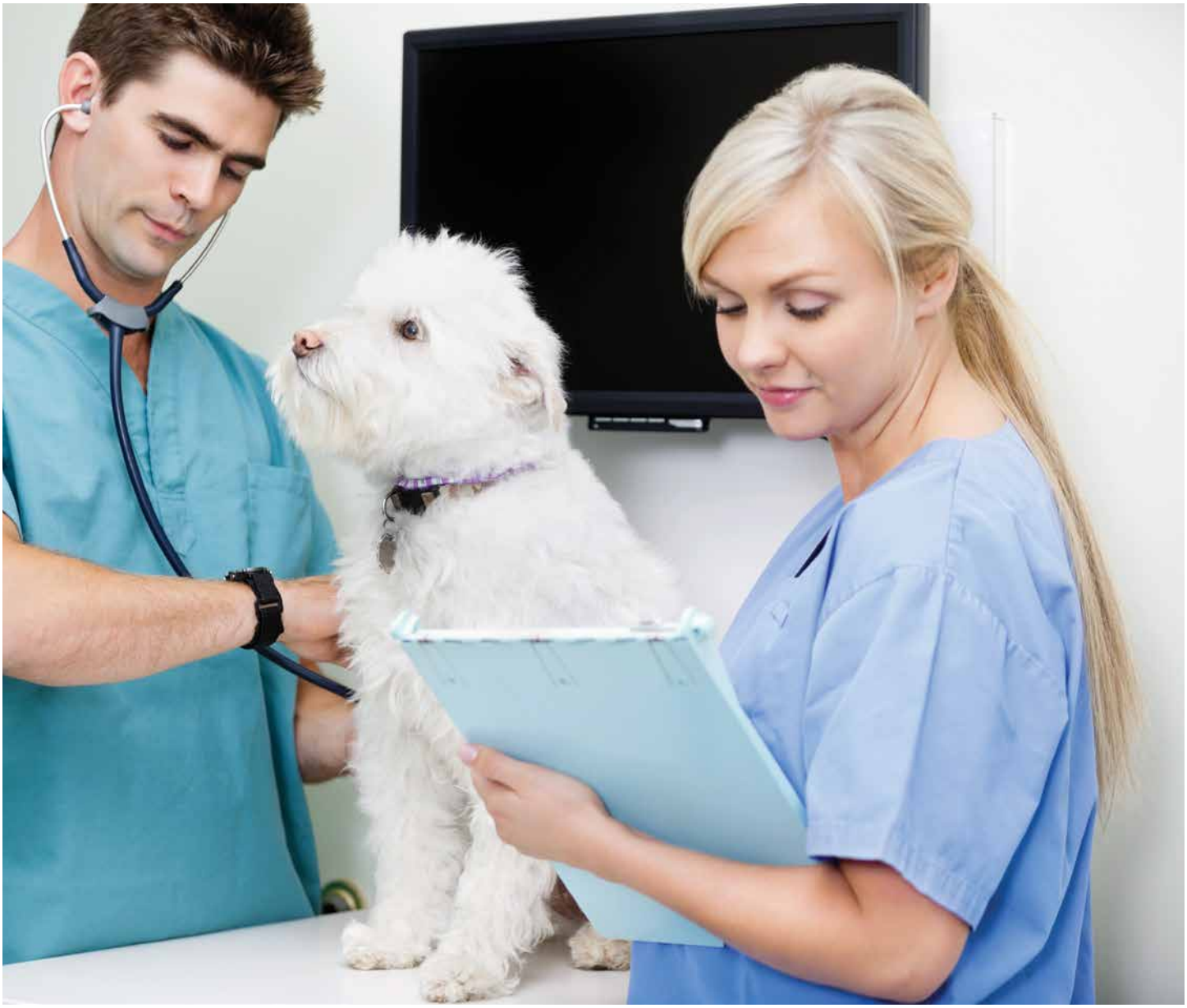
Table 11 - Fixed Effects Regression

Veterinary Technician

Variable	Log of wages	Wages	Per capita employment
Constant	1.41 (12.52)***	4.07 (3.83)***	0.00039 (7.39)***
License	0.023 (1.27)	0.233 (1.14)	-0.00042 (-29.75)***
Population density	-0.000023 (-0.61)	-0.00006 (-0.14)	-0.0000002 (-8.02)***
Real per capita median income	0.000004 (1.03)	-0.000004 (-0.12)	0.00001 (5.32)***
Proportion of population with college degree	0.906 (4.35)***	6.944 (3.43)***	0.00074 (6.65)***
Unemployment rate	0.569 (2.23)***	2.98 (1.34)	-0.00052 (-3.14)***
Proportion of population that is white	0.109 (1.35)	0.509 (0.69)	0.00029 (9.28)***
Proportion of population that is black	0.196 (1.48)	0.884 (0.67)	-0.00132 (-15.15)***
Proportion of population that is Hispanic	0.072 (1.17)	0.79 (1.13)	-0.00116 (-26.16)***
Proportion of labor force that is unionized	0.266 (1.50)	0.995 (0.54)	-0.00012 (-1.09)
State is located in the South	-0.0869 (-3.45)***	-0.64 (-2.43)**	0.000023 (1.27)

Year and state dummies are not shown. Test statistics are in parentheses.

*5%< p-value < 10%; ** 1%< p-value < 5%; *** p-value<1%



CONNECTICUT CAN WORK!

About Connecticut Can Work!

Connecticut Can Work! is a new initiative to develop and advance policies that will spur job creation and economic growth. Yankee Institute proposes reforms that will open up opportunity, allow employers to grow and ensure that those who succeed are welcome in our state.

CONNECTICUT CAN WORK!

The Yankee Institute For Public Policy

The Yankee Institute develops and advances free-market, limited-government solutions in Connecticut. As one of America's oldest state-based think tanks, Yankee is a leading advocate for smart, limited government; fairness for taxpayers; and an open road to opportunity.

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