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Minimum Wages in the United States
Politics, Economics and Econometrics

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"New Labor Market Institutions and the Public Policy Response: Conference to Honor Lloyd Ulman," IRLE, October 27, 2007. Sections of this paper draw from unpublished work with Peter Hall and ongoing work with Arindrajit Dube and William Lester.

ABSTRACT

In the past thirty years the national minimum wage in the United States fell by about 30 percent, while the size of the low-wage labor market increased substantially. To counter these trends, a coalition of community-based organizations, trade unions, churches and Democratic Party officials have successfully put into place higher wage mandates (known as "living wage policies") in about 140 local governmental entities. Similar coalitions have led 32 of the 50 states to adopt higher state minimum wage standards.

Although wage standards enjoy extremely levels of political support and have helped elect Democratic candidates to public office, the economics of minimum wages continues to generate considerable controversy. Elected officials are interested in whether the economy can absorb a minimum wage increase without employment falling. I present evidence that this has been the general pattern, since most statutes are enacted during business cycle upturns.

Economists have studied most often whether the minimum wage increase has a causal effect on employment. The well-known debate between Card and Krueger and Neumark and Wascher led many economists to believe either that a) any adverse employment effects were too small to be detected and therefore negligible, or b) that the available data to study minimum wage impacts is too imprecise to rule out adverse impacts. My recent research on minimum wage impacts —joint with Arindrajit Dube and our students-- exploits the more recent variation in wage mandates across localities and states. We use both new datasets and new statistical methods to show that the impacts of minimum wage policies can be identified with greater statistical power than in previous studies, and that the employment effects are indeed negligible.

> "When I ran for governor, I said that we could not afford an increase in the minimum wage unless the economy bounced back. Well, the economy has bounced back, so it is now time for those who often work the hardest and earn the least to benefit from California's growth. So let us increase the minimum wage by one dollar an hour, with half starting this year." [Arnold Schwarzenegger, California State of the State address, January 5, 2006]

> "As one looks at all the dire predictions - whether one is talking about 1938, 1949, 1955, the various times Congress considered raising the minimum - none of them came true. As a matter of fact, if you look at the record, employment increased each time, except in the depth of the 1975 recession." [Rudy Oswald, Economic Research Director, AFL-CIO. New York Times interview, August 21, 1988.]

> "Virtually every empirical study I know of has concluded that an increase in the minimum wage does destroy jobs. … You are able to raise the minimum wage when times are good, when wages have been rising anyway. Therefore you happen to observe that in years that Congress is able to pass a minimum wage, there is higher employment." [William C. Dunkelberg, economist, National Federation of Independent Business. New York Times interview, August 21, 1988.]

1. Introduction

The past twenty-five years has been a time of real wage declines for less-educated workers, wage stagnation for most middle and upper income groups, and a dramatically increased concentration of income among the very top income and wealth groups. But the past twenty-five years has also been a period in which new popular political organizations and coalitions have emerged and worked to restore wage standards. Despite the conservative tenor of this era, these campaigns have been increasingly successful. Do their political successes signal a reaction to the shifting norms of our time and an emergent popular capacity to restore some fairness in the U.S. labor market? Can they succeed without adverse consequences for employment and economic growth?

In this paper I review first the recent political evolution of campaigns to increase local and state wage standards. Such campaigns have succeeded in a variety of environments, not just in states with high housing costs or more liberal political traditions,

or just in states that have had declining (or expanding) economic fortunes, and that state minimum wage differentials have become a durable part of the labor market. To increase their scale, minimum wage advocates increasingly have undertaken ballot campaigns, with fairness and requirements for basic needs as their main arguments. I then turn to the impacts of federal and state minimum wage increases on employment, first in a descriptive manner, in the style of Oswald's quote above, but updated, and then using the tools of modern econometrics.

2. The Politics

Political action in the U.S. concerning municipal living wage and state minimum wage standards has exploded in the past decade. Since 1994, over 130 local governmental entities have passed living wage standards. Although living wage laws generally have a quite limited coverage, most of the living wage campaigns generated considerable publicity about living standards. Anecdotal evidence indicates they have created important spillover effects on the political determinants of low wage labor markets.

States first began raising their minimum wages in the latter 1980s. By 1990, before the 1990-1991 federal increases, 10 states had an above-federal minimum wage standard. But after 1991, the number fell to only 3: Alaska, Oregon and Rhode Island. In this period, state minimum wages above the federal level were not long-standing. In 1995, just before the federal increases in 1996 and 1997, 8 states had higher minimum wages. But this time, in 1997, i.e., after the federal increase, 8 states (plus DC) remained above the federal level.[1] The minimum wage in these states has remained higher than the federal level ever since,

[1] Alaska, District of Columbia, Hawaii, Massachusetts, Oregon, Rhode Island, California, Delaware and Vermont

initiating a period in which state minimum wage variation has become a durable aspect of the labor market.

By 2004, 12 states plus (DC) had higher minimum wages, with 6 additional states joining this group in 2005 and 2006. Since then, campaigns to increase state increases have accelerated in number and scope. By 2007, 32 states and four municipalities had enacted minimum wage standards above the federal level (see Figure 1). Moreover, ten now included provisions for indexation.

In early 2007, states with higher minimum wages accounted for well over half of the U.S. workforce (Figure 2). Thirty states still have a higher minimum wage than the federal increase of July, 2007 (Figure 3). At least a dozen states are already slated to have higher standards even after the federal minimum wage of $7.25 scheduled for July 2009.

These developments indicate the emergence of new patterns of state variation in the minimum wage. First, the campaigns have become more based in popular mobilization and their successes may create a momentum for further campaigns in the future. Second, the states with higher minimum wages are more widespread, not limited to areas with above-average living costs or more liberal political leanings. Third, the patterns are durable, in the sense that employers and workers must respond to them as long-lived, rather than transitory.

Living Wage Campaigns

The rapid growth of minimum wage political activity was based in large part upon the prior accumulation of successful local living wage campaigns. The groups that have advocated living wage ordinances are most often a coalition of local community, labor and

faith-based organizations. In many cases, these coalitions then became active in campaigns to increase state minimum wages.

Most living wage policies set standards that are in the $10 or more range, i.e., much higher than state minimum wages. They usually apply to service contractors of local governments and in some cases to tenants of government-owned land, such as an airport or sports arena. Over 130 such ordinances have been passed and implemented since 1994 and the cities that have passed living wage ordinances contain over half of the U.S. population.

Not all the ordinances have been strongly enforced, but in some cases the threat of an ordinance or the spillover effects of a strong campaign had effects on other jurisdictions. For example, although the city of Santa Monica essentially repealed a living wage ordinance, the threat of a renewed ballot fight led major hotels in the area to agree to be unionized and to pay their low wage workers near living wage standards. Similarly, a living wage campaign in Los Angeles generated considerable publicity about the below-poverty pay levels that had become standard in many occupations. According to reports in the Los Angeles Times, this publicity generated widespread public support for L.A. janitors in their successful campaign to unionize the downtown office buildings.

The successes of living wage campaigns have also begun to generate a sectoral approach to wage standards in a number of cities. Examples of such policies already in place include large restaurants and hotels in Santa Fe, NM, hotels in Emeryville, CA, and hotels located near Los Angeles International Airport. The Santa Fe campaign stimulated efforts to expand coverage to all employers in the city as well as to set a higher statewide minimum wage. In 2006, the Chicago City Council passed an ordinance with a $10 wage standard for big box retail stores. It was vetoed by the Mayor, who then campaigned

strongly and successfully for another increase in the Illinois minimum wage. City council members who changed their vote and forestalled an override of the veto were turned out of office by mobilized voter campaigns in the next local elections, indicating that the Chicago big box ordinance has generated political activity that will continue to evolve.[2]

Voter Mobilization to Increase State Minimum Wages

The political dynamic of minimum wage campaigns has also evolved. Most state minimum wages are enacted by state legislatures and governors. But in recent years, activist organizations increasingly have successfully used the petition and initiative process to place minimum wage issues on popular ballots. The pioneer is Washington State, where ballot measures initiated by a coalition of community, labor and church organizations passed with 84 percent of the vote in 1988 and 66 percent in 1998. The 1998 measure added indexation, a feature that many legislatures and governors have been very reluctant to consider. In 1996, ballot measures that set a state minimum wage were passed in California (by 59 percent) and in Oregon, (by 57 percent), but failed in Missouri and Montana. Oregon then voted (by 52 percent) to raise and also to index the minimum wage in 2002, in the midst of a recession in state employment. Also, in 2002 New Orleans voted by two to one for a higher minimum wage, but the measure was eventually struck down in state court. A 2003 initiative to set an $8.50 citywide indexed minimum wage in San Francisco passed with 60 percent of the vote. A 2004 Florida ballot issue that included

[2] On living wage campaigns and the politics of their implementation, see Stephanie Luce, *Fighting for a Living Wage*, Cornell University Press, 2004. On their impacts, see the special issue of *Industrial Relations* on living wage research, January 2005.

indexation passed with 71 percent of the votes, while the state voted by a large margin for the Republican presidential candidate.[3]

More recently, such activity generated minimum wage ballot measures in November 2006 in six states, all of which are considered "swing" states by political analysts. All six measures passed easily (Arizona – 65.4 percent, Colorado --53.3 percent, Missouri-- 76 percent, Montana—72.7 percent, Nevada—68.7 percent, and Ohio—56.5 percent), with large pluralities even among voters who are conservative on a range of social issues. According to CNN exit polls, in Missouri the ballot measure (Proposition B) had virtually the same margins in all income groups, including those with over $200,000, in every region, and with a 59 percent plurality among the 22 percent of voters who gave President Bush very strong job approval ratings. Political analysts credit the campaign for Proposition B with increasing voter registration and turnout among under-represented and Democratic-leaning voters, thereby contributing significantly to the election of Claire McCaskill to what had been a safe Republican seat in the U.S. Senate.[4]

Ballot campaigns have had effects in other states as well. In California, to take just one example, a vote by the legislature and an emergent campaign to put an indexation-included increase on the state ballot led the Governor to compromise with the legislature. The final bill excluded indexation but included an even higher increase of the minimum wage. Minimum wage opponents wanted to avert the even higher standard and indexation that would have been placed before voters in a ballot measure.

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[3] *Economic Justice*, Newsletter of the Washington Community Action Network; Ballot Initiative Strategy Center and Wikipedia entries.

[4] "Minimum Wage Measures on the 2006 Ballot," National Council of State Legislatures, November 12, 2006. Jeffrrey Makin, "Are Ballot Propositions Spilling over into Candidate Elections," Report 2006-2, Initiative and Referendum Institute, University of Southern California. See also "Initiative Myths and Facts 2006," Ballot Initiative Strategy Center, February 1, 2007.

In summary, political efforts to create local living wage and state minimum wage standards have been quite successful. They stand out as perhaps the biggest policy successes of progressive forces in a political era that is better known for its conservative policies. Moreover, the political momentum and scale of these successes has been increasing. Increasing the federal minimum wage became the first priority of the new Democratic majority in Congress. Indeed, it has been one of the few priorities that the Democrats have been able to enact.

Meeting Basic Needs and Fairness

My reading of the campaigns of the recent popular movements suggests, not surprisingly, that they emphasize almost entirely the issue of fairness and the social norm that workers should be able to support a household from their labor earnings. The effects on employment take a definite back seat.

The basic needs argument, summarized in the San Francisco slogan, $6.75 is not enough," has appeared countless times in campaign literature and publicity. Groups such as Women Organized for Women, ACORN, the Economic Policy Institute and the numerous state affiliates of the Economic Action and Research Network (EARN), have calculated basic needs budgets for every locality and for every type of household. Their reports have shown a growing gap between the minimum wage and a basic needs budget and they have generated considerable publicity in every state.

Fairness provides the basis for the very strong support for minimum wage increases found in public opinion surveys of minimum wage attitudes among those who are paid well above it. As I already noted, support generally runs about 80 to 90 percent for an increase

in the minimum wage.[5] Among likely voters, support historically ranged between 60 to 70 percent, with more recent polls showing greater support. There is a surprisingly small reduction of support among those with more income or education, one indicator of the importance of fairness among the public as a whole.

The importance of fairness is evident in the greater support for wage standards when the proposed standard is higher. For example, a 2002 Lake, Snell, Perry national poll of likely voters found 72 percent in favor of increasing the $5.15 federal minimum wage to $6.65, while 77 percent favored an increase to $8.00.[6] A 1998 David Binder poll asked San Francisco residents whether they supported a living wage ordinance at various levels and then repeated the question after providing the respondent with the estimated cost to the city's taxpayers. The cost mentioned was of course higher for higher wage standards. Yet support was greater for the higher living wage standards, again indicating the importance of fairness to these respondents.

By emphasizing fairness and meeting basic needs I do not mean to suggest that employment consequences are unimportant. I turn next to this issue.

3. The Economics

Until recently, most minimum wage increases have occurred through the legislative process, not through popular votes. The effects upon employment and growth, approached in different ways in the second and third head quotes, are more of a concern for elected officials. Oswald's statement in the head quote above ignores the importance, ingrained in

[5] Waltman (2000). Since 2000, an annual Pew Research Center poll has continued to find comparable support levels for increasing the national minimum wage. See http://people-press.org/reports.
[6] Ms. Foundation for Women 2002. *Economic Stimulation, Welfare and Minimum Wage: Presentation on a Nationwide Survey of 800 Likely Voters.* February 20, 2002.

all trained economists, of looking at *ceteris paribus.* Yet, Oswald's point --that national employment had increased after every single federal minimum wage increase since 1938, with only one exception— is appealing. Elected officials, after all, want to know whether a minimum wage increase will lead to reductions in employment, and if so whether it will occur within their own re-election time horizon.[7] Oswald provides them one answer. Dunkelberg does not dispute the facts, but provides a different explanation.[8] He also appeals to the work of econometricians who study the matter empirically, which is preferable to the purely theoretical arguments of some economists.

Business Cycles and Minimum Wages: Votes and Implementation

I discuss here a corollary of Oswald's claim as articulated by Dunkelberg. Minimum wage increases are not followed by employment reductions because they almost always are passed and implemented in more buoyant times, in a context of employment growth. To address this question, I have gathered all the federal and state vote dates as well as implementation dates.[9] In effect, the question becomes not whether minimum wages affect employment, but whether minimum wage increases occur in expansionary phases of the business cycles so that the economy can absorb the increase without experiencing an actual downturn.[10] I consider first the federal increases and then the state increases.

[7] Ideology and party discipline also affect legislators' votes. In early 2007, 13 of the 43 Senators who voted against increasing the federal minimum wage came from states that already had higher minimum wages and therefore stood only to benefit from the proposed federal increase. The comparable House figures are 63 of the 113 negative votes. (From unpublished tabulations by Eric Freeman and Michael Reich)

[8] Much of the discussion of adverse employment effects has been promoted by a few business groups, notable the National Federation of Business and National Restaurant Association.

[9] I am grateful to Gina Vickery for her excellent research assistance in tracking down the vote dates for every state.

[10] Voting patterns for minimum wage increases have been examined by Kau and Rubin (1978), Cox and Oaxaca (1982), Seltzer (1995) and Sobel (1999). Each of these studies develops an interest-group model, but none examines the timing of the minimum wage in relation to the business cycle. Zavodny (1998) does discuss timing relative to the business cycle, suggesting that standard employment elasticity estimates are biased downward; but her evidence is limited to a few anecdotes.

From 1955 to 1996, Congressional legislation on seven separate occasions has resulted in a total of sixteen discrete increases in the federal minimum wage. These increases were much more likely to occur in times of stronger employment growth. Figure 4 provides a qualitative illustration of this point by showing the timing of increases in the federal minimum wage in relation to the national employment growth cycle. As Figure 4 shows, the 1955, 1966, 1977 and 1996 *votes* came at or near the top of an employment growth cycle. The 1989 vote came towards the end of a long expansion and the 1974 vote at the end of a shorter one. Only the 1961 vote coincided with a downturn in national employment creation.[11]

The picture is similar for the implementation years, displayed in Figure 5. Of the sixteen implementation events, employment grew at above average rates in nine, grew below average but positive in five, and fell in two. The two implementation increases following the 1961 vote, two of the three increases following the 1974 vote, and the two increases following the 1989 vote coincided with lower and even negative employment growth. It could thus be argued that these increases were poorly timed.

Increases in the Federal minimum wage since 1950 have not occurred with sufficient frequency to take this analysis further. I proceed, therefore, to analyze state-level minimum wage increases. To explore the idea that the effect of a minimum wage increase depends, in part, on the timing of the increase relative to the business cycle, I gathered from a variety of sources all the available state vote and implementation dates. I found vote dates for 18 states that voted on 47 separate occasions to increase their minimum wage level, resulting in 85 distinct implemented increases in state-level minimum wage levels between

[11] It also coincided with the beginning of the New Frontier era and therefore with measures to stimulate the economy as well as insure that low-paid workers would benefit from the recovery.

1987 and 2003. These increases ranged in magnitude from the 1.3 percent increases in Vermont in 1990 and in New Hampshire in 1991, to the 27 percent increase in California in 1988.

As Table 1 shows, the states that enacted minimum wage increases experienced essentially the same annual average employment growth rate as the nation as a whole. Table 1 also shows that, as with federal minimum wage increases, state minimum wage increases are more likely to be approved and implemented when the employment growth rate is above average. As Table 2, Panel A makes clear, the overwhelming majority of state minimum wage increases are approved by legislatures (and the voting public in a small number of instances) in the context of employment growth: 37 of 47 votes occurred in the context of positive employment growth, and 36 were followed by positive employment growth. Votes to increase the minimum wage also typically do not affect prevailing employment growth trends; as Table 2, Panel B shows, 38 of 47 increase votes are associated with no sign change (i.e., continued growth or no improvement).[12]

In summary, minimum wage increases are voted, almost without exception, and are mostly implemented, in times of growing employment. This pattern holds both for federal and state increases. Moreover, the overall employment growth cycle, at least in the short run, is relatively insensitive to increases in the minimum wage.

[12] Table 2 derives from joint work with Peter Hall. Our results did not change when we excluded two subsets of state minimum wage increases. In 1989 to 1991, 7 votes in Iowa, Massachusetts, New Hampshire, North Dakota, Oregon, Rhode Island and Wisconsin approved increases in their minimum wage levels in anticipation of an imminent federal minimum wage increase, and these arguably had a more token nature. We also found no difference when excluding the 4 ballot initiative-based votes in Oregon and Washington.

In other words, while the decision to increase the minimum wage appears to be highly dependent on the business cycle and overall employment growth rate, the short run employment growth rate is not dependent on minimum wage increases. Prior employment growth trends persist after minimum wage increases, although in some cases increases voted in the context of growth may be implemented in a less favorable economic climate. These findings support the argument that policy makers, legislators and voters, are concerned with the timing of minimum wage increases, relative to the business cycle.

4. Econometric Evidence of Minimum Wage Effects on Employment

In this final section, I briefly survey recent studies, including my own, that try to identify the causal relation between minimum wages and employment. The challenge, of course, is to find a way to eliminate correlations of employment over time and space that can contaminate the findings, but that are not truly related to minimum wage changes. As we have seen, such errors might be introduced by the timing of minimum wage changes during the business cycle; another might be introduced by regional or local differences in employment trends that are correlated empirically with minimum wages but are not the results of minimum wages.

State of the Debate

Is there still a controversy on the effect of minimum wage on jobs? Yes. Although Card and Krueger's method—a local "case study" comparing restaurants in New Jersey and Pennsylvania—and their findings of no negative employment effects seemed to be definitive to many, their data actually cannot rule out larger negative effects with confidence. A recent case study (Dube, Naidu and Reich 2007) of San Francisco—East

Bay restaurants also found no negative effects and had with more precise data. However, the precision of case studies may have been overstated due to common economic shocks. And a study with two regions is only a single "experiment," even if there are many companies in the sample.

Estimates from state-level panel data suggest there may be larger effects. They typically focus on "high impact group" like teenagers and use variation in the minimum wage across states over time (Neumark and Wascher 2007, 1992; Burkhauser et al 2000). They effectively assume that minimum wage hikes are not correlated with underlying growth prospects in low-wage jobs, which could bias their findings. The precision of most of these studies also may have been overstated.

In some new work, Dube, Lester and Reich (2007) develop two local estimators that generalize the previous "case study" methods. We use *all* contiguous county-pairs and within-MSA county groups that straddle state borders with a minimum wage differential to measure the effect of minimum wages on earnings and employment. The key to our identification strategy is that economic activities are continuous over space but policies are discontinuous at political boundaries. We show that this approach allows much better control groups and by using all national counties, we can reconcile the divergent results in the previous literature.

I provide just a "taste" of these findings here -- through time paths of earnings and employment, displayed in Figure 6, and our main results, displayed in Table 3. We are able to generalize the findings of the local case studies with many more observations and find that their results still hold. Using a national estimator, we are also able to reproduce the negative employment effects of the national panel literature. We also show that including

just the nine Census divisions as an additional control eliminates about half the negative effect. More generally, using a variety of other tests, including a "placebo," a variety of lags and other controls, our results indicate that the national panel findings are contaminated by spatial and temporal trends. Our local estimators, in contrast, give robust results.

5. Conclusions

Political campaigns to increase minimum wages have drawn more upon questions of fairness and arguments about the income required to meet basic needs than upon the employment consequences that are emphasized by elected officials, by some interest groups and by some economists. The evidence presented here suggests that the political dynamic to increase minimum wages has not necessarily peaked, although political forecasting is even more hazardous than economic forecasting.

I have also found that the economic capacity to absorb these increases has not yet been binding. The success of the San Francisco Airport's living wage experience with a $10 minimum wage and the San Francisco citywide $9.14 minimum wage provide us with some positive examples that indicate how high minimum wages can go without adverse effects. My work on airport screeners pre-911 showed that a near-doubling of their wage rates (from $5.75 to about $10.) led to an 80 percent reduction in turnover. In the Dube, Naidu and Reich (2007) San Francisco restaurant study, employee tenure rose dramatically when the minimum wage increased from $6.75 to $8.50.[13]

[13] We also found a price increase of 1 to 2 percent, limited to fast-food restaurants.

Another source of information concerns the effects that higher wage floors can have on reducing employers' recruitment and retention costs.[14] According to BLS JOLTS data, annual employee job turnover in the U.S. in all industries averages about 30 percent, twice as high as in Europe, which nonetheless has the same amount of job flows and economic restructuring (Pries and Rogerson 2005). The booming European economies with even higher minimum wages-- such as Ireland and the United Kingdom— thus provide additional positive examples. You can draw your own conclusions.

[14] Ulman (1965) pioneered the study of the relation between wages and job mobility.

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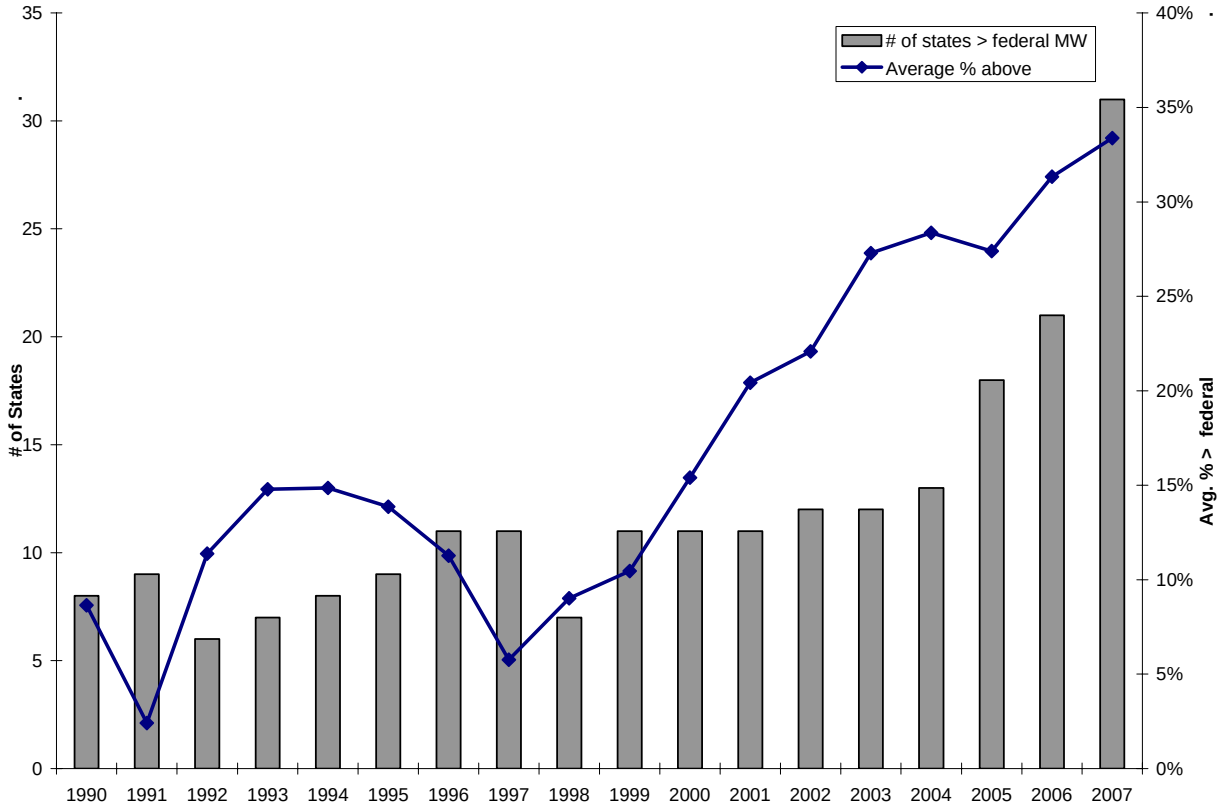
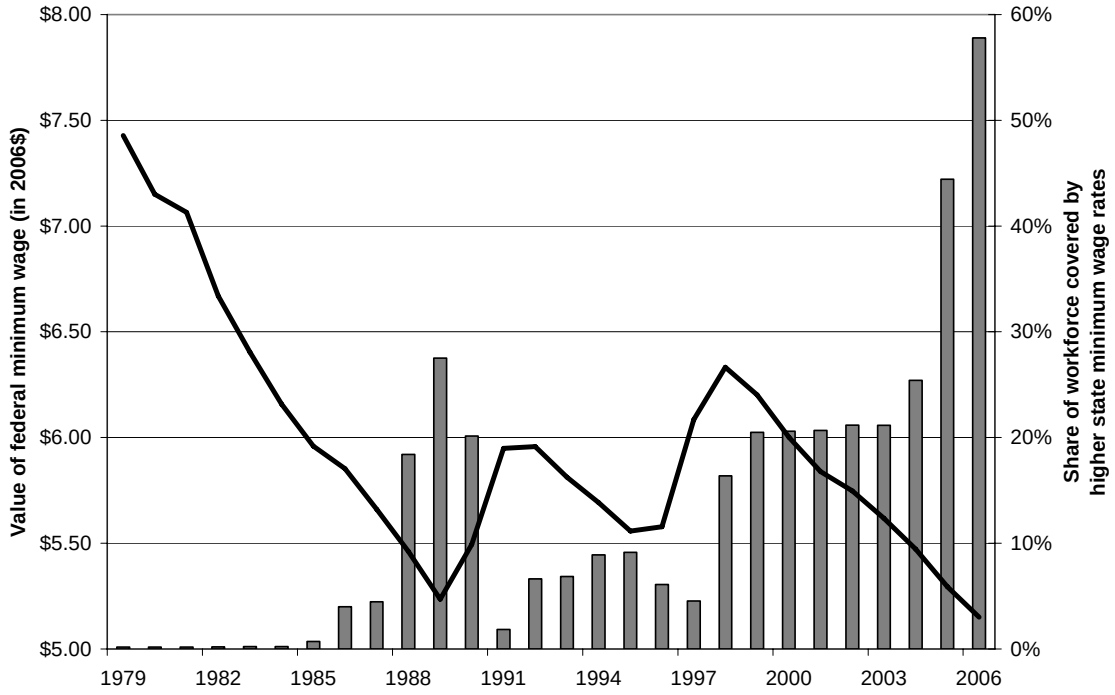
Figure 1. Number of States with Minimum Wages above Federal Level and Average Percentage above Federal, 1990-2007



Source: U.S. Department of Labor, Wage and Hours Division.

Figure 2. Share of the Workforce Living in States with Higher Minimum Wages, 1986 - 2006.



Source: U.S. Department of Labor, Wage and Hours Division and Economic Policy Institute.

Figure 3

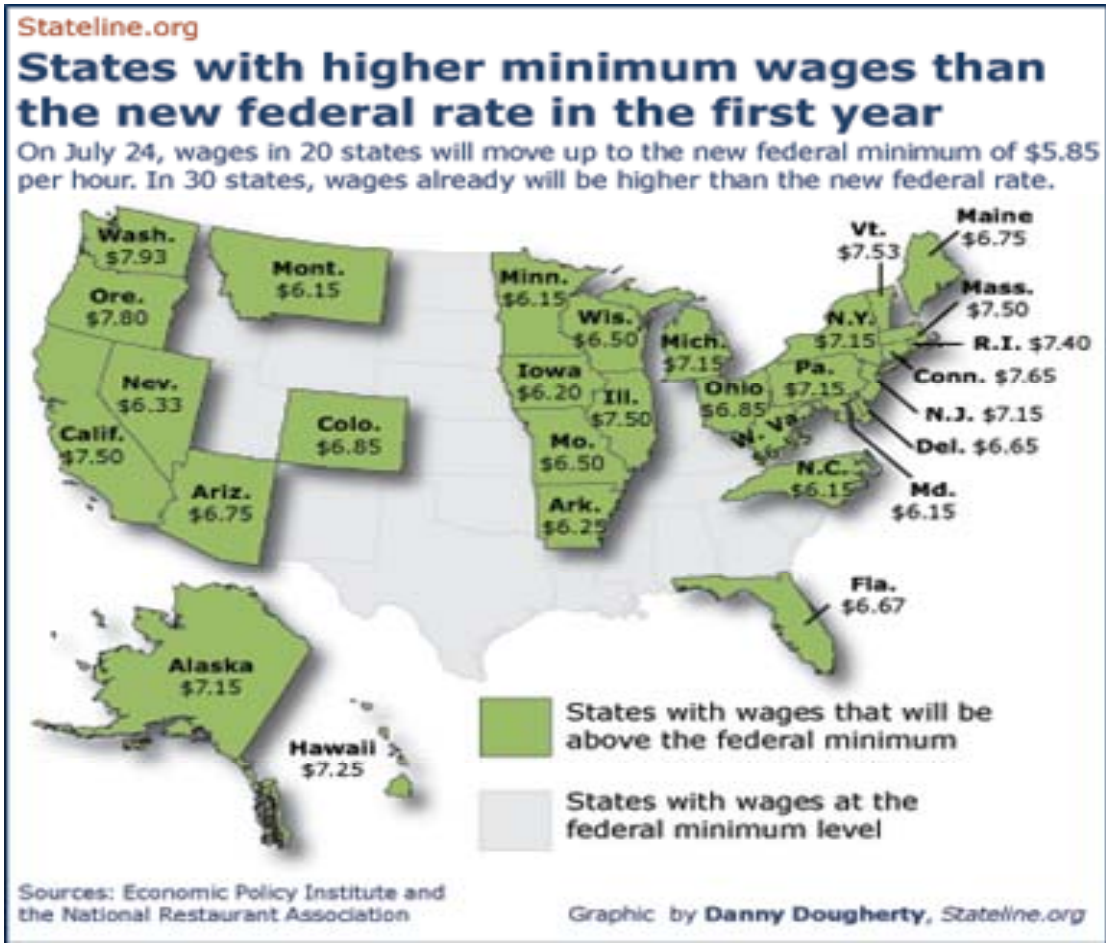

Stateline.org
States with higher minimum wages than the new federal rate in the first year
On July 24, wages in 20 states will move up to the new federal minimum of $5.85 per hour. In 30 states, wages already will be higher than the new federal rate.
Wash. $7.93
Ore. $7.80
Calif. $7.50
Nev. $6.33
Ariz. $6.75
Mont. $6.15
Colo. $6.85
Minn. $6.15
Iowa $6.20
Wis. $6.50
Ill. $7.50
Mich. $7.15
Mo. $6.50
Ark. $6.25
Ohio $6.85
Pa. $7.15
N.Y. $7.15
Vt. $7.53
Maine $6.75
Mass. $7.50
R.I. $7.40
Conn. $7.65
N.J. $7.15
Del. $6.65
Md. $6.15
N.C. $6.15
Fla. $6.67
Alaska $7.15
Hawaii $7.25
States with wages that will be above the federal minimum
States with wages at the federal minimum level
Sources: Economic Policy Institute and the National Restaurant Association
Graphic by Danny Dougherty, Stateline.org

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Figure 4 Employment Growth and Vote Dates of Federal Increases

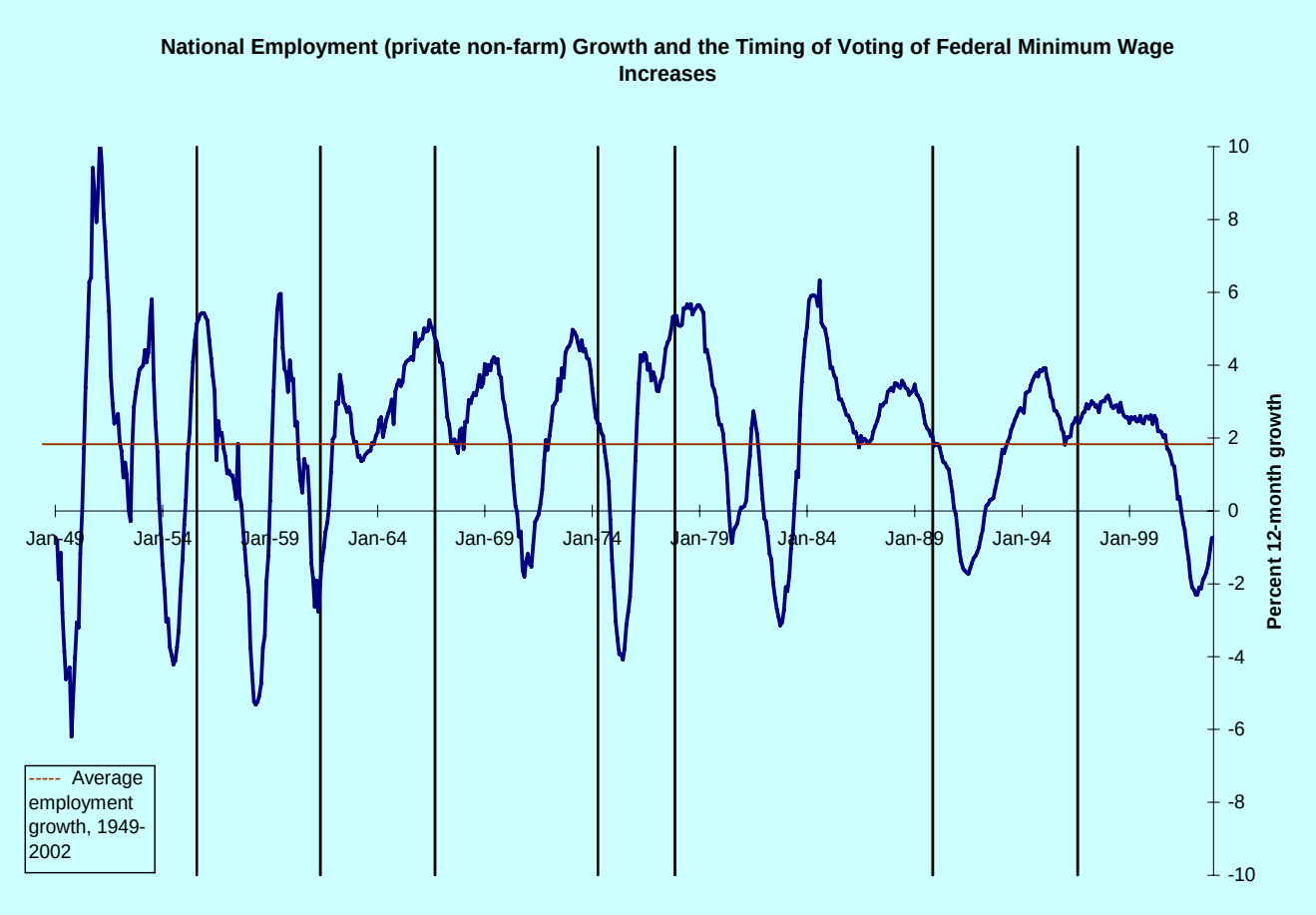


Figure 5 Employment Growth and Federal Minimum Wage Implementation Dates

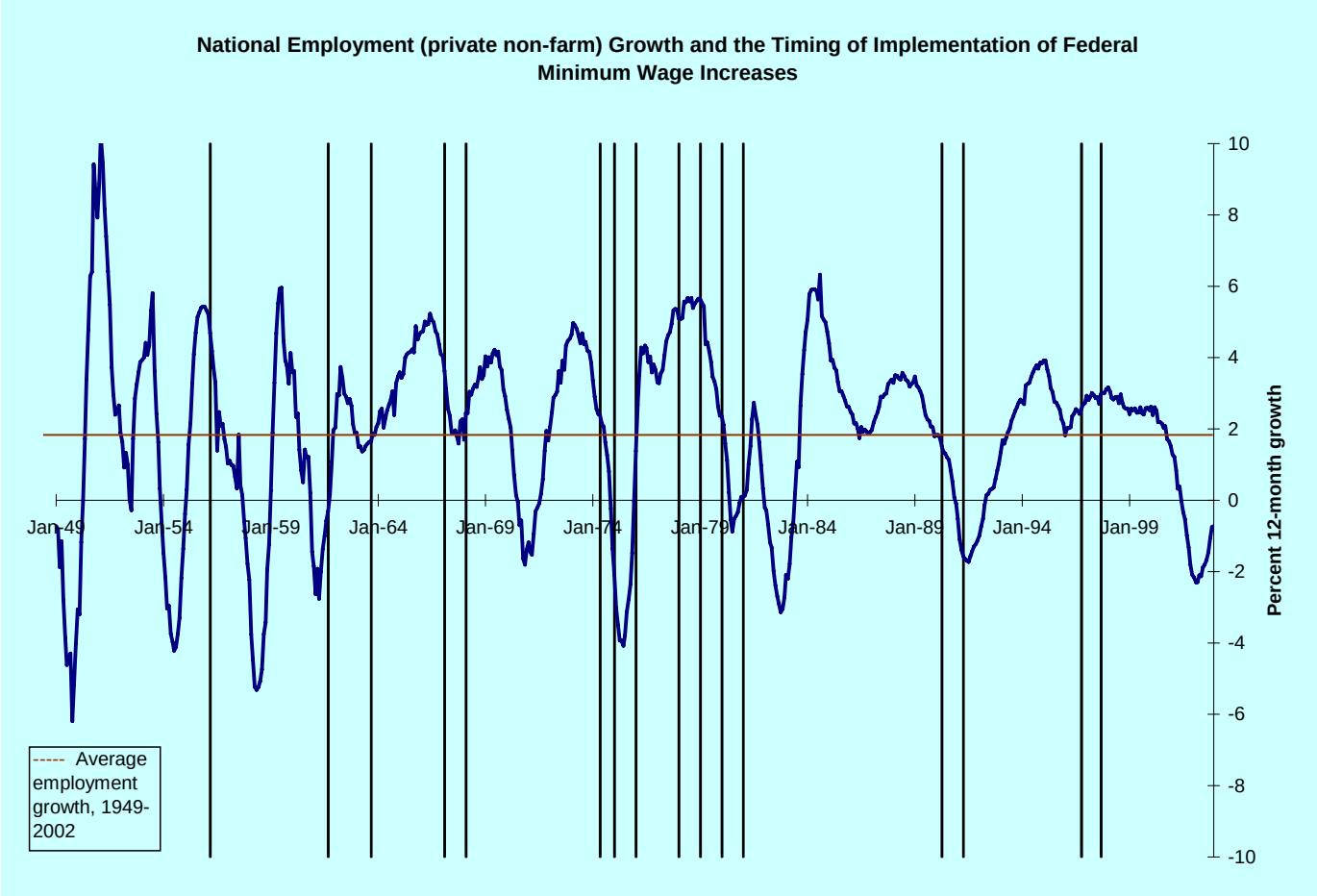
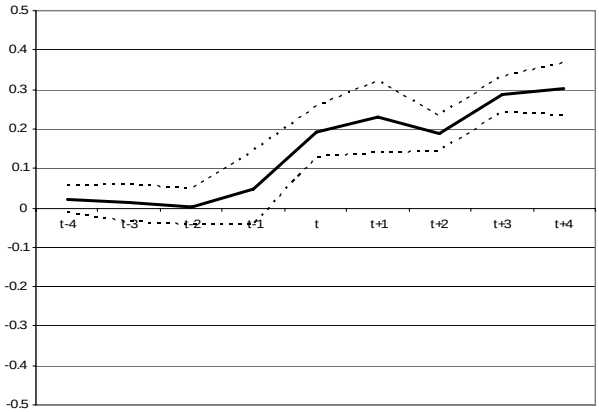
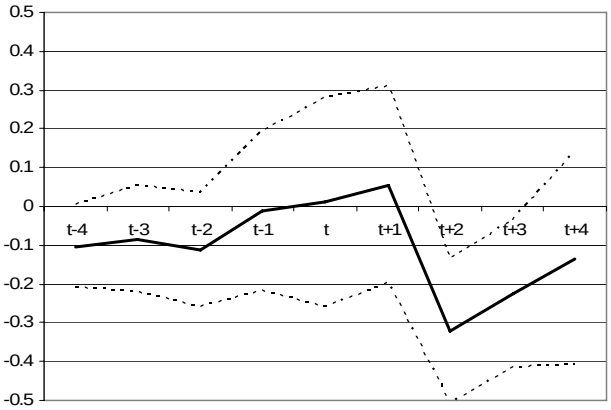


Figure 6 Time Paths of Minimum Wage Effects, by Sample, Semi-Annual Periods

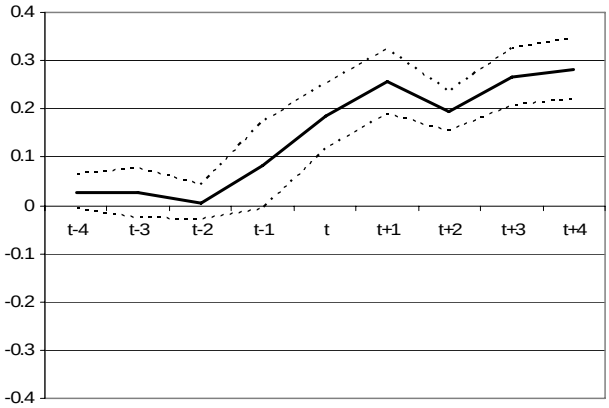
Earnings **Employment**

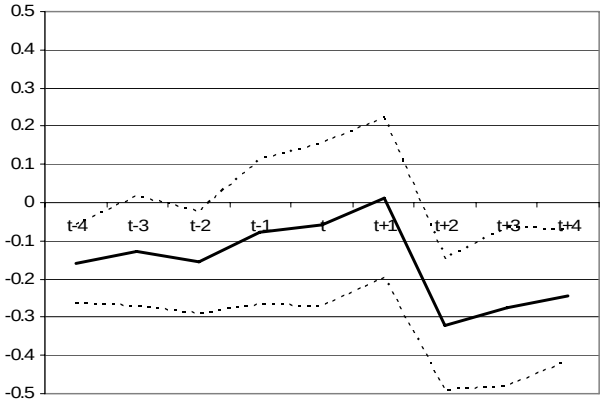
1) All Counties



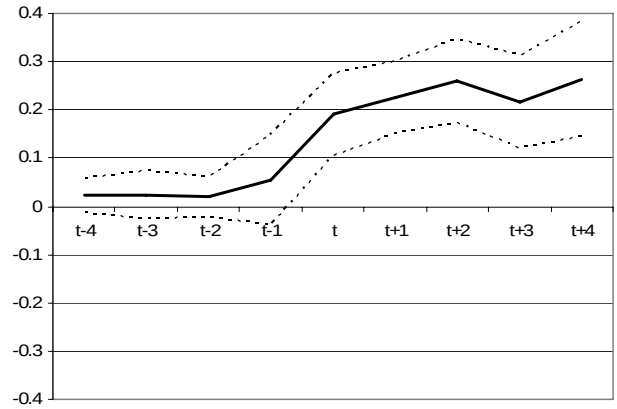


2) All Metro Counties





3) All Metro Counties, with Census Division Controls



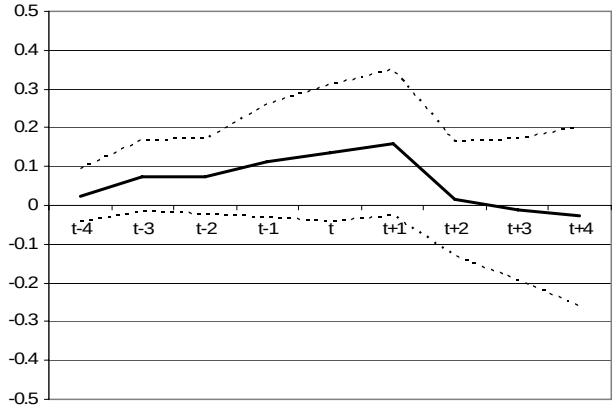
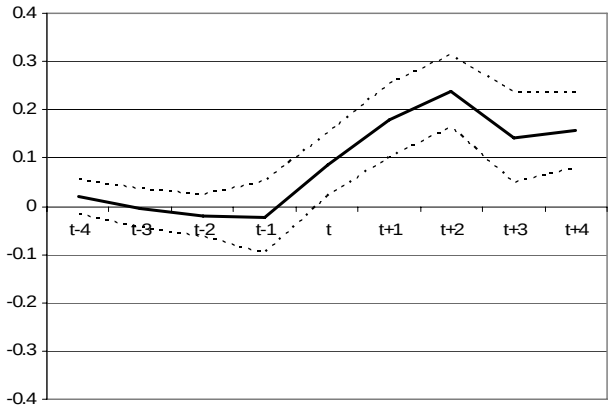
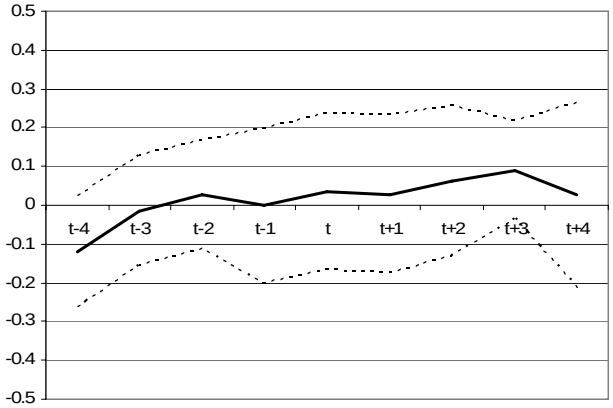


Figure 6. Time Paths of Minimum Wage Effects, by Sample, Semi-Annual Periods (continued)

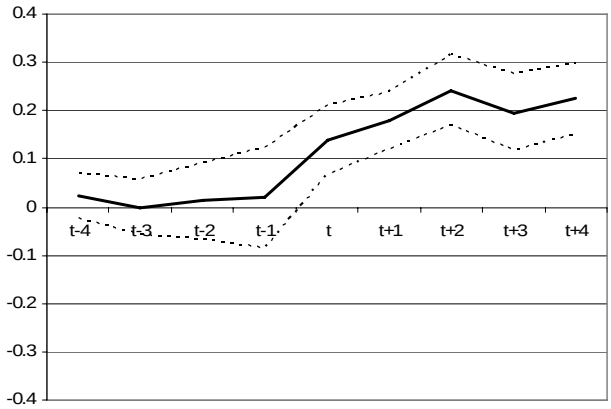
Earnings **Employment**

4) All Cross-State Metro Counties





5) All Contiguous Counties



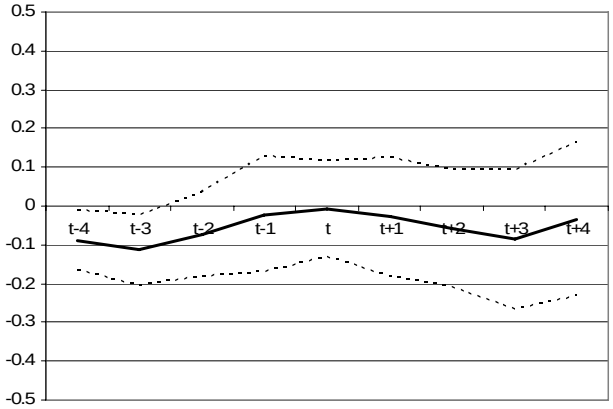


Table 1
Average Employment Growth and State Minimum Wages, 1987 - 2003

	All 12-month periods, January 1987 to December 2003	12 months before Vote to increase State Minimum Wage	12 months before Implementation of State Minimum Wage increases
United States	**1.6**		
18 Implementing states	**1.5**		
Alaska	**1.8**	**1.1**	**2.7**
California	**1.6**	**3.3**	**2.3**
Connecticut	**0.2**	**1.5**	**0.8**
Delaware	**1.9**	**3.5**	**3.1**
Hawaii	**1.6**	**2.6**	**1.5**
Illinois	**1.2**	**-1.2**	**n/a**
Iowa	**1.8**	**4.2**	**1.7**
Maine	**1.4**	**3.1**	**2.0**
Massachusetts	**0.4**	**-0.3**	**1.3**
Minnesota	**2.0**	**3.2**	**2.7**
New Hampshire	**1.4**	**0.7**	**0.4**
New Jersey	**0.8**	**-0.6**	**-2.3**
North Dakota	**1.7**	**1.0**	**1.1**
Oregon	**2.3**	**3.1**	**2.5**
Pennsylvania	**0.9**	**2.2**	**2.4**
Rhode Island	**0.6**	**0.5**	**0.3**
Vermont	**1.5**	**2.2**	**2.3**
Washington	**2.4**	**3.0**	**3.7**
Wisconsin	**1.9**	**3.2**	**2.9**

*** Illinois increase voted August 21, 2003 was implemented on January 1, 2004 and January 1, 2005.**

Table 2. **A: State employment growth before and after minimum wage increase votes, 1987 – 2003**

		Employment growth after the vote to increase the state minimum wage		
		Positive	**Negative**	**Total**
Employment growth before the vote to increase the state minimum wage	**Positive**	**32**	**5**	**37**
	Negative	**4**	**6**	**10**
	Total	**36**	**11**	**47**

P = 0.002, chi-squared = 9.490, df =1. Fisher's Exact Test, p = 0.006.

B: State employment growth before and after minimum wage increases, 1987 – 2003

		Employment growth after the increase in the state minimum wage		
		Positive	**Negative**	**Total**
Employment growth before the increase in the state minimum wage	**Positive**	**58**	**14**	**72**
	Negative	**5**	**8**	**13**
	Total	**63**	**22**	**85**

P = 0.001, chi-squared = 10.171, df =1. Fisher's Exact Test, p = 0.003.

Table 3

Main Results – Earnings and Employment

	Ln Average Weekly Wages			Ln Employment					
	(1)	(2)	(3)	(4)	(5)	(6)			
	Not Clustered SE	**Clustered SE**	**Clustered + Total Private Sector**	**Not Clustered SE**	**Clustered SE**	**Clustered + Total Private Sector**	**County Pair x Period**	**MSA x Period**	**Census Div x Period**
1. Contiguous county pairs	0.190***	0.190***	0.179***	0.012	0.012	-0.029	**Y**		
	(0.010)	(0.032)	(0.029)	(0.020)	(0.073)	(0.066)			
90% Confidence Interval				(-0.045 to 0.022)	(-0.134 to 0.110)				
2. Cross-state metro counties	0.153***	0.153***	0.149***	-0.00002	-0.00002	0.004		**Y**	
	(0.013)	(0.03)	(0.027)	(0.029)	(0.093)	(0.076)			
90% Confidence Interval				(-0.048 to 0.048)	(-0.149 to 0.149)				
3. All counties	0.224***	0.224***	0.217***	-0.147***	-0.147	-0.143			
	(0.004)	(0.033)	(0.027)	(0.010)	(0.120)	(0.130)			
90% Confidence Interval				(-0.163 to -0.131)	(-0.344 to 0.050)				
4. All metro counties	0.209***	0.209***	0.192***	-0.215***	-0.215***	-0.194***			
	(0.005)	(0.030)	(0.025)	(0.012)	(0.055)	(0.062)			
90% Confidence Interval				(-0.234 to -0.196)	(0.351 to -0.079)				
5. All metro counties	0.196***	0.196***	0.184***	-0.017	-0.017	-0.065			**Y**
	(0.008)	(0.037)	(0.032)	(0.019)	(0.075)	(0.059)			
90% Confidence Interval				(-0.049 to 0.015)	(-0.140 to 0.106)				

Robust standard errors in parentheses, clustered at state level.
* significant at 10%; ** significant at 5%; *** significant at 1%.