TIP CREDITS AND EMPLOYMENT

in the U.S. Restaurant Industry

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

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Table of Contents

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Executive Summary

Few parts of the Fair Labor Standards Act (FLSA) are more poorly understood than provisions relating to tipped employees.

Though the federal minimum wage is set at $7.25 an hour, the FLSA permits tipped employees to be paid a cash wage of $2.13 an hour—so long as the employee earns at least the federal minimum of $7.25 when their tips are included. The difference between the cash wage and the federal minimum wage is called the tip credit.

Employers are required to make up the difference if an employee's total wages fall below $7.25 per hour. But this typically isn't a problem; an analysis of Bureau of Labor Statistics data shows that the average hourly wage of a tipped employee, when tips are included, is close to $11 an hour.

Nevertheless, union-backed advocacy groups have used the FLSA's tip credit provisions as a rallying cry for legislative action. One report denounced the cash wage as "meager" and misleadingly lamented that an employee earning $2.13 full-time brought home less than $4,500 a year—failing to mention the combined hourly wage for tipped employees that's well above the federal minimum.

In this study, labor economists William Even at Miami University and David Macpherson at Trinity University use 20 years of evidence from two government datasets to explore the consequences of states reducing or eliminating their tip credit. They also offer projections on the consequences of recent proposed policies: the Working for Adequate Gain for Employment in Services (WAGES) Act currently before Congress, which would raise the federal cash wage to $5.00 an hour; and a series of bills and initiatives on the state level that would reduce tip credits.

Professors Even and Macpherson first examine the response of overall restaurant employment to changes in the minimum wage and the cash wage. An increase in the required cash wage is expected to impact employment in the full-service sector, where more employees earn tips; changes in the minimum wage are expected to have less of an impact. The opposite holds for the limited-service (fast food) sector.

For this initial analysis, the authors use data from the Quarterly Census on Employment and Wages (QCEW). The strength of the QCEW data is its scope, as it includes 98 percent of all U.S. businesses. Its weakness is that it only provides a picture of overall employment, so it's not possible to examine the impact on directly-affected tipped employees or employee hours.

In the QCEW data, the authors find the following: Each 10 percent increase in the minimum wage reduces employment by 1.2 to 2.2 percent in the limited-service sector; each 10 percent increase in the cash wage reduces employment by 0.3 to 1.4 percent in the full-service sector.

To more closely examine the impact on tipped employees, specifically in relation to the number of hours worked, the authors turn to the Current Population Survey (CPS). They focus their analysis on employees that are likely to be tipped, including servers, bartenders and server attendants. They find that a 10 percent increase in the cash wage reduces the hours worked by tipped employees by about 5 percent.

The authors conclude by estimating the negative impact on hours worked that would result from passage of the WAGES Act. They find a cumulative reduction of nearly 12 million hours worked by tipped employees, which translates to a loss of 299,475 full-time-equivalent employees. The impact is greatest in states with a cash wage currently at the federal level and those that have a sizable number of residents working in tipped positions. They estimate that a series of bills and ballot initiatives on the state level would have a similar effect.

The loss of hours measured in this study translates to a substantial decline in employment opportunities for tipped employees; some may remain employed while working fewer hours, while others lose their jobs entirely.

Labor costs consume a disproportionate amount of revenue in the restaurant industry—about one-third of the total, according to the *Restaurant Industry Operations Report*. By moving towards customer self-service or automation—for example, technology that allows customers to order and pay for their meals electronically at the table—restaurants can reduce the number of servers per shift to adapt to higher labor costs. It's a difficult but necessary course of action for restaurants faced with rising costs and customers averse to price increases.

Thirty states have already taken legislative action to raise their cash wage rates above the federal level, from a few cents above the federal cash wage in some states all the way up to $9.04 an hour in Washington beginning in January 2012. (Washington is one of seven states that do not allow any credit for tips earned on the job). This research suggests that reducing or eliminating the tip credit (and mandating a higher cash wage) has already caused harm to the employment prospects of employees that policymakers (and voters) were trying to help—and that further legislative action to erode the tip credit would have the same result.

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Introduction

The employment effects of minimum wage increases have been extensively studied over the past 30 years. Neumark and Wascher (2008) provide a good summary of the research on this topic and, while there is not universal agreement, the vast majority of studies conclude that higher minimum wages reduce employment for teenagers and young adults with low levels of education.

According to estimates by the Bureau of Labor Statistics, nearly one-half of all workers paid at or below the federal minimum wage in 2010 were employed in the leisure and hospitality industry, primarily in restaurants and other food services.[1] Because of the large concentration of minimum wage workers in the restaurant industry, several studies examine minimum wage effects on the restaurant industry specifically.

This study examines the effect of a feature of minimum wage laws that is especially important in the restaurant industry, where labor costs consume about one-third of total revenue.[2] As of 2011, federal law requires a minimum wage of $7.25 and an employer can receive a "tip credit" of up to $5.12 an hour for tips received by their workers. Put in other terms, federal law allows tipped workers to be paid a cash wage of $2.13 an hour so long as they receive sufficient tips that they earn at least $7.25 an hour.

Some states require a higher minimum or cash wage than required by federal law. While much of the prior research on the employment effects of minimum wage hikes focuses on interstate variation in the minimum wage, this study also examines the effect of higher cash wages in the restaurant industry. The study relies on two data sources: the Quarterly Census of Employment and Wages (QCEW) and the Current Population Survey (CPS). The study finds that increases in the cash wage shift employment from full to limited service restaurants. It also shows that higher cash wages reduce the employment share of tipped workers in the restaurant industry. In general, the study suggests that higher cash wages lead to reduced employment for workers who provide service to restaurant customers.

Background

Over the past 20 years, federal law increased the minimum wage from $4.25 to $7.25, with the cash wage remaining at $2.13. This implies that the maximum tip credit that restaurant employers can receive against their minimum wage requirement has increased from $2.12 to $5.12.

States vary in terms of both minimum wage and cash wage requirements. As of 2010, the minimum wage varied from $7.25 for the 33 states deferring to the federal law to $8.55 in Washington. On the other hand, the cash wage varied from a floor of $2.13 for the 20 states deferring to federal law to a high of $8.55 in Washington.

While waiters and waitresses might be considered the primary recipient of tips, they often share tips with other workers. In some cases, tip pooling is required by the employer and in other cases the pooling is voluntary.

According to federal law, a mandatory tip pool can include only regularly tipped workers and cannot include management.[3] The Department of Labor defines a tipped employee as someone that customarily and regularly receives at least $30 per month in tips. In practice, this

[1]Bureau of Labor Statistics, "Characteristics of Minimum Wage Workers: 2010." http://www.bls.gov/cps/minwage2010.htm.
[2]See the 2010 Restaurant Industry Operations report. http://www.restaurant.org/esdpdf/2010_Ops_Report_under15.pdf.
[3]Robinson (2011) provides a good review of federal law on tip pooling. If the tip pool is voluntary, there are no restrictions on who the worker can share the tips with.

has been interpreted to include waiters/waitresses, counter personnel who serve customers; server helpers (busboys/girls); and service bartenders. Back-of-the-house employees who do not regularly engage with customers (like cooks, dishwashers or janitors) do not qualify.[4]

Over the years, there have been numerous lawsuits that address the issue of which employees can be included in the tip pool. For example, Ahmed (2009) describes a range of lawsuits over the type of worker that can be included in a tip pool. These included rulings that salad preparers and a worker with managerial responsibilities could not be included in the tip pool, but bartenders could be included. Other lawsuits addressed the validity of the tip sharing formula at specific restaurants. Courts have also upheld the notion that a service charge is not a tip, and thus employers can keep part or all of service charges.[5]

Because tip pools are allowed, a restaurant could receive a tip credit for most "front of the house" workers. However, the tip credit is limited by the amount of tips received and must still be sufficient to cover any difference between the cash wages paid and the minimum wage. Even without a tip pool, an employer could spread tips by having a person perform both tipped and non-tipped work as part of their job. For example, a waiter or waitress might serve customers, but also be required to set and clear tables, or assist in preparation of salads or drinks. The Department of Labor, however, places some restrictions on a restaurant's ability to claim a tip credit for hours spent in non-tipped work.[6]

Another complicating factor with the tip credit is the treatment of over-time rules. Federal law requires that a worker be paid time-and-a-half for any hours worked in excess of 40 hours per week. Under the current federal law, the cash wage is $2.13 and the minimum wage is $7.25. In the case of a tipped worker, the law requires that the worker receive $10.88 an hour for over-time, but the employer can take $5.12 an hour as a tip credit (i.e. the tip credit is not altered for over-time hours). This means that an employer must pay a cash wage of $2.13 for the first 40 hours, but $5.76 for over-time hours.

Wessels (1997) extends his earlier work by introducing a theoretical model which suggests that tipping could lead to monopsony in the restaurant industry. The premise is that if a restaurant hires more waiters, each waiter receives fewer tips and the restaurant will have to increase wages to offset the reduction in tips. If the restaurant must increase the hourly wage to attract additional waiters, the firm is a monopsony and economic theory suggests that it is possible that an increase in the cash wage for tipped workers could increase, decrease, or not affect employment – but if the minimum wage is pushed to sufficiently high levels, employment will fall. Wessels finds some empirical evidence supporting his theory. Namely, an increase in the cash wage increases employment at low values, but eventually reduces employment.

The theoretical models in Wessels (1993, 1997) do not incorporate all the possible responses to an increase in the cash wage. First, suppose that cash wages plus tips are above the lowest wage required to attract workers (their reservation wage). If a restaurant is required to pay a higher cash wage, the firm is paying an even larger rent (the difference between the wage and reservation wage). Employers can now shift some of this rent to other workers by requiring more tip sharing. Wessels suggests that

[4]An interesting exception to the rule that cooks cannot be included in the tip pool was made for sushi chefs since they interact with customers. http://waiterpay.com/japanese-restaurants-hit-by-wave-of-overtime-and-tip-stealing-cases/

[5]If the restaurant does not make it clear to the customer that the added charge is a "service charge" (e.g. if it is listed as a gratuity), the employee may be entitled to the payments. See the court cases discussed in Ahmed (2009) for a discussion of this point.

[6]See Robinson (2011) for a discussion of "dual jobs" versus "related duties".

such tip sharing was uncommon in the 1980s and there are federal regulations that limit mandatory tip sharing. We discuss this in greater detail later.

To consider how employers might use tip sharing to mitigate the effects of an increase in the cash wage, consider the following example. Suppose that initially there is no tip pooling. The typical waiter earns a $2.13 cash wage and $10 an hour in tips for a total of $12.13 an hour. If the cash wage is increased to $5.13 an hour, the employer could require that the employee share $3 an hour with waiter assistants. This allows the employer to take a tip credit for the assistants and the increase in cash wages for waiters is completely offset by reduced wages for assistants. Consequently, employers could respond to higher cash wages by mandating more tip pooling and accepting tip credits for other workers. In the extreme, however, if the cash wage rises to the minimum wage and no tip credit is allowed, this strategy will not work unless the non-tipped workers are paid above the minimum wage and tip sharing makes it possible to reduce their wages.

An employer might also respond to a higher cash wage by requiring each waiter to perform more non-tipped work. For example, if the cash wage increases, an employer could require more non-tipped work from each waiter and offset this by hiring more waiters (or having each waiter work more hours), but fewer non-tipped workers. This is essentially the same as mandating tip pooling, except that the pooling occurs across tipped and non-tipped duties for each waiter. As with tip pooling across workers, this strategy becomes less effective when the cash wage approaches the minimum wage.

The existing empirical research on the employment consequences of increases in the cash wage is fairly limited. Wessels (1993) performs a cross-sectional analysis of the 1987 Census of Retail Trade and finds that increases in either the minimum wage or cash wage reduce restaurant employment. He also concludes that eliminating the cash wage (i.e., allowing the minimum wage to be satisfied entirely by tips) would increase restaurant employment by 8.5 percent.

Wessels (1997) extends his earlier work by using three years of data (1977, 1982, and 1987), allowing for a panel data analysis. Consistent with the predictions of his theoretical model of monopsonistic behavior in the restaurant industry resulting from tips, he finds that higher cash wages increase employment when the cash wage is sufficiently low, but subsequent increases reduce employment.

More recently, Anderson and Bodverson (2005) use 1999 earnings data and find that, controlling for economic conditions and worker characteristics, higher cash wages have no effect on employee compensation in the restaurant industry. This could be explained by employers reducing employment, mandating tip pooling, or under-reporting of tip income.

Using data from the 2008-2009 Current Population Survey, Allegretto and Filion (2011) show that workers in the restaurant industry earn higher wages (including tips) in states that require higher cash wages. While this result is in conflict with Anderson and Bodverson (2005), it is worth noting that the two studies use different data sources and Allegretto and Filion do not control for other factors that might influence earnings and a state's cash wage. For example, if states with higher earnings levels (perhaps due to a higher cost of living) are more likely to increase cash wages beyond the federal level, a spurious relationship would be found between cash wages and earnings.

Overall, the research on the employment effects of cash wages in the restaurant industry is fairly limited. The two studies by Wessels suggest that higher cash wages reduce

employment in the restaurant industry, and there is some disagreement on the earnings effect. Our study hopes to improve the understanding of the employment effects of higher cash wages by using two different data sources that each contain over 20 years of information.

Data

The Quarterly Census of Employment and Wages (QCEW) is the first source of data for our analysis. This dataset provides a quarterly count of employment and wages reported by employers and covers 98 percent of U.S. jobs. The quarterly counts include monthly data and are available at the county, state and national levels by industry.[7]

Our study uses QCEW data from 1990 through 2010 to investigate how changes in the minimum and cash wage affect private sector employment in two specific industries: full service restaurants (NAICS code 722110) and limited service restaurants (NAICS code 722211). The primary advantage of the QCEW data is that it covers nearly all employers and thus is subject to very little sampling error. Moreover, while the QCEW censors state-specific data for confidentiality reasons when an industry's employment count is too small, the restaurant industry is sufficiently large that there are no censored data for any state or month. A significant shortcoming of the data is that it does not provide any information about work hours, or the characteristics of the workers in the industry.

Our second data source is the Current Population Survey (CPS) from 1989 through 2010. This dataset is monthly and uses all rotation groups from the CPS. An advantage of the CPS is that it contains information about work hours and occupations of each worker. There are, however, two shortcomings relative to the QCEW. First, the CPS represents a stratified random sample of approximately 60,000 U.S. households in every month. Consequently, sample weights must be used to estimate employment or hours and the sample sizes for the restaurant industry in a given month can be quite small. This may potentially lead to significant sampling error in the estimates of employment or hours. A second shortcoming of the CPS relative to the QCEW is that the industry codes do not distinguish between full- and limited-service restaurants.

Our data on state cash wages was obtained from a variety of sources. These included Wessels (1993, 1997), legislative updates published in the Monthly Labor Review for early years, research documents from the Employment Policies Institute, and the Department of Labor website.[8] To get a sense of the overall trend, Figure 1 plots the population-weighted average of the cash wage, minimum wage and tip credit.

Figure 2 compares estimates of employment in the restaurant industry from our two data sources. In addition to the differences between the QCEW and CPS mentioned above, there are a few reasons that the employment estimates in the CPS will differ from those in the QCEW. First, CPS employment estimates are sensitive to assumptions about population growth and evidence suggests that the population (and hence employment) growth in the CPS was understated in the 1990s.[9] Yet another reason that the CPS and QCEW will differ is that the CPS represents reported employment during the week that contains the 12th day of the month. Consequently, the CPS will not capture workers who did not work during that particular week. The QCEW measures anyone on the employer's payroll during the month and would thus count such workers. Finally, if a worker holds two

[7]For more details on the QCEW, see http://www.bls.gov/cew/.
[8]The BLS provides minimum wages for tipped workers by state for 2009 through 2011 at http://www.dol.gov/whd/state/tipped.htm .
[9]See http://www.bls.gov/web/empsit/ces_cps_trends.pdf for details on this point.

different jobs at two different employers, the QCEW will count that as two jobs. In the CPS, we mimic this by counting a worker with two separate jobs as two employees. Also, when counting jobs in the restaurant industry, we count the worker as a restaurant employee if either the first or second job is in the restaurant industry.[10]

The restaurant industry employment estimates from the two data sources are quite similar. The QCEW estimates suggest average annual employment in the restaurant industry grew from 4.9 to 7.9 million between 1990 and 2010, whereas the CPS suggests growth from 5.5 to 7.9 million.

Since full service restaurants are more likely than limited service restaurants to be eligible for a tip credit, our subsequent empirical analysis will focus on differential employment effects of changes in the cash wage in the two sectors. The share of employment in the two sectors, estimated from the QCEW and presented in figure 3, increased slightly from 0.54 to 0.57 over the past 20 years. There is substantial variation across the states in the share of employment in full-service restaurants. In 2010, the lowest full-service share is in Mississippi (40 percent) and the highest share is in Vermont (71 percent).

Empirical Results

To examine the effect of higher minimum or cash wages on employment in the restaurant industry, we estimate a regression model similar to that in Burkhauser, Couch, and Wittenburg (2000)

$$E_{it} = \alpha_0 + MW_{it}\beta_1 + CW\beta_2 + X_{it}\gamma + \lambda_t + S_i + \varepsilon_{it}$$

where the subscripts i and t represent state and month, respectively, E is the log of a measure of employment in the restaurant industry, MW is the log of the effective minimum wage (i.e. the greater of the federal or state minimum wage), CW is the log of the effective cash wage, λ_t represent time fixed effects for each, S_i are state fixed effects; and ε_{it} is an error term. The elasticities of employment with respect to the minimum and cash wage are β_1 and β_2. If, for example, the elasticity of employment with respect to the cash wage is -0.2, a 10 percent increase in the minimum wage causes a 2 percent decrease in employment. To allow for the possibility that errors are heteroskedastic and correlated across time within a state, the standard errors for the estimated coefficients are adjusted for clustering by state.

Other controls include variables designed to capture state-specific factors that could influence the demand for restaurant services. These include the log of state population, the unemployment rate for prime age (25 to 54-year-old) males, and the average wage for prime age adults. Inclusion of date effects captures anything that influences restaurant employment nationally (e.g. business cycle, rising propensity for families to dine out, etc.) Identification of minimum wage or cash wage effects requires variation across states in minimum and cash wage policies.

Results from QCEW

In this section, we examine the employment effects of minimum and cash wages using QCEW data. Models are estimated for three measures of employment: (1) the restaurant industry as a whole; (2) full service restaurants; and (3) limited service restaurants.

Our expectation is that the minimum and cash wage will have differential effects in the limited and full service industries. Compared to the full-service industry, the limited service industry will have relatively few workers

[10]Prior to 1994, the CPS provides the industry for only the primary job and thus we are able to count only the number of primary jobs in the restaurant industry. From 1994 forward, we can count the number of primary and secondary jobs in the industry. This leads to an increase in the CPS estimate of restaurant employment in 1994, but should be handled by the date-specific fixed effects used in our empirical model.

eligible for a tip credit; consequently, the minimum wage should have a greater effect in the limited service industry. On the other hand, the full-service industry will have more workers eligible for a tip credit, and the cash wage should have a greater effect in full-service rather than limited-service restaurants.

It is important to note that the minimum and cash wages will have muted effects on *overall* employment in the restaurant industry (as measured in the QCEW) since not all workers will be affected by the wage mandates. For instance, changes in the minimum wage will not affect the employment of higher-paid managers; changes in the cash wage will not affect the employment of non-tipped workers.[11]

Before discussing the results, there are two important issues that deserve consideration: differential employment trends across states and multi-collinearity. If there is heterogeneity across states in restaurant industry employment trends, the estimated employment effect could be biased.[12] For example, if the states with above average growth in restaurant employment are more likely to increase the cash wage, the estimated effect of the cash wage on employment would be biased upward. The bias would be in the opposite direction if cash wages were more likely to be increased in states with below average employment growth. To investigate the potential for such a bias, we also estimate models that allow for state-specific linear time trends in employment. This approach is used in many panel studies of the employment effects of minimum wage hikes.

As noted by Burkhauser et al. (2000), an important issue in empirically estimating the employment effects of minimum wages (or by extension, cash wages) is the high degree of collinearity between the minimum wage and the date and state fixed effects. If all states followed the federal law, the minimum and cash wage would be perfectly collinear with the date fixed effects. Because there is interstate variation in the level and change in the minimum wage, there is some variation in the minimum wage that can be used to identify the employment effects. Despite the interstate variation in the minimum wage, the collinearity problem is still significant – for both the minimum wage and the cash wage. This is a common problem researchers face when trying to identify the effect of a minimum wage hike. The problem is exacerbated when one attempts to control for state-specific time trends, or other forms of spatial heterogeneity in employment trends.[13]

As a gauge of this problem in our own paper, we follow Burkhauser et al (2000) and provide the auxiliary R^2 for both variables along with our regression results. The auxiliary R^2 for the minimum wage (for example) is the R^2 obtained from a regression of the minimum wage on all the other independent variables in the employment regression (including the cash wage).[14] As the auxiliary R^2 approaches unity, the identifying variation in the relevant variable (i.e. the minimum or cash wage) falls to zero, making it difficult to find a statistically significant effect of the variable on employment. Nevertheless, for both the QCEW and the CPS, we present results with and without state-specific linear time trends included, as a test of the robustness of our results.

[11]Note that higher cash wages could indirectly reduce the employment of others if, for example, the restaurant industry shrinks as price increases associated with higher costs lead to reduced sales and lower demand for all types of restaurant workers.

[12]This point is mentioned in much of the minimum wage research. See, for example, Allegretto Dube and Reich (2011).

[13]The study by Allegretto, Dube, and Reich (2011) control for state-specific time trends and also allow Census-specific effects that differ by quarter. This introduces a very high degree of collinearity in their model and the statistical significance of the estimated minimum wage effects disappear.

[14]If the auxiliary R^2 is unity, there would be perfect collinearity between the independent variables and it would be impossible to estimate the regression.

TABLE 1: QCEW Employment Regressions for Restaurant Industry, 1990-2010						
	Restaurant Industry		Full Service Restaurants		Limited Service Restaurants	
Log Minimum Wage	-0.109	-0.0634	-0.0642	-0.0222	-0.221	-0.123
	(-2.195)	(-2.409)	(-1.321)	(-0.817)	(-2.786)	(-2.110)
Log Cash Wage	-0.0965	0.000372	-0.142	-0.0272	-0.0589	0.0355
	(-3.689)	(0.0143)	(-4.751)	(-1.043)	(-1.712)	(0.971)
Prime Age Unemployment	-0.397	-0.716	-0.338	-0.688	-0.379	-0.724
	(-1.964)	(-4.825)	(-1.713)	(-4.598)	(-1.518)	(-3.973)
Log Real Adult Wage	0.00139	-0.0175	0.0102	-0.0133	-0.0172	-0.0236
	(0.0770)	(-1.554)	(0.452)	(-1.204)	(-0.710)	(-1.517)
Log State Population	0.657	-0.523	0.684	-0.403	0.636	-0.689
	(3.856)	(-4.175)	(3.639)	(-2.577)	(4.241)	(-3.338)
Constant	2.013	17.86	1.107	15.58	1.868	19.41
	(0.858)	(10.77)	(0.433)	(7.295)	(0.891)	(6.911)
State-Specific Time Trends Included?	N	Y	N	Y	N	Y
Observations	12852	12852	12852	12852	12852	12852
R^2	0.997	0.998	0.996	0.998	0.996	0.998
Auxiliary R^2 for Minimum Wage	0.945	0.955	0.945	0.955	0.945	0.955
Auxiliary R^2 for Cash Wage	0.872	0.958	0.872	0.958	0.872	0.958

Note: All regressions also include fixed effects for each date and state in the sample. T-Statistics based on standard errors corrected for clustering by state are in parentheses.

Table 1 presents the results of the employment regressions. For each sector (restaurant, full-service, limited-service), models are estimated with and without state-specific time trends. All the models include fixed effects for date and state, along with controls for the unemployment rate, the average adult wage, and the state population.

The results suggest that increases in the minimum wage reduce employment for the industry as a whole. The estimate of the employment elasticity with respect to the minimum wage is -0.11 when state-specific time trends are excluded and -0.06 when state-specific time trends are included. Both elasticity estimates are statistically significant at the 0.05 level. Separate regressions for the full- and limited service sectors suggest that the minimum wage has a larger effect in the limited service sector. Depending on whether state-specific time trends are included, the estimated minimum wage elasticity in the limited service sector is between -0.12 and -0.22 (both significant at the 0.05 level). In the full-service sector, the estimated minimum wage elasticities range from -0.02 to -0.06, but neither estimate is significant at the 0.10 level.

The estimates also suggest that a higher cash wage has a larger employment effect in the full-service rather than the limited-service industry. Without controls for state-specific time trends, the cash wage elasticity is -0.14 in the full-service industry (t=4.75) but only -0.06 in the limited-service industry (t=1.71). Adding state-specific time trends causes the estimated cash wage elasticity to drop to -0.03 in the full-service industry (t=1.04) and a statistically insignificant positive elasticity of 0.04 (t=0.97) in the limited service industry.

TABLE 2: QCEW Full Service Minus Limited Service Employment Difference Regressions, 1990-2010		
	Employment Difference	
Log Minimum Wage	0.157	0.101
	(2.385)	(1.528)
Log Cash Wage	-0.0833	-0.0627
	(-2.407)	(-1.888)
Prime Age Unemployment	0.0407	0.0363
	(0.235)	(0.243)
Log Real Adult Wage	0.0274	0.0102
	(0.967)	(0.838)
Log State Population	0.0479	0.286
	(0.512)	(1.137)
Constant	-0.761	-3.825
	(-0.603)	(-1.076)
State-Specific Time Trends Included?	N	Y
Observations	12852	12852
R^2	0.948	0.970
Auxiliary R^2 for Minimum Wage	0.945	0.955
Auxiliary R^2 for Cash Wage	0.872	0.958

Note: All regressions also include fixed effects for each date and state in the sample. The dependent variable is the difference between logs of employment in the full and limited service restaurant industry measured by state and month. T-statistics based on standard errors corrected for clustering by state are in parentheses.

Clearly, the estimated cash-wage elasticities are sensitive to the inclusion of state-specific time-trends. This sensitivity is not unexpected given the high degree of collinearity in the data, which gives us pause about the results. For instance, the auxiliary R^2 for the cash wage jumps from 0.87 to 0.96 when state-specific time trends are included and this high degree of collinearity can inflate standard errors (reduce t-statistics) and make coefficient estimates sensitive to modest changes in the specification.

An alternative way to examine the data is to examine the effect of the minimum and cash wage on the relative size of employment in the full and limited service industry. The theory is minimum wage increases drive up costs more in the limited than in the full service industry, and thus the difference between full and limited service employment would rise. On the other hand, an increase in the cash wage would drive up costs more in the full-service sector, and higher cash wages would reduce the gap between full and limited service employment.

To test these hypotheses, we estimate regressions identical to those in Table 1 but use the difference between the logs of full- and limited-service employment as the dependent variable. The models, presented in Table 2, are estimated with and without state-specific time trends.

Consistent with expectations, a higher minimum wage increases employment in the full-service industry relative to that in the limited service industry. An increase in the cash wage has the opposite effect. Without state-specific time trends, both the cash and minimum wage elasticities are statistically different from zero at the .05 significance level. When the state-specific time trends are included,

TABLE 3: Percent of Workers Reporting Tips for Restaurant by Occupation: 2006-2010			
	Share of Workers	Percent Tipped	Percent Paid Hourly Wage Less Than Minimum Wage
All Workers in Restaurant Industry	100.0%	26.8%	20.4%
Tipped Occupations			
Wait Staff	26.1%	60.7%	44.4%
Bartender	2.6%	68.1%	37.0%
Attendants	2.8%	32.4%	24.9%
All	31.5%	58.8%	42.0%
Non Tipped Occupations			
Cashier	9.3%	7.2%	11.7%
Cook	30.7%	10.1%	10.0%
Dishwasher	3.0%	7.2%	14.4%
Food Service Manager	9.6%	14.3%	3.5%
Counter Attendant	3.5%	9.6%	18.4%
All Other Non-Tipped	12.4%	20.7%	13.2%
All	68.5%	12.0%	10.5%

Note: Estimates are based upon CPS data from 2006 through 2010. Workers reporting any overtime, tips, or commissions are defined as tipped. The sample is restricted to workers reporting 40 or fewer hours per week to avoid counting workers receiving overtime as tipped workers. The percentage of workers with an hourly wage below the minimum wage is based upon the hourly wage that excludes tips, overtime, and commissions.

the cash wage elasticity drops to slightly below the .05 level (t=1.89), but the significance level for the minimum wage drops to slightly below the .10 level (t=1.531). The elasticity estimates with respect to the cash wage suggest that a 10 percent increase in the cash wage cause employment in the full service industry to drop by 6 to 8 percentage points relative to that in the limited service industry.

Results from CPS

Due to the inability to examine directly-affected workers or hours effects in the QCEW, this section uses CPS data from January 1989 through December 2010 to estimate the employment and hours effects of increases in the cash or minimum wage.

While the CPS does not distinguish between full and limited service restaurants, it does provide information on the occupations of individual workers. Thus, within the restaurant industry, we can identify workers who are more likely to be at full service restaurants and be eligible for tips. We use several different measures to gauge the fraction of each occupation that is tipped. The CPS provides two measures of hourly earnings: (1) hourly earnings excluding tips, overtime and commissions; and (2), hourly earnings including tips, overtime and commissions. To eliminate overtime from consideration, we restrict our sample to people working 40 hours or less. Very few workers in the restaurant industry are likely to be paid by commission. Hence, for the subsample of people working 40 or fewer hours per week, the difference between the two measures of earnings should reflect tips. It is important to emphasize that these are self-reports and it is likely that workers under-report tips in the CPS.

Another way to examine the frequency of tips is to compute the percentage of workers earning less than the minimum wage, excluding tips. An employee could earn less than the minimum wage because he is eligible for a tip

credit, not covered by minimum wage law, or because the earnings are misreported.[15] Some workers earning tips will not be at or above the minimum because either the employer chooses to pay a wage above the cash wage, or the worker resides in a state that doesn't allow a tip credit.

Table 3 presents these two different measures of tipping for the most common occupations in the restaurant industry. The three occupations with the highest tip rate are all front-of-the-house jobs: waiters/waitresses, bartenders, and attendants (more commonly referred to as busboys or waiter assistants). For these occupations, the percentage of employees that are tipped ranges from a low of 32 percent (busboys) to a high of 68 percent (bartenders). On the other hand, back-of-the-house employees (i.e. those in the kitchen) all have substantially lower tip rates. For example, only 10 percent of cooks and 7 percent of dishwashers report tips. It's important to keep in mind that these workers might receive tips from coworkers, or they could have dual job duties (e.g. a cook might serve food on occasion to customers).

The ranking of occupation by the percentage paid less than the minimum is similar to the tip rate rankings. The front-of-the-house employees are more likely to be paid below

TABLE 4: CPS Employment Regressions for Tipped, Non-Tipped, and Difference, 1989-2010

	Tipped		Non-Tipped		Difference	
Log Minimum Wage	-0.0277	0.125	-0.0785	-0.0448	0.0508	0.169
	(-0.0885)	(0.438)	(-0.631)	(-0.405)	(0.171)	(0.569)
Log Cash Wage	-0.339	-0.315	-0.00427	-0.00568	-0.335	-0.309
	(-2.241)	(-1.412)	(-0.0789)	(-0.0960)	(-2.540)	(-1.426)
Prime Age Unemployment	1.723	0.623	-0.141	0.0755	1.864	0.548
	(1.127)	(0.478)	(-0.247)	(0.180)	(1.454)	(0.438)
Log Real Adult Wage	-0.0278	-0.155	-0.120	-0.176	0.0923	0.0209
	(-0.286)	(-1.960)	(-2.752)	(-5.805)	(0.980)	(0.263)
Log State Population	0.919	-0.289	0.411	-0.467	0.508	0.178
	(1.950)	(-0.325)	(2.484)	(-1.803)	(1.079)	(0.181)
Constant	-2.154	14.50	5.246	17.72	-7.400	-3.225
	(-0.334)	(1.148)	(2.231)	(4.716)	(-1.132)	(-0.230)
State-Specific Time Trends Included?	N	Y	N	Y	N	Y
Observations	13,457	13,457	13,457	13,457	13,457	13,457
R^2	0.403	0.410	0.863	0.865	0.066	0.076
Auxiliary R^2 for Minimum Wage	0.951	0.959	0.951	0.959	0.951	0.959
Auxiliary R^2 for Cash Wage	0.863	0.957	0.863	0.957	0.863	0.957

Note: All regressions also include fixed effects for each date and state in the sample. The dependent variables are natural logs of total employment by state and month for tipped and non-tipped workers. The last two specifications are difference in log-employment between tipped and non-tipped workers. Tipped workers include employees in the restaurant industry with an occupation classification of waiters/waitresses, bartenders, or attendants (more commonly referred to as busboys or waiter assistants). T-statistics based on standard errors corrected for clustering by state are in parentheses.

[15]Federal law exempts businesses with less than $500,000 in annual sales from the minimum wage. Also, federal law allows employers to pay a sub-minimum wage to workers under age 20 during the first 90 days of employment. See http://www.dol.gov/compliance/guide/minwage.htm for a description of which workers are covered by federal minimum wage laws.

the minimum than the back of the house. Overall, the data confirms our expectation that front of the house employees are more likely to receive tips and be eligible for a tip credit. Consequently, we expect increases in the cash wage to have a larger effect on workers in one of the three tipped occupations—waiters/waitresses, bartenders, and attendants.

Table 4 presents separate regression estimates for tipped and non-tipped employment. As expected, higher cash wages create more job loss for tipped than non-tipped workers. In the model excluding state-specific time trends, the cash wage elasticity for tipped workers is -0.34 and the coefficient is statistically significant at the 0.05 level (t=2.24). Including state-specific time trends reduces the cash wage elasticity for tipped workers slightly to -0.32, but the standard error is increased and renders the estimated coefficient insignificant at the 0.10 level (t=.1.41). For non-tipped workers, the cash wage elasticity is statistically insignificant at any reasonable level and the point elasticities are very small (less than -0.01). The last two columns present regression estimates for the differences in the logs of tipped and non-tipped employment. Consistent with the earlier results from the QCEW, a higher cash wage reduces the employment of tipped workers relative to non-tipped and the effect is significant at the 0.05 level for the model without state- specific time trends. This could mean full-service restaurants reduce the share of workers in the front of the house and

TABLE 5: CPS Hours Worked Regressions for Tipped, Non-Tipped, and Difference, 1989-2010

	Tipped		Non-Tipped		Difference	
Log Minimum Wage	0.0994	0.341	-0.107	-0.0523	0.207	0.393
	(0.253)	(0.973)	(-0.828)	(-0.445)	(0.550)	(1.072)
Log Cash Wage	-0.484	-0.541	-0.00201	0.00672	-0.482	-0.547
	(-2.545)	(-2.023)	(-0.0347)	(0.127)	(-2.832)	(-2.090)
Prime Age Unemployment	2.073	0.967	-0.821	-0.592	2.894	1.559
	(1.022)	(0.562)	(-1.195)	(-1.061)	(1.616)	(0.940)
Log Real Adult Wage	-0.0886	-0.248	-0.138	-0.196	0.0496	-0.0519
	(-0.632)	(-1.996)	(-2.705)	(-4.931)	(0.354)	(-0.425)
Log State Population	0.874	-0.580	0.408	-0.203	0.466	-0.377
	(1.477)	(-0.474)	(2.047)	(-0.679)	(0.807)	(-0.277)
Constant	2.036	22.17	8.922	17.46	-6.885	4.711
	(0.244)	(1.284)	(3.202)	(4.091)	(-0.832)	(0.247)
State-Specific Time Trends Included?	N	Y	N	Y	N	Y
Observations	13,457	13,457	13,457	13,457	13,457	13,457
R^2	0.310	0.318	0.816	0.818	0.064	0.074
Auxiliary R^2 for Minimum Wage	0.951	0.959	0.951	0.959	0.951	0.959
Auxiliary R^2 for Cash Wage	0.863	0.957	0.863	0.957	0.863	0.957

Note: All regressions also include fixed effects for each date and state in the sample. The dependent variables are natural logs of total employment hours by state and month for tipped and non-tipped workers. The dependent variable in the last two specifications is the difference between log-hours for tipped and non-tipped workers. Tipped workers include employees in the restaurant industry with an occupation classification of waiters/waitresses, bartenders, or attendants (more commonly referred to as busboys or waiter assistants). T-statistics based on standard errors corrected for clustering by state are in parentheses.

reduce service, or it could mean that limited service restaurants grow relative to full-service restaurants.

Another way that restaurants could respond to higher cash wages is by reducing hours per worker instead of number of workers. The QCEW data does not provide any information on hours, so any such adjustments would not surface in that analysis. The CPS allows us to examine the hours effects separately. Table 5 presents regression estimates for models of the log of total weekly employment hours for tipped and non-tipped workers in the restaurant industry. Compared to the cash wage elasticities for tipped employment, the elasticities for hours are larger and the statistical significance is greater. The cash wage elasticity for hours is -0.48 when state-specific time trends are excluded (t=2.55) and rises to -0.54 (t=-2.02) when state-specific time trends are added. This implies that a 10 percent increase in the cash wage reduces the hours of tipped workers by about 5 percent. Since the elasticities for hours are greater than for employment, restaurants adjust to higher cash wages by reducing both the number of workers and the number of hours per worker. Higher cash wages have no statistically significant effect on the total hours for non-tipped workers. This is consistent with expectations since the non-tipped workers are not eligible for tip-credits and the cash wage will have little effect on their cost.

Overall, the evidence suggests that an increase in the cash wage reduces the employment of tipped workers. The effect of an increase in the cash wage on total hours is even larger than the effect on employment suggesting that restaurants respond to an increase in the cash wage by reducing the number of tipped workers as well as the number of hours per worker.

The Effects of Raising the Federal Cash Wage

The Working for Adequate Gains for Employment in Services (WAGES) Act was introduced to Congress in 2009 as H.R. 2570 and reintroduced as H.R. 631 in 2011. If approved, this legislation would increase the cash wage for tipped employees to $5.00 an hour one year after passage and to 70 percent of the minimum wage (but no less than $5.50 an hour) two years after passage.

To illustrate the effect of such legislation, this section estimates the employment effects of increasing the cash wage to $5.00 an hour. Our earlier analysis revealed that the employment effects of higher cash wages are concentrated among tipped workers and that there are effects on both employment and hours. Since the QCEW data does not provide information on hours, we use the CPS regression results to estimate the effect of state laws on the employment of tipped workers.

To estimate the effect of state laws mandating higher cash wages, we compute the change in the employment hours of tipped workers that would occur if the federal law increased all cash wages to $5.00 an hour As of 2010, there are 20 states that defer to the federal law and have a cash wage of $2.13 an hour; 22 states (including Washington D.C. as a state) with a cash wage above $2.13 and below $5.00; and nine states with a cash wage above $5.00 an hour where the WAGES Act would have no effect. Consequently, nine states would not be affected by the WAGES Act, 20 would be subject to the full increase of $2.87; and 22 would face only a portion of the $2.87 increase.[16]

To estimate the employment effects of a cash wage increase at the federal level, we use the regression specification for tipped workers in Table 5 that includes state-specific time trends. For each month of 2010, we estimate how much

[16]Our analysis uses the average cash wage for 2010 when computing the change in each state's cash wage that would result from passage of the Wages Act.

total restaurant hours would change if the cash wage was increased to $5.00 an hour. We then average across the 12 months of data to get an estimated change in weekly hours for tipped workers. The change in hours is divided by 40 to yield an estimate of "full time equivalent" (FTE) jobs lost.

Table 6 presents the estimated number of FTEs that would be eliminated for the three tipped occupations if the cash wage was increased to $5.00 an hour in the 42 states that currently have cash wages below that level. In total, we estimate that there would be approximately 299,475 fewer FTEs for tipped workers in the restaurant industry if the cash wage is increased to $5.00 an hour. The effect on FTEs in Texas (54,186 jobs) is larger than in any other state largely because it is the most populous state with a cash wage of $2.13. The next four states with the largest estimated hours and employment effects are Georgia (25,615), Pennsylvania (20,372), New Jersey (17,857) and North Carolina (15,443).

Summary and Conclusions

The effect of minimum wages on employment in the restaurant industry is complicated by the fact that many employers in the restaurant industry are eligible for a tip credit and can pay a wage below the minimum. When employers take a tip credit, they must pay at least the cash wage of $2.13 an hour required by federal law. In 2010, Washington had the highest cash wage in the nation—$8.55.

This study estimated the effects of raising the cash wage on employment in the restaurant industry. Our analysis of QCEW data reveals that higher cash wages cause employment to fall in full service restaurants relative to limited service restaurants. This is consistent with predictions since employers at full service restaurants are more likely to be able to claim a tip credit and higher cash wages will impact them more than those at limited service restaurants.

Our analysis of CPS data confirms some of the patterns in the QCEW data. Higher cash wages reduce the employment of tipped workers (waiters and waitresses, bartenders, and attendants) but have no discernible effect on non-tipped workers (e.g. cooks, dishwashers, cashiers). The CPS data also suggest that employers respond to a higher cash wage by reducing both the number of workers and the number of hours per worker.

Using the regression estimates from the CPS, we estimate the employment consequences of the WAGES Act that would raise the federal cash wage to $5.00 an hour. For the 42 states that have a cash wage below $5.00, we estimate that approximately 300,000 FTE jobs would be lost by tipped workers.

Overall, this study shows that increases in cash wages cause restaurants to respond by reducing service levels and reducing the employment of the kind of workers who are eligible for tip credits. Presumably the rationale for legislation like the WAGES Act is to improve the incomes of tipped workers, but in fact, the evidence presented here suggests that many of the intended beneficiaries of a higher cash wage could be harmed by a reduction in hours or job loss.

TABLE 6: Full-time Equivalent Employment Simulations for a $5.00 Cash Wage						
State	2010 Cash Wage[d]	2010 FTE Employment in Restaurant Industry[a]	2010 Number of Tipped Workers[b]	2010 FTE Employment of Tipped Workers[c]	Tipped Worker FTEs if Cash Wage Increased to $5.00	Loss of Tipped Worker FTEs Due to Increase in Cash Wage
States With Full Impact of Increase to $5.00 Cash Wage						
Alabama	$2.13	85,427	23,145	6,845	4,315	-2,529
Georgia	$2.13	204,781	65,608	69,314	43,699	-25,615
Indiana	$2.13	118,858	59,008	31,947	20,141	-11,806
Kansas	$2.13	54,087	22,098	12,731	8,026	-4,705
Kentucky	$2.13	97,847	43,175	22,909	14,443	-8,466
Louisiana	$2.13	102,883	31,812	12,347	7,784	-4,563
Mississippi	$2.13	36,954	20,961	1,163	734	-430
North Carolina	$2.13	197,167	74,329	41,789	26,346	-15,443
Nebraska	$2.13	30,029	14,200	6,686	4,215	-2,471
New Jersey	$2.13	140,500	76,074	48,321	30,464	-17,857
New Mexico	$2.13	44,513	16,403	2,782	1,754	-1,028
Oklahoma	$2.13	86,654	30,445	10,238	6,454	-3,783
South Carolina	$2.13	121,604	52,263	29,917	18,861	-11,056
South Dakota	$2.13	16,116	9,845	5,204	3,281	-1,923
Tennessee	$2.13	146,091	54,981	33,268	20,974	-12,294
Texas	$2.13	488,113	205,471	146,627	92,441	-54,186
Utah	$2.13	43,493	14,120	4,635	2,922	-1,713
Virginia	$2.13	141,532	76,120	32,308	20,368	-11,939
West Virginia	$2.13	26,834	10,509	1,898	1,196	-701
Wyoming	$2.13	10,249	4,638	1,538	970	-568
States With Partial Impact of Increase to $5.00 Cash Wage						
Arizona	$2.63	55,541	24,895	5,488	3,878	-1,610
Arkansas	$4.25	97,913	30,713	13,370	12,245	-1,125
Colorado	$4.22	107,305	43,886	29,422	26,844	-2,578
Washington, DC	$2.77	17,608	5,893	1,333	969	-364
Delaware	$2.23	17,817	7,193	6,878	4,445	-2,433
Florida	$4.23	443,863	181,214	127,053	116,070	-10,983
Iowa	$4.35	57,156	27,671	11,675	10,828	-847
Idaho	$3.35	27,246	11,974	4,859	3,913	-946
Illinois[17]	$4.88	259,862	109,523	72,801	71,834	-968
Massachusetts[18]	$2.63	104,555	52,840	40,731	28,780	-11,951
Maryland[19]	$3.42	95,522	35,396	20,190	16,424	-3,766
Maine	$3.75	24,644	10,843	5,777	4,945	-832

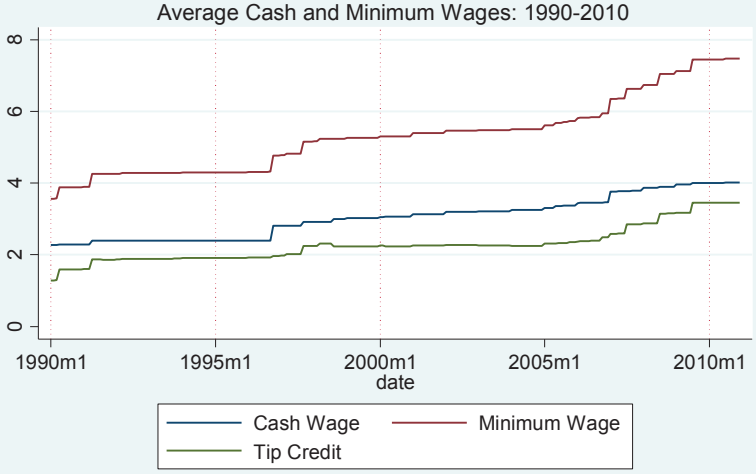
State	2010 Cash Wage[d]	2010 FTE Employment in Restaurant Industry[a]	2010 Number of Tipped Workers[b]	2010 FTE Employment of Tipped Workers[c]	Tipped Worker FTEs if Cash Wage Increased to $5.00	Loss of Tipped Worker FTEs Due to Increase in Cash Wage
Michigan	$2.65	178,591	87,693	50,120	35,559	-14,561
Missouri [20]	$3.63	161,300	57,323	34,890	29,344	-5,546
North Dakota	$4.86	11,852	4,406	2,546	2,507	-39
New Hampshire	$3.27	29,734	16,880	8,944	7,109	-1,835
New York	$4.65	407,722	149,516	112,033	107,723	-4,310
Ohio	$3.65	245,403	95,387	55,620	46,918	-8,702
Pennsylvania	$2.83	246,280	114,135	76,916	56,544	-20,372
Rhode Island	$2.89	24,685	11,572	7,956	5,916	-2,041
Vermont	$3.91	10,840	5,778	2,415	2,114	-301
Wisconsin	$2.33	105,488	49,269	30,422	20,133	-10,289
States With No Impact from Increase to $5.00 Cash Wage						
Alaska	$7.75	12,738	4,077	931	931	0
California[21]	$8.00	637,776	245,219	195,012	195,012	0
Connecticut	$5.69	65,896	33,285	11,686	11,686	0
Hawaii	$7.00	37,534	16,932	6,406	6,406	0
Minnesota	$7.25	97,308	46,428	39,045	39,045	0
Montana	$7.25	22,149	10,736	1,990	1,990	0
Nevada	$7.93	56,349	22,042	13,316	13,316	0
Oregon	$8.40	83,540	38,918	13,485	13,485	0
Washington	$8.55	156,298	64,082	30,303	30,303	0
U.S. Total	**$3.94**	**6,094,247**	**2,520,924**	**1,555,888**	**1,256,412**	**299,475**

[a]Based on average monthly employment obtained from 2010 CPS data.
[b]Tipped workers include employees in the restaurant industry with an occupation classification of waiters/waitresses, bartenders, or attendants (more commonly referred to as busboys or waiter assistants).
[c]Full time equivalents (FTEs) are computed as number of hours divided by 40.
[d]The cash wage reported represents the average cash wage over the 12 months of 2010.

[17]Illinois has legislation under consideration that would increase the cash wage to $8.90 in 2011 that generates an estimated loss of 20,206 full-time equivalent jobs for tipped workers in the Illinois restaurant industry.
[18]Massachusetts has legislation under consideration that would increase the cash wage to $6.13 in 2011 that generates an estimated loss of 5,386 full-time equivalent jobs for tipped workers in the Massachusetts restaurant industry
[19]Maryland has legislation under consideration that would increase the cash wage to $5.78 in 2011 that generates an.estimated loss of 5,004 full-time equivalent jobs for tipped workers in the Maryland restaurant industry.
[20]Missouri has a proposed ballot initative that would increase legislation under consideration that would increase the cash wage to $4.95 beginning January 1, 2011. We estimate this would cause a loss of 5,429 full-time equivalent jobs for tipped workers in the Missouri restaurant industry.
[21]California has legislation under consideration that would increase the cash minimum wage to $8.50 in 2012 that generates an estimated loss of 6,285 full-time equivalent jobs for tipped workers in the California restaurant industry.

Figure 1.

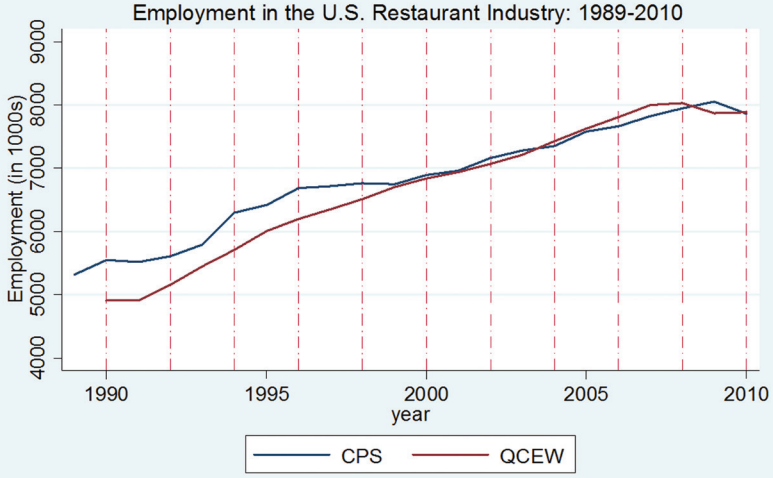
Average Cash and Minimum Wages: 1990-2010



Averages are calculated using state populations as weights.

Figure 2.

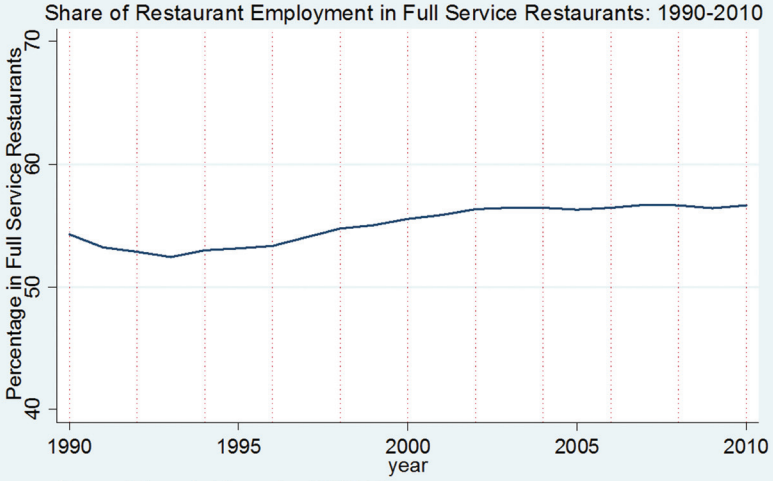
Employment in the U.S. Restaurant Industry: 1989-2010



Source: Authors' calculations using QCEW and CPS data.

Figure 3.

Share of Restaurant Employment in Full Service Restaurants: 1990-2010



Source: Author calculations using QCEW data.

Appendix A

In early 2012, Senator Tom Harkin introduced the Rebuild America Act. The legislation would raise the federal cash wage in increments from its current level of $2.13 an hour to $6.85 an hour. In the table below, we apply the results of our study to state-by-state projections of the Act's impact on hours an full-time-equivalent employment.

Full-time Equivalent Employment Simulations for a $6.85 Cash Wage							
State	2010 Cash Wage	Restaurant Employment	2010 # of Tipped Workers	2010 FTE Employment of Tipped Workers	# FTE in Restaurant Industry	# FTE if Cash Wage Increased to $6.85	FTE Employment Loss
AL	213	107,530	23,145	6,848	85,427	3,649	-3,199
GA	213	257,343	65,608	69,434	204,781	37,001	-32,433
IN	213	168,454	59,008	31,874	118,858	16,985	-14,888
KS	213	77,224	22,098	12,725	54,087	6,781	-5,944
KY	213	134,019	43,175	22,787	97,847	12,143	-10,644
LA	213	125,868	31,812	12,332	102,883	6,571	-5,760
MS	213	60,197	20,961	1,164	36,954	620	-544
NC	213	268,084	74,329	41,754	197,167	22,251	-19,504
NE	213	48,454	14,200	6,665	30,029	3,552	-3,113
NJ	213	184,842	76,074	48,627	140,500	25,913	-22,714
NM	213	57,291	16,403	2,776	44,513	1,479	-1,297
OK	213	103,806	30,445	10,226	86,654	5,449	-4,777
SC	213	156,236	52,263	29,862	121,604	15,913	-13,949
SD	213	24,211	9,845	5,191	16,116	2,766	-2,425
TN	213	190,458	54,981	33,297	146,091	17,744	-15,553
TX	213	616,882	205,471	146,512	488,113	78,075	-68,436
UT	213	67,432	14,120	4,626	43,493	2,465	-2,161
VA	213	197,732	76,120	32,513	141,532	17,326	-15,187
WV	213	33,608	10,509	1,902	26,834	1,014	-888
WY	213	17,150	4,638	1,532	10,249	816	-715
DE	223	24,175	7,193	6,863	17,817	3,749	-3,114
WI	233	159,903	49,269	30,334	105,488	16,966	-13,368
AR	263	70,312	24,895	5,471	55,541	3,266	-2,205
MA	263	163,838	52,840	40,538	104,555	24,202	-16,336
MI	265	272,745	87,693	50,036	178,591	29,994	-20,041
DC	277	19,655	5,893	1,336	17,608	820	-516
PA	283	344,034	114,135	76,819	246,280	47,710	-29,109
RI	289	36,458	11,572	7,931	24,685	4,981	-2,949
NH	327	41,646	16,880	8,923	29,734	5,991	-2,932
ID	335	38,844	11,974	4,845	27,246	3,295	-1,550
MD	342	125,778	35,396	20,231	95,522	13,899	-6,332

MO	363	228,960	57,323	34,805	161,300	24,720	-10,086
OH	365	373,860	95,387	55,633	245,403	39,629	-16,004
ME	375	36,744	10,843	5,767	24,644	4,168	-1,599
VT	391	16,460	5,778	2,410	10,840	1,781	-628
CO	422	139,444	43,886	29,423	107,305	22,664	-6,760
FL	423	552,399	181,214	127,302	443,863	98,182	-29,121
AZ	425	128,203	30,713	13,400	97,913	10,361	-3,039
IA	435	88,515	27,671	11,622	57,156	9,100	-2,522
NY	465	505,775	149,516	112,276	407,722	91,124	-21,152
ND	486	17,743	4,406	2,543	11,852	2,114	-429
IL	488	356,259	109,523	72,778	259,862	60,610	-12,168
CT	569	93,507	33,285	11,747	65,896	10,630	-1,118
HI	700	52,082	16,932	6,411	37,534	6,411	0
MN	725	151,659	46,428	38,973	97,308	38,973	0
MT	725	31,633	10,736	1,986	22,149	1,986	0
AK	775	17,950	4,077	929	12,738	929	0
NV	793	69,763	22,042	13,282	56,349	13,282	0
CA	800	880,669	245,219	195,125	637,776	195,125	0
OR	840	127,020	38,918	13,474	83,540	13,474	0
WA	855	226,955	64,082	30,192	156,298	30,192	0
US	**395**	**8,289,804**	**2,520,924**	**1,556,052**	**6,094,247**	**1,108,841**	**-447,209**

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