Absenteeism and Minimum Wages: Evidence from the CPS-MORG

by

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Abstract

Some proponents of higher minimum wages cite reduced absenteeism as a positive side-effect. However, little evidence on the relationship between minimum wages and absenteeism exists for the United States. This paper examines the effect of minimum wages on absenteeism using data from the Merged Outgoing Rotation Groups of the Current Population Survey for the years 1979-2007 (CPS-MORG). We estimate a negative relationship between minimum wages and absenteeism for men, but a positive relationship for women. We consider three possible explanations for the positive estimated effects for women: selection, wage-constrained hedonic equilibrium, and differential costs of absenteeism. The evidence is inconsistent with the selection story, and most easily reconciled with the differential cost story.

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I. Introduction

This paper examines the relationship between absenteeism and the minimum wage. The question is worthy of research in its own right, but is also important because there is still disagreement regarding the empirical effects of minimum wages on employment. One possible explanation for this the lack of agreement is that employers reduce nonwage compensation sufficiently to offset the negative effect of higher minimum wages on employment. Absenteeism -- unscheduled flexibility in work hours -- can be thought of as one such element of nonwage compensation.[2] Alternatively, some advocates imply that higher minimum wages reduce voluntary absenteeism, going so far as to suggest that such productivity enhancement might explain "why there is little evidence of job loss associated with minimum wage increases" (Employment Policy Institute 2008).[3] Whether voluntary or involuntary, reduced absenteeism in response to higher minimum wages could help explain the difficulty of identifying negative employment effects of minimum wages.

Research on the relationship between minimum wages and absenteeism is sparse. One early empirical analysis, cited in Krueger (1994), is that of Reynolds and Gregory (1965), whose "careful field study of productivity responses to the minimum wage suggested that turnover and absenteeism declined in response to minimum wage hikes." However, relatively little empirical work on the question has been done since. A few studies have examined the effects of U.S. city living wage legislation on absenteeism. Although valuable, these studies are based on limited samples of individuals.[4]

Most studies of absenteeism focus on sickness absenteeism in European countries with government-financed sickness absence schemes, and examine the relationship between sickness absence and economic incentives. Such studies include Barmby et. al. (1991), Barmby et. al. (1994), Barmby et. al. (2002), and Johnson and Palme (1996).[5] Most recently, Ercolani and Robson (2006), using British data, estimated that the introduction of the National Minimum Wage in the UK reduced sickness absence by about 0.2 percentage points, or by about 7.4%.

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[2] Simon and Kaestner (2004) found no evidence that higher minimum wages lead to reduced fringe fbenefits. Bucila (2008) found some evidence of a negative but statistically imprecise effect of minimum wages on employer-provided health benefits.
[3] Non-academic examples include Haussamen (2009), Schmidt (2005), Shure (2002), Keystone Research Center, and Bounds (2004).
[4] Neumark and Adams (2000) characterized the evidence in Pollin and Luce (1998), the "best-known work on living wages," as "purely anecdotal" (p. 11).
[5] Financial incentives could cause workers to show up inefficiently (Press 2004).

This paper estimates the effect of minimum wages on absenteeism using data from the NBER's monthly outgoing rotation extracts of the Current Population Survey (CPS-MORG). Although not without limitations, the CPS -MORG data have the advantages of being nationally representative of the US workforce, and of allowing the researcher to observe each individual in the sample twice, one year apart. The limited panel information available in the CPS-MORG allows us to correct – at least in part – for changes in workforce composition that might occur in response to higher minimum wages. Comparisons between cross-sectional and panel estimates reveal the magnitude of this potential difficulty.

The paper is organized as follows. Section II reviews the theoretical literature on absenteeism. Section III describes our data. Section IV presents the findings. To foreshadow the results, we find that higher minimum wages are associated with reduced absenteeism among men, but increased absenteeism among women. Section V considers three explanations for the positive estimated effect for women: selection, wage-constrained hedonic equilibrium, and differential costs of absenteeism. Section VI concludes with a brief summary and some suggestions for future research.

II. Theory

Absenteeism is not inherently inefficient. The most common reason for absenteeism is worker health (Taylor 1981), particularly among women (Vistnes 1997; Ichino and Moretti 2008). More generally, some degree of flexibility in work hours is desirable in a world of uniform work schedules where job match-specific capital is important, and hiring and job mobility are costly (Allen 1983). One of the earliest approaches is Allen (1981a), who modeled absenteeism within a static labor supply framework in which workers contract with firms for a certain number of hours, $t(c)$, but on any given day fluctuations in the value of non-market time could cause a worker to wish to supply $t(w) < t(c)$ hours of time, the marginal cost of absence being equal to the market wage, w. The theoretical effect of w on absenteeism is ambiguous due to the usual offsetting income and substitution effects.[6]

Allen (1981b) and (1983) modeled absenteeism within Rosen's (1974) hedonic framework as arising from a demand for workplace flexibility. Workers select from among jobs offering the combination of wages and flexibility that maximizes their utility subject to a zero-profit constraint on firms. Workers who highly value flexible work hours sort into firms that can provide flexibility at low cost, and in equilibrium, earn lower wages. The hedonic equilibrium predicts an unambiguously

[6] Absence penalties may also be introduced. Brown and J. G Sessions (1996) extend Allen's (1981a) labor supply approach to include sick pay.

negative relationship between wages and absenteeism that arises from endogenous selection of workers with higher demands for flexibility sorting into firms that provide that flexibility at lower cost.

Barmby et. al. (1994) interpret absenteeism as a form of shirking that might be deterred by paying a wage higher than the worker's next best labor market opportunity. Firms fire workers for excess absenteeism, who then incur the cost of unemployment, job search, and the loss of the quasi-rent. The higher the wage paid by the firm, the lower the probability of absenteeism.

It is sometimes argued that employers might respond to higher minimum wages by adopting stricter attendance standards, which could generate a negative relationship between absenteeism and the minimum wage. However, it is not clear whether employers can implement such standards. In hedonic equilibrium, workers with relatively higher preferences for absenteeism sort into firms that offer relatively lower wages in equilibrium. A minimum wages makes it infeasible for employers to punish minimum wage workers with high ("excess") absenteeism in the form of lower wages. Because firing and hiring are costly, employers may be reluctant to fire such workers. Workers might choose higher rates of absenteeism in response to an increase in the minimum wage provided that the probability of being fired does not increase by too much.[7]

Neither the hedonic nor shirking approach is equipped to deal with the implications of exogenous increases in the minimum wage in a dynamic setting. Connolly (2008) examined the effect of fluctuations in the marginal rate of substitution between leisure and consumption induced by exogenous weather shocks within a dynamic labor supply framework. The key relationship is:

$$\frac{W_t/s_t}{W_{t+h}/s_{t+h}} = \frac{U'(L_t, C_t)}{U'(L_{t+h}, C_{t+h})}(1+r) \tag{1.1}$$

where W_t is the wage rate, L_t the quantity of leisure enjoyed, and C_t the value of consumption, all at time t, and s_t denotes the subjective value of the exogenous weather shock. Bad weather at time t reduces s_t / s_{t+h}. When workers can freely intertemporally substitute between work and leisure, hours worked at time t increase relative to time $t+h$.

The effect of changes in the minimum wage on labor supply depends crucially on the extent to which workers are able to intertemporally substitute market work and leisure. When workers are able to freely do so, exogenous changes in the minimum wages affect labor supply only to the extent that

[7] The firm could also punish the worker by reducing hours worked, but this, too, is costly.

they affect relative wages at different points in time.[8] It is when workers' *cannot* freely substitute between work and leisure that the marginal cost of absenteeism is related to the market wage.

Connolly (2008) used American Time Use Survey data to examine the effect of rainy days on labor supply. She hypothesized that rain reduces the value of non-market time and that hours worked should therefore rise. She found that men worked an average of an additional 30 minutes, consumed 25 fewer leisure minutes (p. 83), and devoted 11 fewer minutes to home production activities on rainy days.[9] The estimated effects were larger for men paid by the hour than for salaried men, implying that hourly workers are better able to intertemporally substitute market work across time periods (p. 85).

Connolly's (2008) results have important implications for the effects of minimum wages on absenteeism. Because the real value of the minimum wage is constant over relatively short periods of time, one would not expect changes in the minimum wage to affect absenteeism when individuals are able to intertemporally substitute between market work and leisure; the effect of wages cancels out in equation (1.1). It is when workers are not able to intertemporally substitute at low cost that absenteeism might be affected by the minimum wage.

To summarize, the theoretical case for a negative relationship between minimum wages and absenteeism is not clear, depending critically on the assumptions regarding worker preferences, the costs of firing and hiring, and the ability of workers to intertemporally substitute between work and leisure.

III. Data

Our data are taken from the NBER's monthly outgoing rotation samples (rotations 4 and 8) of the Current Population Survey (CPS-MORG) for the years 1979 through 2007. We constructed two samples. The first is called the *pooled sample*, and contains all employed individuals who meet certain criteria to be described shortly. The second dataset, called the *matched sample,* starts with pooled sample of individuals employed in rotation 4, who are then matched to their rotation 8 data.[10]

One important advantage of the CPS-MORG is the availability for hourly workers of a measure of hourly wages, which excludes tips, commissions, and overtime. For observations in which

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[8] To the extent that the changes are not foreseen, minimum wage changes might affect labor supply through the marginal utility of lifetime wealth.

[9] Women appear to spend more time in leisure on rainy days, which runs counter to the theory that rain reduces the value of their non-market time.

[10] The matching is based on household and person identifiers, gender, age, race and ethnicity, gender, marital status, and veteran status. Individuals cannot be matched between July 1984 and September 1985, or between June 1994 and August 1995 due to changes in the sample. We deleted the small fraction of cases in which the match was not unique.

no hourly measure was available, we computed hourly wages by dividing the weekly wage by usual hours worked per week. Unfortunately, the weekly wage measure prior to 1994 explicitly included tips, commissions, and overtime while the one after 1994 excluded them. The year effects, included in every specification, should help control for this change in definition.

The individual-level data were merged to data on minimum wages at the federal and state levels. The minimum wage is equal to the maximum of the federal minimum wage and, if applicable, the state minimum wage in effect at the time of the survey. Individuals are assumed to be paid the minimum wage if their reported or computed hourly wage is less than or equal to the minimum wage plus 10 cents. All dollar amounts are deflated by the CPI with a base of December 2006.

Both the pooled and matched datasets exclude individuals who worked fewer than 10 hours per week or were self-employed. To reduce measurement error, we also excluded are individuals with real wages less than $1.80. Finally, we excluded individuals who earned more than $20– roughly, the 75th percentile – on the grounds that they seem an unlikely control group for individuals who earn the minimum wage.

Figure 1 shows trends in the real average minimum and hourly wages over the data period. There is little evidence of a trend in the mean hourly wage. The minimum wage trended sharply lower between 1979 and 1989, and has fluctuated around a mean of about $6 since then.

Defining Absenteeism

The CPS defines an individual to be absent when he or she reports being employed but not at work during the reference week.[11] We exclude from the sample individuals whose labor supply was clearly constrained by demand, including those laid off, involved in a labor dispute, with a new job to begin within 30 days, with a job beginning or ending during the week, and those absent due to slack work, material shortages, and plant repair.[12]

We examine two types of absenteeism: (1) overall and (2) non-vacation absenteeism. The distinction is potentially important because vacations are typically scheduled jointly by the firm and worker, and therefore do not reflect a demand for unscheduled leisure.[13] We did not distinguish

[11] The CPS asks those who usually work at least 35 hours per week whether, and if so, why they worked fewer than 35 hours during the survey week. One could therefore define a measure of part-week absenteeism for full-time workers. We leave analysis of part-week absenteeism for future research.

[12] We also excluded the relatively small number of individuals coded as being absent, yet having worked positive hours during the survey week.

[13] The CPS questionnaire changed in 1994. Individuals on vacation are clearly identified both before and after the change. The coding of non-vacation absenteeism did, however, change. We reconciled the pre-1994 measure with the subsequent one as best we could.

further between types of absenteeism – for example, due to sickness – because (1) workers may shade the truth regarding the reason for their absenteeism (2) the reason for the absence is not necessarily important from the point of view of the employer.[14]

Trends in Absenteeism

Figure 2 shows trends in overall and non-vacation full-week absenteeism between 1979 and 2007. Absenteeism rates by minimum wage status are shown in **Figure 3.** As can be seen, absenteeism trends downward over our data period. A break in each series that coincides with changes in the CPS questionnaire is seen between 1993 and 1994. Prior to the change in survey, overall absenteeism for workers who earned more than the minimum wage was higher than for those who earned the minimum wage, but generally lower thereafter. The relative incidence of non-vacation absenteeism was higher for those earning the minimum wage throughout the whole period. The presence of strong trends and structural break in the data dictate the use of flexible time controls in the analysis.

Table 1 contains (unweighted) absenteeism rates and sample sizes for the pooled and matched samples as well as for selected demographic groups, by minimum wage status. The pooled sample contains just over 2.4 million individuals who earn more than the minimum wage, of whom 4.60% are absent from work during the survey week, and 1.94% absent for non-vacation reasons. The sample also contains about 228,000 minimum wage earners with overall and non-vacation absenteeism rates of 4.17% and 2.44%. Absenteeism is higher among women than men, especially married women and women with children.

Table 1 also presents transition rates into and out of non-vacation absenteeism in the matched data. About 97% of individuals who earn more than the minimum wage do not change absentee status between rotations 4 and 8, about 1.45% are absent in rotation 4 but not in rotation 8 $(\Delta Absent_{i,4,8} = -1)$, and about 1.7% are not absent in rotation 4 but are absent in rotation 8 $\Delta Absent_{i,4,8} = 1)$. The transition rates into and out of absenteeism are slightly higher for workers who earn the minimum wage: 1.85% versus 1.45% and 1.95% versus 1.70%, respectively. As might be expected from the pooled data, women display more transitions into and out of absenteeism than men in the matched data as well.

Notice that the number of transitions that we observe for workers who earn the minimum wage diminishes rapidly for more narrowly defined demographic groups, particularly those based on the presence of children, information on which is not available between 1984 and 1998. For example,

[14] See, though, Ichino and Moretti (2008), discussed in detail later on in this paper.

we observe only 185 transitions of married women with children, and only 128 of married women without children. Precision will therefore tend to suffer, particularly because as will be seen shortly, we exploit only within-state, within-year variation in the data.

Empirical Strategy

We estimate linear probability models for absenteeism (DD analysis) and the change in absenteeism (DDD analysis). The DD analysis involves estimation of the following regression:

$$\begin{aligned} Absent_{it} = \beta X_{it} + \beta_1 On\_Min_{it} + \beta_2 \ln(W_t^{MIN}) + \beta_3 On\_Min_{it} \times \ln(W_t^{MIN}) \\ + \Upsilon MONTH + \Phi STATE \times YEAR + \varepsilon_{it} \end{aligned} \tag{1.2}$$

where $Absent_{it}$ is a dummy variable equal to 1 if the individual was absent from work and 0 otherwise, X_i is a vector of individual covariates, On_Min_i is equal to 1 for individuals who earn an hourly wage equal to or less than the minimum wage plus \$0.10, and W_t^{MIN} is the real value of the minimum wage deflated using the CPI to December 2006 dollars. The DD effect of the minimum wage on absenteeism is identified by the coefficient β_3.

The covariates in X include dummy variables for education, age, race group, and marital status.[15] We follow Neumark, Schweizer, and Wascher (2004) by including a complete set of state-year dummy variables in (1.2).[16] The effects of the minimum wage are therefore identified solely through within-state, within-year variation in minimum wages, potentially (28 years x 51 states=) 1428 state-year observations. Standard errors are clustered at the state level, thus allowing for heteroscedasticity across states, and arbitrary correlation of the error term between individuals and over time within a state.[17]

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[15]We excluded industry and occupation effects because their definitions changed sufficiently radically in the early 2000s that neither CPS nor NBER attempted to reconcile the codes. Preliminary analysis on subsets of our data suggested that the effects of excluding these controls were relatively minor.

[16] Angrist and Pischke (2008) suggest that robustness of the results to the inclusion of state-year trends is desirable (pp. 238-39). Replacing the state-year trends with a set of state and year dummies (not interacted) typically had minor effects.

[17] We used a linear probability model because the presence of (potentially) 1428 state-year effects makes logit or probit estimation extremely costly. The linear probability specification also facilitates computation of the relevant marginal effects. For example, the DD is equal to the cross-partial derivative of the probability of being absent with respect to $\ln(W_t^{MIN})$ and On_Min_{it}. In the linear probability model this is equal to the coefficient on the interaction between the two variables, but not in the logit or probit model. Although the relevant marginal effects are straightforwardly computed in a logit or probit model, the standard errors must be bootstrapped (as in, e.g., Bucila 2008). DDD estimates, biased and inconsistent in a non-linear framework, are clearly infeasible. One could estimate random effects models, but the maintained hypothesis of zero correlation between the random effects and covariates makes the utility of such an exercise questionable.

Equation (1.2) will not identify the effects of minimum wages on individual-level behavior if they are correlated with ε_{it}. Adding a time subscript, suppose that the error term in the above equation is equal to

$$\varepsilon_{it} = u_{it} + \nu_i$$

where ν_i is an individual-level fixed effect and u_{it} has the usual desirable properties. If higher minimum wages attract more reliable workers with smaller (more negative) values of ν_i into the labor force, then $corr(\ln W_t^{MIN}, \varepsilon_{it}) < 0$ and a spurious negative relationship is induced between the minimum wage and absenteeism. Such a spurious relationship could also arise if workers who earn higher wages are generally more reliable; in this case, the treatment group will by definition contain individuals of higher average reliability, the higher the minimum wage.

One can control for changes in composition by differencing out the worker fixed effects and estimating the effects of *changes* in the minimum wage on *changes* in worker absenteeism differences out the individual-level fixed effect. However, we do not estimate the first difference of equation (1.2). Rather, we estimate:

$$\begin{aligned}\Delta Absent_{i,4,8} = \beta X_{i,4} + \beta_1 On\_Min_{i,4} + \beta_2 \Delta \ln(W_{4,8}^{MIN}) + \beta_3 On\_Min_{i,4} \times \Delta \ln(W_{4,8}^{MIN}) \\ + \Upsilon MONTH + \Phi STATE \times YEAR + \Delta u_{i,4,8}\end{aligned} \tag{1.3}$$

As can be seen, equation (1.3) includes $X_{i,4}$ instead of $\Delta X_{i,4}$. Most of our covariates are fixed between rotations 4 and 8 for most people and so would otherwise drop out of the model; we therefore opted to enter them in level form. Our definition of the treatment group based on rotation 4 minimum wage status (instead of the change in minimum wage status) conforms to that of Neumark, Schweizer, and Wascher (2004). The fact that workers who earn the minimum wage in rotation 4 do not necessarily earn the minimum in rotation 8 is not crucial; what is crucial is that their hourly wage growth be positively related to minimum wage growth. Like Neumark, Schweizer, and Wascher (2004) who examined the effect of minimum wage changes throughout the wage distribution, we found that hourly wage growth was strongly and positively related to minimum wage growth for workers who earned the minimum wage in rotation 4 (results not shown to reduce clutter), with smaller effects for those who earned more than the minimum.

Table 2 contains summary statistics for the pooled and matched samples. The pooled data are weighted by earnings weight and following Neumark, Schweizer, and Wascher (2004), the matched data are weighted by earnings weight divided by the probability of a match.[18] The matched sample is slightly more white and female and slightly less college educated –by construction, the matched sample contains individuals who earned $20/hour or less in both rotations 4 and 8. In addition to the number of observations in each sample, we report the number of observations for which information on the presence of children is available (1979-83 and 1999-2007).

IV. Results

A. DD Analysis

To illustrate broad patterns in the data, we begin by presenting full DD (equation 1.2) estimates (except for the monthly dummies) of overall and non-vacation vacation absenteeism, seen in **Table 3.** Results for men are shown in **columns [1] and [2]** and for women in **columns [3] and [4]**.

Older workers are generally more likely to be absent. For example, overall absenteeism was 0.23 percentage points higher among men ages 25 to 29 than men age 20-24 (the omitted group), about 1 percentage point higher for men age 40-44, and 3.9 percentage points higher for men 65 and older. The figures for women were 1.0, 1.6, and 3.7 percentage points, respectively. Overall and non-vacation absenteeism were 0.14 and 0.34 percentage points higher among black men than otherwise comparable whites. Overall absenteeism was about the same for black and white women, but non-vacation absenteeism was about 0.49 percentage points higher among black women. Absenteeism rates were generally lower for Hispanics than for whites or blacks.

Overall absenteeism was higher – about 0.48 percentage points for men and 2.56 percentage points for women – among college graduates than otherwise comparable high school graduates (omitted). However, non-vacation absenteeism was 0.58 and 0.30 percentage points lower for college graduates. Presumably, the demand for scheduled leisure is higher, and for unscheduled leisure lower among college graduates than less-educated workers.

The estimated values of β_3 -- the DD coefficient – are all negative, indicating that higher minimum wages are associated with lower rates of absenteeism. Beginning in **column [1],** each 10% increase in the minimum wage is estimated to reduce overall absenteeism among men by about 0.183 percentage points (se= 0.063). The mean absenteeism rate among men who earn the minimum wage (**Table 1**) is 3.75 percent, so this corresponds to a reduction of about 4.9%. The estimated effect on non-vacation absenteeism is -0.07 percentage points (se=.044), or about (.07/2.06=) 3.4%. The

[18] We estimated logit models of a match as a function of age and education indicators. The new weights do not account for selection on unobservables.

estimated percent effects on women's absenteeism are smaller: about (0.185/5.26=) 3.5% for overall absenteeism and (0.038/2.66=) 1.4% for non-vacation absenteeism.

Recall that according to Connolly (2008), when workers are able to easily reallocate work hours, the response of labor supply to shocks to the marginal rate of substitution for should be independent of the wage rate over short periods (that is, when wages are constant – see equation 1.1), which in her case appears to be the case for workers paid by the hour but not for salaried workers. Although the DD estimates here are not of primary interest, for completeness we report estimates of the effects of minimum wages on absenteeism for hourly and salaried workers.

We also estimated the models separately for individuals who work full and part time. A priori, the effects of minimum wages might be larger or smaller in magnitude for those who work full time. On the one hand, such individuals may demand more unscheduled leisure due to the constraints of their job; on the other hand, individuals who work full time have revealed a preference for less-flexible work schedules. The results are contained in **Table 4.**

The estimated effects of minimum wages on absenteeism are larger for hourly than salaried workers among men, which is inconsistent with Connolly's (2008) findings that suggest that hourly paid workers can more easily substitute work over time. However, the estimated effects of minimum wages are larger for salaried women than for hourly women. With the exception of non-vacation absenteeism among women (**column [4]**), the magnitudes of the estimated effects in **Parts B and C** are similar (if imprecisely estimated) to those in **Part A**.

Most of the DD estimates are consistent with the notion that higher minimum wages reduce absenteeism. However, these estimates are biased if the unobservable composition of the labor force is affected by the minimum wage. The next section presents DDD estimates that attempt to correct for such changes in composition.

B. DDD Estimates

Table 5 presents DDD estimates of the effect of minimum wages on absenteeism by full-time and hourly status. The estimated effects of minimum wages on overall absenteeism for men are shown in **column [1]**. Focusing on the first row of **Part A,** each 10% increase in the minimum wage is estimated to reduce the probability of absence by about 0.4 percentage points. The estimated DDD effect is nearly twice the magnitude of the estimated DD effect: (0.4/3.75=) 10.7% versus 5.3%, but is statistically not different than zero.

In contrast to the DD estimates, the DDD estimates are more negative for salaried men, and are therefore consistent with the evidence in Connelly (2008) that suggests that intertemporal substitution is more difficult for this group. For example, the estimated effect for hourly paid men who work full time (**row 2** of **Part A**) is economically and statistically not different than zero ($\hat{\beta}_3 = 0.013$, with a standard error of 0.043) , while the estimated effect for salaried men is equal to -0.2019, with a standard error of just 0.07. The estimated effects are also more negative for salaried than hourly workers among full and part-time men (**Parts B and C**), although imprecisely estimated.

The estimated effects of minimum wages on men's non-vacation absenteeism are seen in **column [2].** Each 10% increase in the minimum wage is estimated to reduce non-vacation absenteeism by 0.7 percentage points, a reduction of about (0.7/2.06=) 34%. The estimated effect is statistically different than zero at the 1% level. Although the estimated percentage change in non-vacation absenteeism is large, the implied labor supply elasticity is not. For example, a 0.7 percentage point reduction in the probability of absenteeism corresponds to a percentage increase in expected weekly hours of labor supplied of precisely the same magnitude. The implied labor supply elasticity is therefore also equal to 0.07, a value that seems quite plausible, at least for men.

The estimated effects of minimum wages on men's non-vacation absenteeism are also consistent with Connolly's (2008) notion that intertemporal substitution is easier for those paid by the hour. For example, the estimated effect for men paid by the hour (**Part A, column [2], row 2**) is -0.044 (se=0.028), compared with an estimated effect for salaried men of -0.1575 (se=0.06). Similar, albeit less precisely estimated results can be seen for men who work full and part time in **Parts B and C.**

In contrast to men, and in contrast to the DD estimates, the DDD estimated effects of minimum wages on absenteeism for women are uniformly *positive*, seen in **columns [3] and [4]**. The magnitudes of the estimated effects are sizeable, if imprecisely estimated in the case of overall absenteeism, particularly for salaried workers. Looking at the first row of **Part A, column [3],** each 10% increase in the minimum wage is estimated to increase overall absenteeism by 0.525 percentage points (se=0.42). The estimated effects on non-vacation absenteeism are more precisely estimated, at least for women paid by the hour. For example, each 10% increase in the minimum wage is estimated to increase non-vacation absenteeism by about 0.715 percentage points, an effect that is statistically different than zero at the 5% level (se=0.27). This effect is mostly due to the influence of hourly workers, with an estimated effect of 0.82 (se=0.33) compared with a small and statistically insignificant 0.27 (se=0.64) for salaried women. A similar pattern is visible for full and part-timers in **Parts B and C.**

To summarize, the evidence indicates that men's absenteeism is negatively related, and women's absenteeism positively related to the minimum wage. Because the estimated effects are economically larger and statistically more precisely estimated for non-vacation absenteeism, and because unscheduled (as opposed to scheduled) absence is arguably of greater interest and concern than scheduled absence, we focus on this measure for the remainder of the paper.

C. Additional Results for Women: Marital Status and Presence of Children

We thought that insight might be gained into the reason for the positive estimated effects of minimum wages on women's absenteeism if we could establish that the effects differed between single and married women, or between women with and without children at home. We therefore estimated the effects of minimum wages on absenteeism for each of these groups separately.

The results are reported in **Table 6**. Looking at the results by marital status (only), seen in **column [1],** each 10% increase in the minimum wage is estimated to increase non-vacation absenteeism by 0.63 percentage points (se=.36) among single women, and by 0.91 percentage points among married women (se=0.46). Although the estimated effect is larger for married women, the point estimates are within a standard error of one another. Positive effects are estimated for both hourly and salaried single women. However, the estimated positive effect for married women is driven by hourly workers, the estimated effect for salaried women being small, negative, and small relative to its standard error (-0.0206, se=0.0876).

Separating the sample into those without and with children, seen in **columns [2] and [3]**, the positive estimated effects are larger for married women with children than without, while the opposite is true for single women. Indeed, the estimated effects are *negative* for full-time hourly single women with children (-0.1828, se=0.094, t=-1.95) and for full-time hourly married women without children at home (-0.1463, se=.079, t=-1.85). We are, however, reluctant to draw conclusions regarding the effects of children due to the small number of transitions and the relatively limited number of years -- 1979-83 and 1999-2006 -- on which they are based (see **Table 1**).

Regardless of any negative estimated effects among subgroups, the overall estimated effects in **column [1]** are largely positive, and significantly (economically, if not statistically) larger for married than for single women.

V. Explaining the Positive Effect of Minimum Wages on Women's Absenteeism

It is not entirely surprising that the estimated effects of minimum wages on absenteeism are different for men and women. For example, Connolly (2008) found that the women's labor supply responded differently to exogenous weather shocks (rainy days) than men's. In contrast to men, who worked more and consumed less leisure on rainy days, women were estimated (albeit imprecisely) to work less and consume more leisure (p. 90). This section explores three possible explanations for the positive estimated effects of minimum wages on women's absenteeism: selection, wage-constrained hedonic equilibrium, and differential costs of absenteeism.

Selection

One explanation for the positive effect of minimum wages on women's absenteeism is that women who draw positive absenteeism shocks and otherwise might have left the labor force are less likely to leave when the minimum wage increases. The selection story implies that the propensity of absent-prone workers to remain in the labor force is (1) positively related to the minimum wage and (2) positively correlated with the estimated effects of minimum wages on absenteeism.

We do not have a ready measure of the propensity to be absent. We do know, however, whether or not the worker was absent in rotation 4, which we use to measure whether a worker is "absent prone." Consider, then, the following DDD linear probability model of rotation-8 employment:

$$\begin{aligned}
&Employed_{i,8} = \beta^E X_{i,4} + \beta_1^E ON_MIN_4 + \beta_2^E ABS_{i,4} + \beta_3^E \Delta\ln(W_{4,8}^{MIN}) + \\
&\beta_4^E ON_MIN_4 \times ABS_{i,4} + \beta_5^E ON_MIN_{i,4} \times \Delta\ln(W_{4,8}^{MIN}) + \beta_6^E ABS_{i,4} \times \Delta\ln(W_{4,8}^{MIN}) \quad (1.4) \\
&+\beta_7^E ON_MIN_{i,4} \times ABS_{i,4} \times \Delta\ln(W_{4,8}^{MIN}) + \varepsilon_{i,8}^E
\end{aligned}$$

The coefficient β_7^E measures the effect of minimum wage changes on the probability of rotation 8 employment of minimum wage workers who were absent relative to those who were at work in rotation 4. The selection story implies (1) a positive estimated value of β_7^E and (2) a positive relationship between the estimated β_7^E and β_3^A (see equation [1.3]) across subsamples.

We estimate equation (1.4) for men and women by hourly and full-time status. The sample includes all individuals who were employed in rotation 4.[19] About 90.7% of those who earn more than the minimum wage are employed in rotation 8 compared with 78.3% of those who earn the minimum. Full-time workers are more likely to be employed than part-timers: 92.5% versus 82.3% among those who earn more than the minimum wage and 83.6% versus 74.0% among those who earn the minimum.

[19]Naturally, these estimates do not exclude those who earned more than $20 per hour in rotation 8.

The estimated values of β_7^E are contained in **Part A** of **Table 7**. The estimated coefficient for hourly, full-time men is equal to 1.05, implying that each 10% increase in the minimum wage increases the probability of rotation 8 employment for absent-prone men by about 10.5 percentage points (se=7.6) an increase of about (10.5/83.6=) 12.6%. The standard error, like those for the other subsamples of men, is too large to reject the null hypothesis of zero effect. The largest estimated effect is for salaried, part-time men at 24.5 percentage points (se=17, t=1.4), or about (24.5/74.0=) 33.1%. The estimated effects for women are all less positive (two are negative) than the respective estimated effects for men and a fraction of the size of their standard errors. These results provide little support for the selection story.

Further evidence against the selection story is seen in **Figure 4,** which graphs the estimated absenteeism effects (β_6^A) as a function of the estimated employment effects (β_7^E). The estimated employment effects are negatively related to the estimated absenteeism effects, just the opposite the pattern implied by the selection story.

Wage-Constrained Hedonic Equilibrium

If employers are unable to punish excess absenteeism by reducing wages, they would be forced to resort to firing shirkers and hiring new workers. Because firing and hiring are costly, it is possible that the probability of being fired would be sufficiently low that women with more income-elastic demands for absenteeism might choose higher rates of absenteeism when minimum wages increase. Although we are not able to observe spells of employment with a particular employer, the wage-constrained hedonic equilibrium story suggests that rates of unemployment among absent-prone minimum wage workers should be higher when the minimum wage increases. We re-estimated equation (1.4) with rotation 8 employment status replaced by a dummy variable for rotation 8 unemployment as the dependent variable.

The estimated effects are seen in **Part B** of **Table 7.** About 5.5% of the sample was unemployed in rotation 8. Seven of the 8 estimated unemployment effects are positive, and the estimated effects are more positive for women than for men. The pattern of estimated effects is therefore consistent with the wage-constrained hedonic story, but neither the estimated effects nor their differences between women and men are statistically different than zero at conventional levels of significance.

Figure 5 graphs the estimated absenteeism effects as a function of the estimated unemployment effects. At first glance, the relationship between the estimated unemployment and absenteeism effects appears to be positive, and therefore consistent with the idea that groups with more absent-prone workers suffer higher rates of unemployment as implied by the wage-constrained hedonic equilibrium story. On closer examination, however, notice that the relationship *within* the four groups of women is *negative*. One might reconcile this pattern with the wage-constrained hedonic story if one posits that women who can "get away" with "excess absenteeism" – here, women who are paid by the hour -- increase their absence in response to the minimum wage while workers who can't get away with it – salaried women – do not. However, just the opposite pattern is observed for men. These different patterns cast additional doubt on the wage-constrained hedonic story.

Additional evidence against the wage-constrained hedonic story is the fact that most of those who are not employed in rotation 8 are not unemployed (5.5%) but leave the labor force entirely (16.2%). We re-estimated equation (1.4) with the dependent variable equal to a dummy variable equal to 1 if the individual was out of the labor force in rotation 8 and 0 otherwise. The estimates are seen in **Part C** of **Table 7**. Seven of the 8 estimated labor force effects are negative, meaning that absent-prone workers are less likely to exit the labor force when the minimum wage increases. **Figure 6** shows that larger (more negative) labor force effects are estimated for groups with more negative absenteeism effects, a relationship that holds within gender groups as well as between. Put informally, the same groups for which absenteeism is positively related to the minimum wage are those that experience higher rates of labor force exit in response to higher minimum wages.

That higher minimum wages lead to both higher rates of absenteeism and higher rates of exit from the labor force among (three of the four groups of) women than men does not sit easily with either the selection or wage-constrained hedonic equilibrium story. One might argue that absent-prone women leave the labor force because they were fired from their job and become discouraged workers. However, one would then need to explain why the effects differ for absent-prone men.

Gender Differences in Penalties for Absenteeism

Recently, Ichino and Moretti (2008) suggested that women face lower penalties for absenteeism, a difference rooted in biology. Using data on personnel employed by a large Italian bank, they found that absenteeism for women exhibits a 28-day cycle relative to that of men, which they interpret as the effect of the menstrual cycle (p. 184). They develop a model of statistical discrimination in which employers cannot directly observe individual productivity, and so use absenteeism (among other factors) to predict productivity and set wages. Absenteeism is a function of health shocks and the propensity to shirk. Absenteeism is a noisier signal of shirking for women than for men because both men and women experience non-menstrual health shocks, while only women experience menstrual health shocks. Their model predicts, and their data support the notion that absenteeism has smaller negative effects on earnings for women than men.

Although a complete analysis is beyond our scope, we examined whether our data are broadly consistent with gender differences in the cost of absenteeism.[20] We estimate the following equation:

$$\ln(W_{it}) = \alpha X_{it} + \alpha_1 ABS_{it} + \Phi STATE \times YEAR + \upsilon_{it} \tag{1.5}$$

where $\ln(W_{it})$ is the log real hourly wage, X_{it} is the vector of individual-level covariates, and ABS_{it} is a dummy variable for non-vacation absenteeism in rotation 4, all for individual *i* at time *t*. If men are penalized more heavily for absenteeism than women, the estimated coefficient α_1 should be more negative for them than for women. Like Ichino and Moretti (2008, top of p. 204), we note that the estimated effects of absenteeism in (1.5) are not necessarily causal, but reflect equilibrium outcomes.

We estimate equation (1.5) separately for men and women using the pooled data. In order not to truncate the distribution of earnings, we (naturally) do not exclude individuals who earned more than $20 per hour. Each estimated non-vacation absence is associated with a 2.4 percent decline in male earnings, with a standard error of 0.0035. The estimated effect for women, by contrast, is a minuscule -0.2 percent, with a standard error twice as large. One can easily reject the null hypothesis that estimated coefficients are identical for men and women.[21]

One way to reduce some part of the potential simultaneity between earnings and absenteeism is to use the matched sample, specify the dependent variable as log earnings in rotation 8, and the key explanatory variable as absenteeism as of rotation 4. The estimated coefficients on the absenteeism variable are -0.0439 (se=0.0063) and 0.0008 (se=0.0058) for men and women, respectively. Again, the null hypothesis of equality can easily be rejected. Although not conclusive, these results are consistent with the notion that men's absenteeism is more costly than women's.

VI. Conclusions

Although proponents of higher minimum wages have long argued that they would reduce absenteeism, the theoretical effect is ambiguous, and so the question must be resolved empirically. Our examination of CPS-MORG data over the period 1979-2007 reveals that higher minimum wages

[20] Ichino and Moretti (2008) focused on short (3 days or less) absenteeism spells that occur with a monthly cycle. Our focus here is on spells of absenteeism that last at least one week, the survey week; the lack of finer temporal detail makes it infeasible to construct a measure of cyclical absenteeism.

[21] The F-tests were based on estimates of equation (1.5) with state and year (rather than state-year) effects to facilitate computation. Both the estimates and overall explanatory power of the regressions were similar.

are associated with lower rates of absenteeism among men, but higher rates of absenteeism among women.

These estimated effects of minimum wages depend critically on correcting for changes in labor force composition. Uncorrected (DD) estimates yield small, negative estimated effects of minimum wages on absenteeism for both men and women. The contrasting results suggest that the unobserved quality of the low-wage female labor force rises, and that of low-wage males declines in response to higher minimum wages. From the point of view of the employer or policy maker, the small net negative impact of minimum wages on absenteeism may be as relevant as the impact on any individual worker. However, the uncorrected estimates may also be purely spurious, arising because higher-wage, more reliable individuals are defined to be in the treatment group (that is, as earning the minimum wage) when minimum wages are higher. More research is necessary to resolve the issue.

Although the positive estimated DDD effects of minimum wages on women's absenteeism are consistent with the notion that women face a lower cost of absence than do men, it is also possible that the income elasticity of absenteeism is higher for women than for men. Consider, for example, that the estimated effects are more positive for married women than for single women. One admittedly speculative possibility is that low-wage women tend to be married to low-wage husbands whose wages also tend to respond to changes in the minimum wage, in which case at least some part of the estimated response of women's absenteeism might arise as an income effect that operates through the wage of their husband. Future research on absenteeism within a family context may be a fruitful area for future research. More work is also necessary to better understand the relationship between absenteeism and labor force dynamics, for men as well as for women.

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Figure 1.

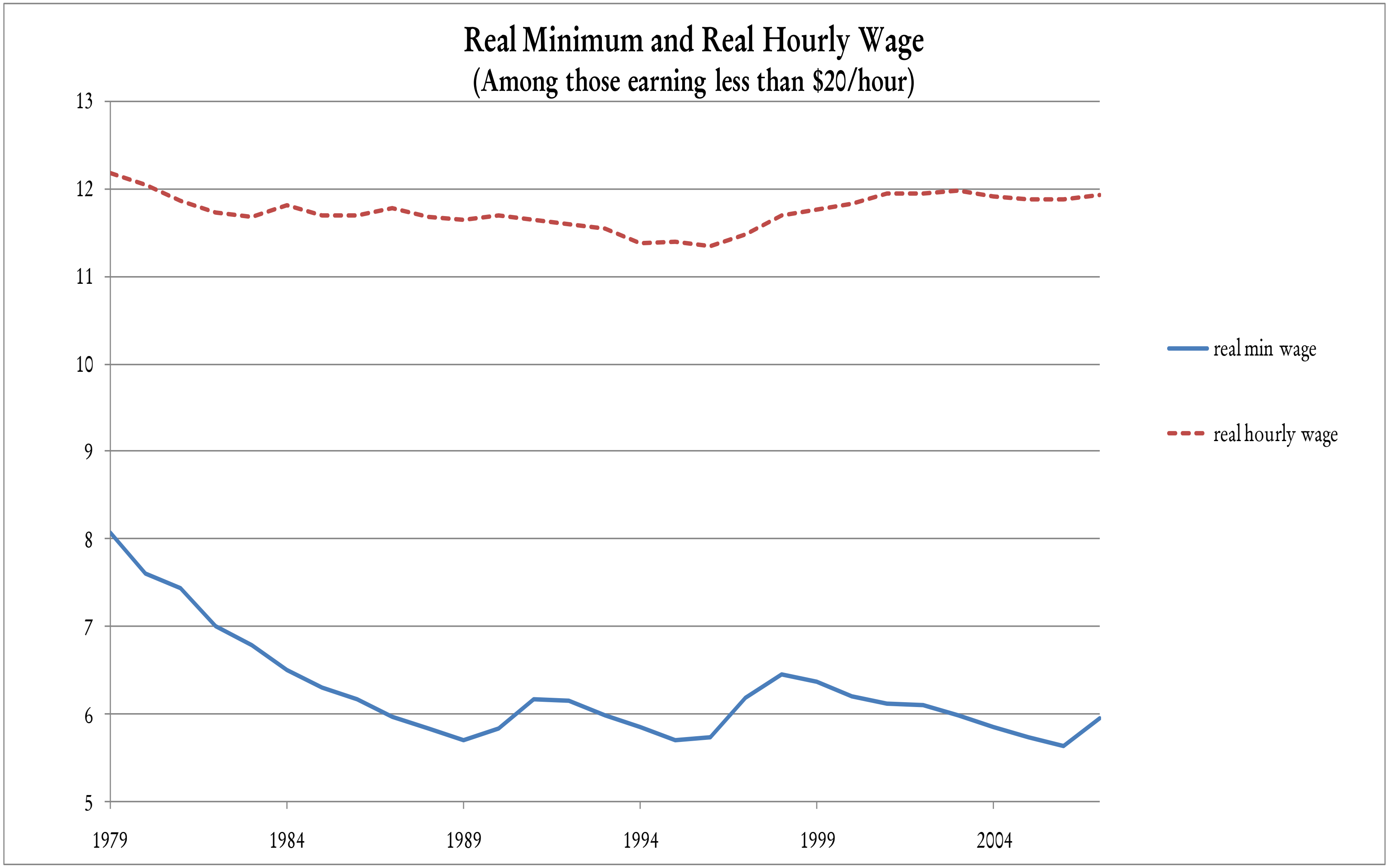

Real Minimum and Real Hourly Wage
(Among those earning less than $20/hour)
13
12
11
10
9
8
7
6
5
1979
1984
1989
1994
1999
2004
real min wage
real hourly wage

Figure 2

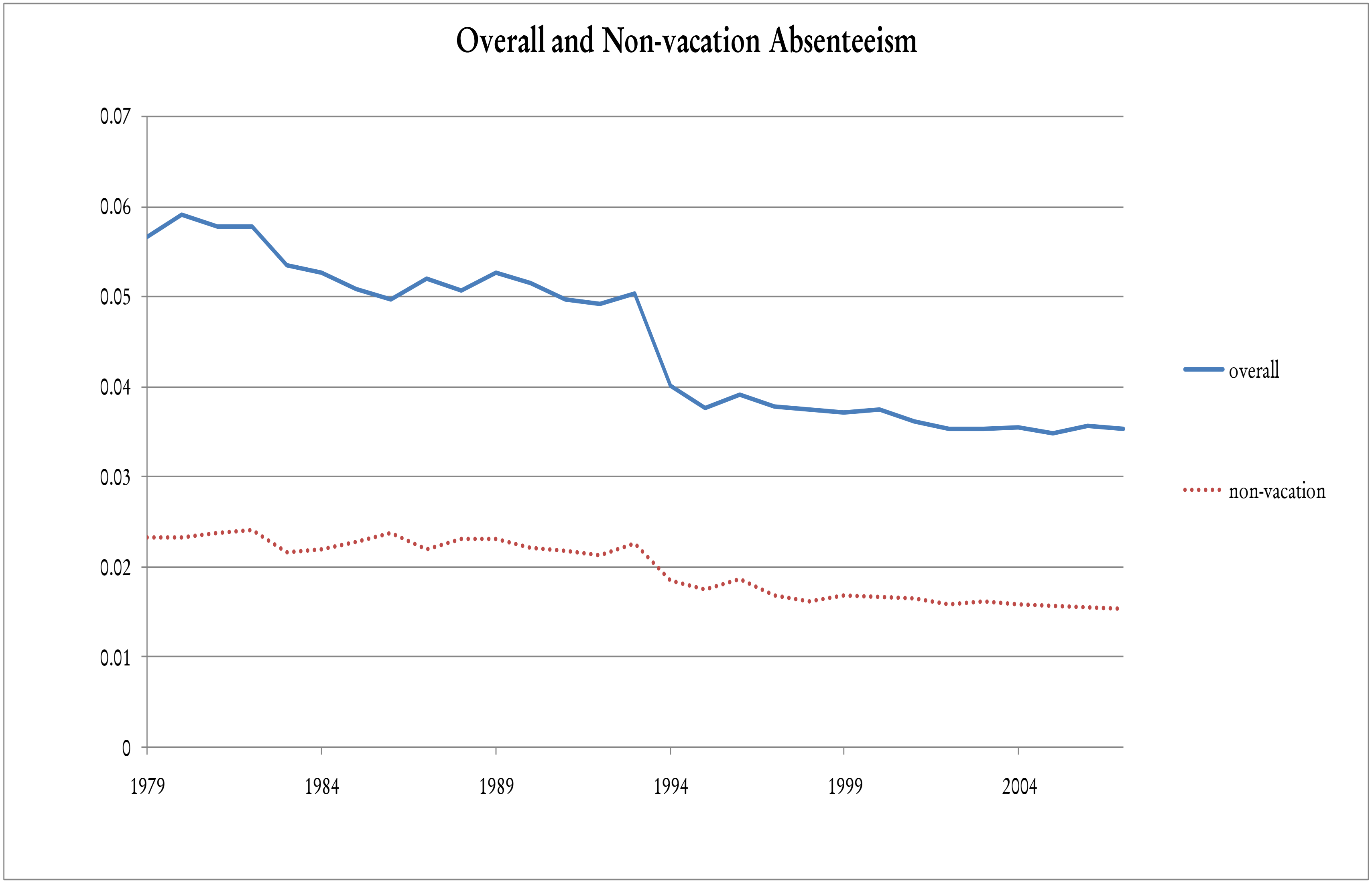

Overall and Non-vacation Absenteeism
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
1979
1984
1989
1994
1999
2004
overall
non-vacation

Figure 3

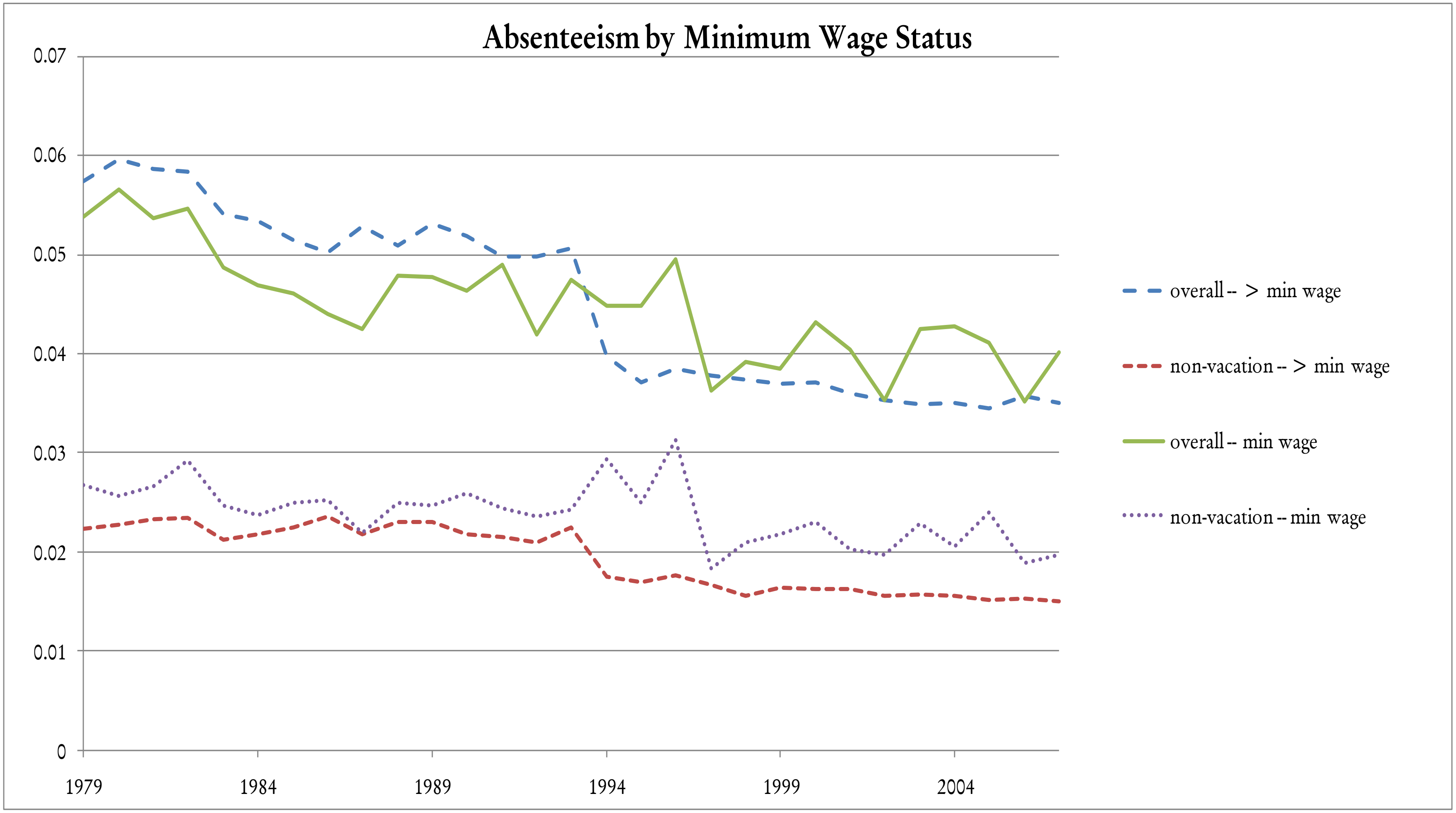
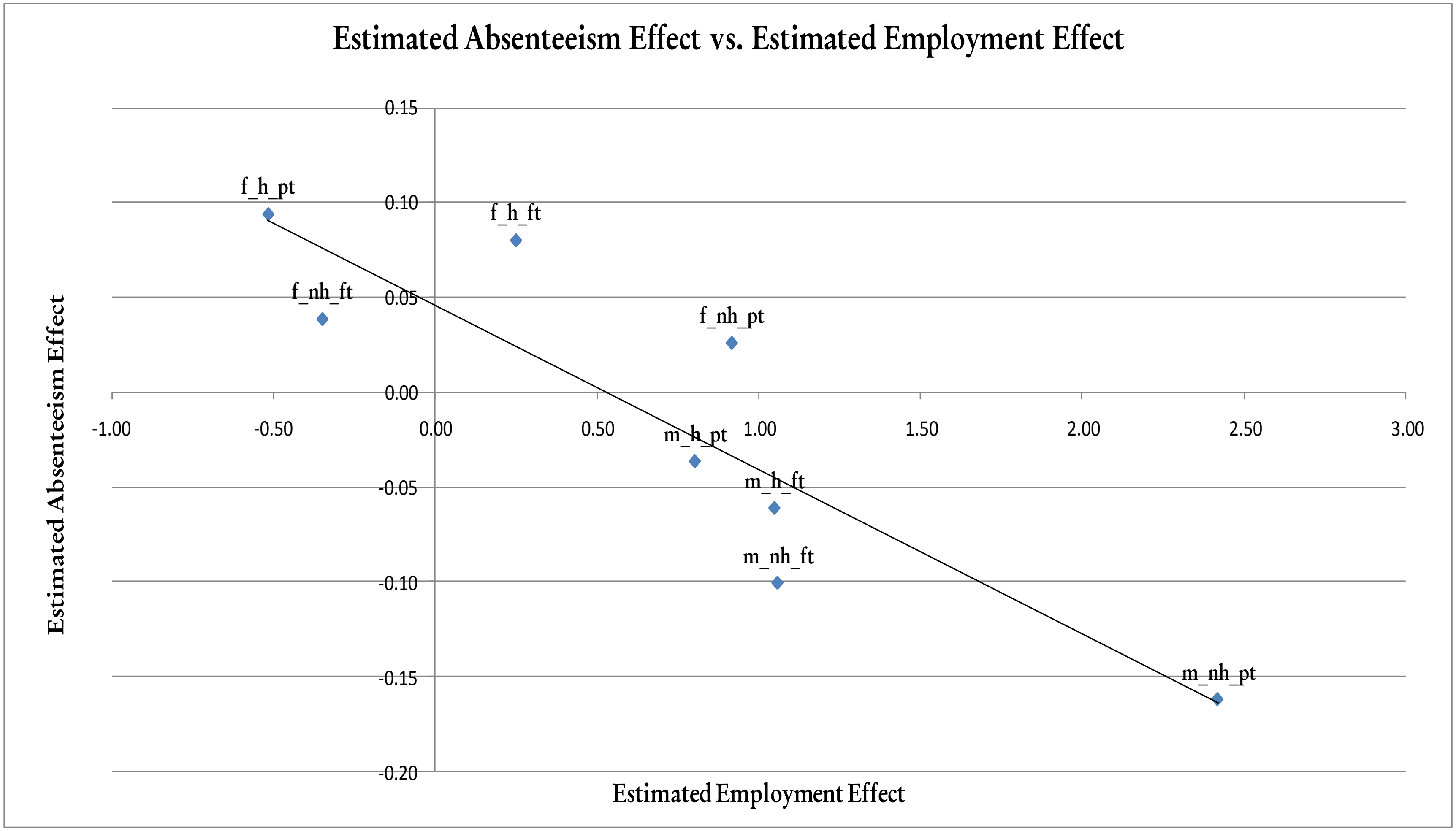
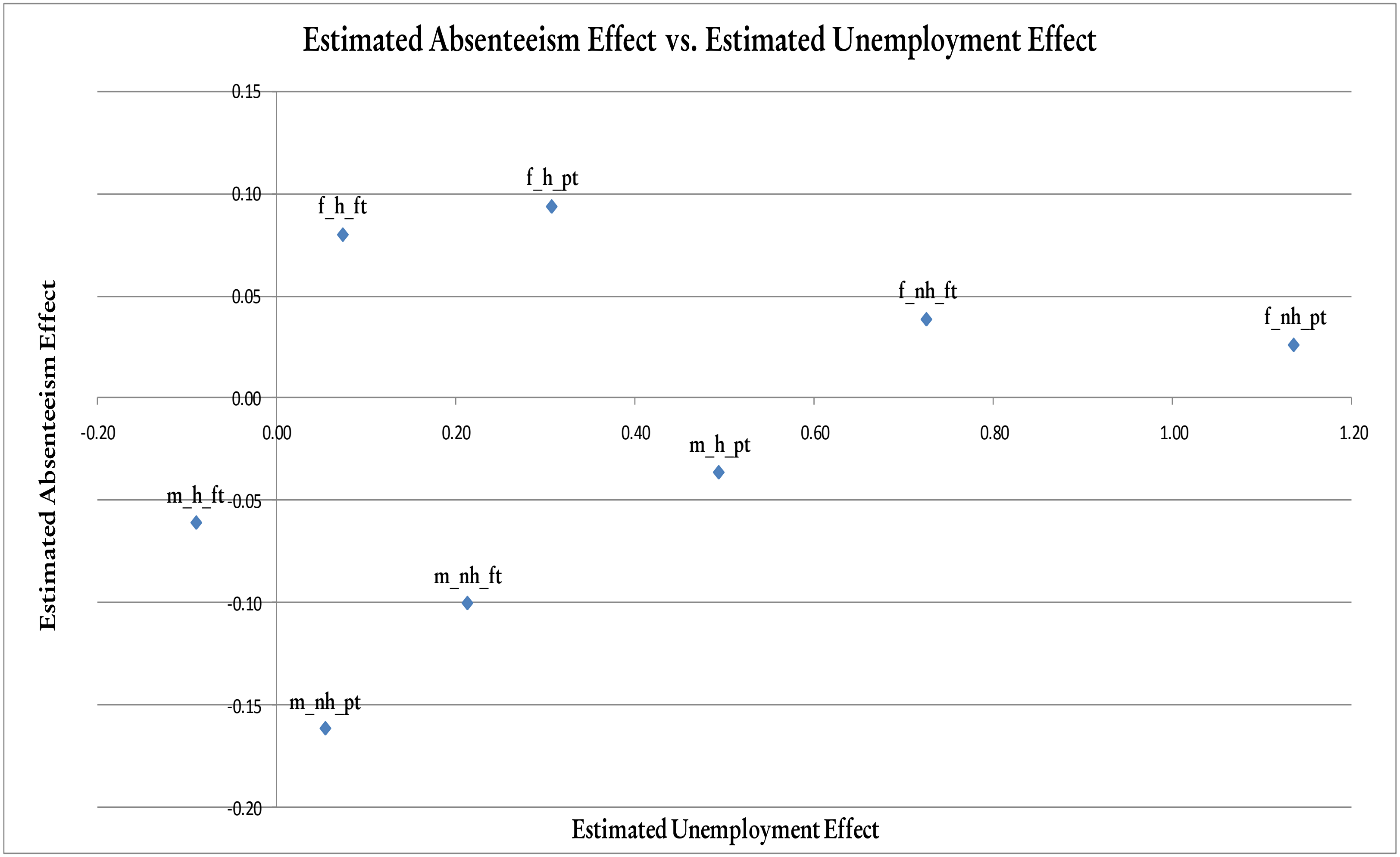

Absenteeism by Minimum Wage Status
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
1979
1984
1989
1994
1999
2004
overall -- > min wage
non-vacation -- > min wage
overall -- min wage
non-vacation -- min wage

Figure 4



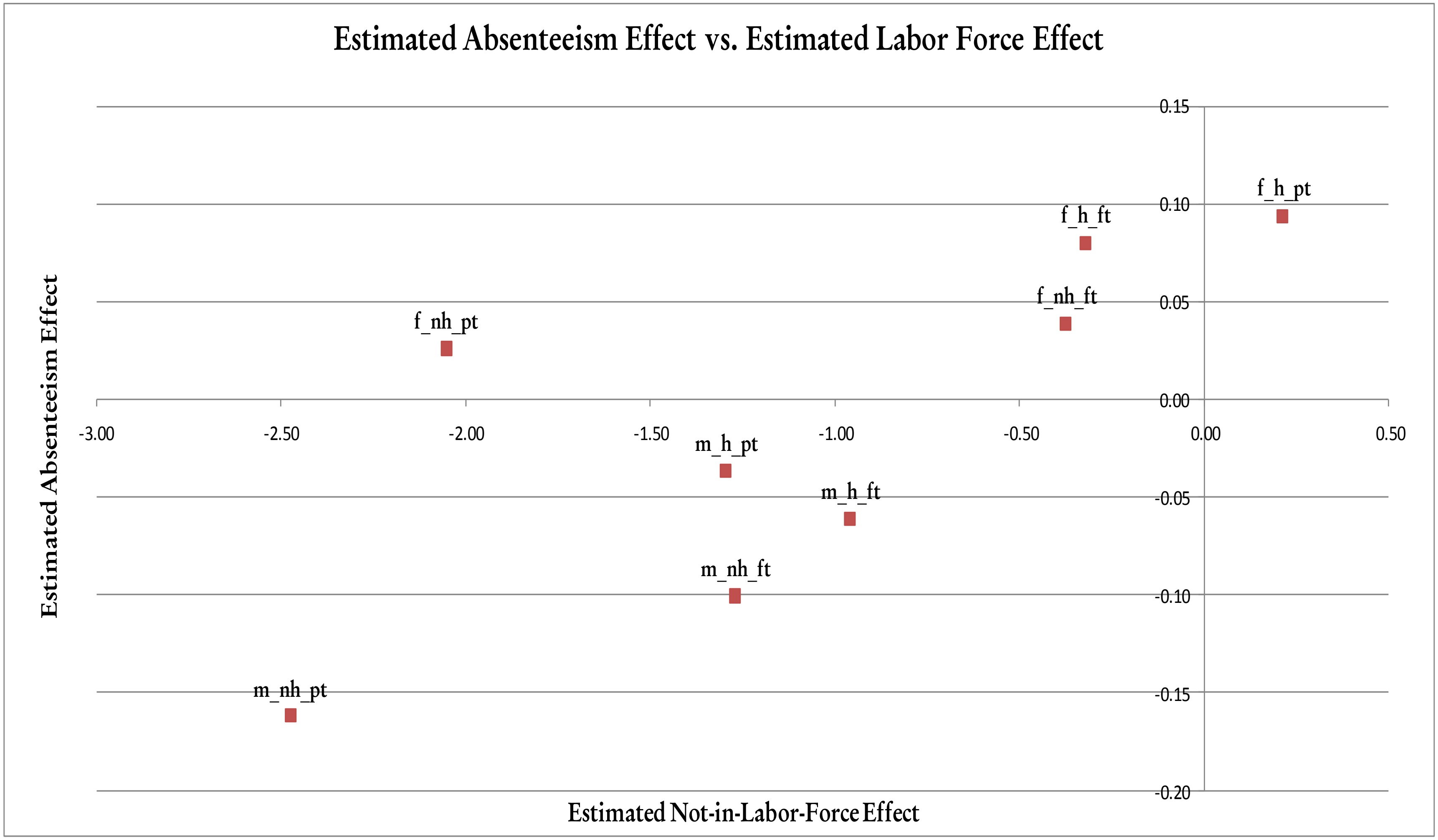
Key: m = male; f=female; h=hourly; nh=salaried; ft=full time; pt=part-time.

Figure 5



Key: m = male; f=female; h=hourly; nh=salaried; ft=full time; pt=part-time.

Table 6



Key: m = male; f=female; h=hourly; nh=salaried; ft=full time; pt=part-time.

Table 1. Absenteeism Rates and Transitions

	Pooled Data						Matched Data					
	Non-Minimum Wage			Minimum Wage			Non-Minimum Wage			Minimum Wage		
		Absent			Absent		Change in Non-Vacation Absentee Status					
	At Work	Overall	Non-Vac	At Work	Overall	Non-Vac	-1	0	1	-1	0	1
All	2,445,832	118,008	49,794	228,556	11,301	5858	9,559	636,635	11,195	1,067	55,629	1,129
		4.60	1.94		4.71	2.44	1.45	96.84	1.70	1.85	96.20	1.95
Males	1,132,611	42,976	18,491	84,051	3,272	1797	3,273	274,078	3,793	301	19,519	316
		3.66	1.57		3.75	2.06	1.16	97.49	1.35	1.49	96.94	1.57
Females	1,313,221	75,032	31,303	144,505	8,029	4,061	6,286	362,557	7,402	766	36,110	813
		5.40	2.25		5.26	2.66	1.67	96.36	1.97	2.03	95.81	2.16
Single	585,988	26,738	11,880	89,710	4,255	2,270	2,209	146,995	2,509	402	21,396	437
		4.36	1.94		4.53	2.42	1.46	96.89	1.65	1.81	96.23	1.97
Kids	84,291	3,844	2,137	6,719	320	218	392	20,768	416	31	1,372	29
		4.36	2.42		4.55	3.10	1.82	96.26	1.93	2.16	95.81	2.03
No kids	306,678	13,660	5,846	41,618	1,880	956	1,040	73,479	1,188	153	8,998	163
		4.26	1.82		4.32	2.20	1.37	97.06	1.57	1.64	96.61	1.75
Married	727,233	48,294	19,423	54,795	3,774	1,791	4,077	215,562	4,893	364	14,714	376
		6.23	2.50		6.44	3.06	1.82	96.01	2.18	2.36	95.21	2.43
Kids	244,227	16,377	7,434	15,175	995	497	1,510	69,963	1,421	106	3,573	79
		6.28	2.85		6.15	3.07	2.07	95.98	1.95	2.82	95.08	2.10
No kids	229,811	14,349	5,085	12,269	782	370	964	64,774	1,559	67	2,909	61
		5.88	2.08		5.99	2.84	1.43	96.25	2.32	2.21	95.79	2.01

Table 2. Summary Statistics, Pooled and Matched Data

	Pooled					Matched			
Variable	Mean	Std. Dev.	Min	Max		Mean	Std. Dev.	Min	Max
Male	0.4642	0.4987	0	1		0.4359	0.4959	0	1
Female	0.5358	0.4987	0	1		0.5641	0.4959	0	1
Single	0.2537	0.4351	0	1		0.2490	0.4324	0	1
Kids	0.0550	0.2280	0	1		0.0552	0.2283	0	1
No kids	0.2008	0.4006	0	1		0.1955	0.3966	0	1
Married	0.2821	0.4500	0	1		0.3152	0.4646	0	1
Kids	0.1455	0.3526	0	1		0.1633	0.3697	0	1
No kids	0.1346	0.3413	0	1		0.1486	0.3557	0	1
Education									
0-9 years	0.0546	0.2273	0	1		0.0574	0.2326	0	1
9-11 years	0.1273	0.3334	0	1		0.1298	0.3361	0	1
High school grad	0.4169	0.4931	0	1		0.4464	0.4971	0	1
Some college	0.2461	0.4308	0	1		0.2401	0.4272	0	1
College+	0.1549	0.3618	0	1		0.1263	0.3321	0	1
Age									
15-19	0.0729	0.2600	0	1		0.0700	0.2552	0	1
20-24	0.1436	0.3507	0	1		0.1251	0.3308	0	1
25-29	0.1379	0.3448	0	1		0.1305	0.3368	0	1
30-34	0.1286	0.3347	0	1		0.1300	0.3363	0	1
35-39	0.1164	0.3207	0	1		0.1207	0.3257	0	1
40-44	0.1079	0.3102	0	1		0.1149	0.3189	0	1
45-49	0.0929	0.2902	0	1		0.0997	0.2996	0	1
50-54	0.0764	0.2656	0	1		0.0823	0.2749	0	1
55-59	0.0597	0.2370	0	1		0.0644	0.2455	0	1
60-64	0.0369	0.1886	0	1		0.0366	0.1877	0	1
65+	0.0268	0.1616	0	1		0.0259	0.1588	0	1
Race & Ethnicity									
White	0.7180	0.4500	0	1		0.7325	0.4426		
Black	0.1270	0.3330	0	1		0.1228	0.3283	0	1
Hispanic	0.1086	0.3112	0	1		0.1021	0.3028	0	1
Other	0.0379	0.1910	0	1		0.0346	0.1828	0	1
Wages									
On minimum	0.0823	0.2748	0	1		0.0767	0.2661	0	1
Real minimum	6.1950	0.6826	4.9880	10.0457		6.2263	0.7097	5.10	10.05
Ln(real minimum)	1.8179	0.1067	1.6070	2.3071		1.8226	0.1097	1.63	2.31
Ln change real minimum						-0.0073	0.0520	-0.08	0.31
Full-time	0.8005	0.3996	0	1		0.7591	0.4276	0	1
Hourly paid	0.7064	0.4554	0	1		0.7289	0.4445	0	1
Observations	2,803,697					715,214			
Observations (kids)	1,803,776					440,892			

Table 3. Linear Probability Estimates, Overall and Non-Vacation Absenteeism

	Males						Females					
	[1]			[2]			[3]			[4]		
	Overall			Non-Vacation			Overall			Non-Vacation		
	Coef.	se	t	Coef.	se	t	Coef.	se	t	Coef.	se	t
On minimum	0.0338	0.0117	2.89	0.0153	0.0082	1.87	0.0354	0.0098	3.63	0.0097	0.0078	1.24
Ln(minimum wage)	0.0099	0.0101	0.99	0.0066	0.0058	1.15	0.0035	0.0079	0.45	0.0024	0.0061	0.39
x On minimum	-0.0183	0.0063	-2.92	-0.0069	0.0044	-1.56	-0.0185	0.0052	-3.58	-0.0038	0.0042	-0.92
Education												
0-9 years	0.0027	0.0018	1.52	0.0046	0.0018	2.60	0.0019	0.0022	0.87	0.0065	0.0015	4.47
9-11 years	0.0045	0.0007	6.65	0.0051	0.0007	7.26	0.0073	0.0009	8.20	0.0084	0.0006	13.94
Some college	0.0009	0.0006	1.61	-0.0010	0.0003	-3.13	0.0007	0.0004	1.77	-0.0007	0.0002	-2.67
College+	0.0048	0.0010	4.99	-0.0058	0.0004	-14.48	0.0256	0.0022	11.48	-0.0030	0.0004	-6.71
Age												
15-19	0.0025	0.0007	3.41	0.0009	0.0005	1.90	-0.0027	0.0010	-2.60	-0.0057	0.0008	-7.22
25-29	0.0023	0.0006	3.74	-0.0004	0.0004	-0.96	0.0100	0.0010	10.37	0.0063	0.0007	8.81
30-34	0.0059	0.0006	9.60	0.0006	0.0004	1.42	0.0131	0.0012	11.21	0.0043	0.0008	5.59
35-39	0.0074	0.0007	10.25	0.0015	0.0004	3.46	0.0138	0.0009	15.69	0.0005	0.0008	0.59
40-44	0.0104	0.0009	11.05	0.0026	0.0004	6.09	0.0162	0.0013	12.59	-0.0011	0.0007	-1.69
45-49	0.0137	0.0010	13.63	0.0033	0.0006	5.84	0.0179	0.0012	14.69	-0.0012	0.0006	-2.06
50-54	0.0193	0.0010	19.14	0.0063	0.0005	12.52	0.0214	0.0011	19.95	0.0003	0.0007	0.40
55-59	0.0234	0.0011	21.14	0.0090	0.0006	16.06	0.0259	0.0017	15.28	0.0026	0.0009	2.83
60-64	0.0311	0.0013	24.11	0.0132	0.0012	11.45	0.0320	0.0016	20.56	0.0072	0.0009	7.99
65+	0.0386	0.0019	20.11	0.0209	0.0012	17.38	0.0375	0.0020	18.58	0.0143	0.0012	12.30
Race & Ethnicity												
Black	0.0014	0.0007	2.17	0.0034	0.0006	5.69	-0.0003	0.0008	-0.37	0.0049	0.0007	6.98
Hispanic	-0.0056	0.0008	-7.11	-0.0043	0.0006	-7.14	-0.0030	0.0015	-1.96	-0.0019	0.0005	-3.68
Other	-0.0040	0.0018	-2.30	-0.0010	0.0012	-0.87	-0.0143	0.0021	-6.96	-0.0037	0.0010	-3.69

Note: All regressions includee state x year effects. Standard errors are clustered on state.

Table 4. DD Estimated Effects of Minimum Wages on Absenteeism

	Males						Females					
	[1]			[2]			[3]			[4]		
	Overall			Non-Vacation			Overall			Non-Vacation		
	coeff	se	t	coeff	se	t	coeff	se	t	coeff	se	t
A. Full and part-time												
Hourly & salaried	-0.0183	0.0063	-2.92	-0.0069	0.0044	-1.56	-0.0185	0.0052	-3.58	-0.0038	0.0042	-0.92
Hourly	-0.0211	0.0075	-2.80	-0.0102	0.0055	-1.85	-0.0162	0.0053	-3.06	-0.0113	0.0044	-2.54
Salaried	-0.0122	0.0137	-0.89	-0.0010	0.0122	-0.08	-0.0210	0.0151	-1.39	0.0129	0.0099	1.30
B. Full-time												
Hourly & salaried	-0.0118	0.0077	-1.54	-0.0033	0.0051	-0.63	-0.0214	0.0074	-2.90	0.0018	0.0056	0.32
Hourly	-0.0141	0.0102	-1.38	-0.0073	0.0093	-0.78	-0.0124	0.0078	-1.58	-0.0044	0.0068	-0.65
Salaried	-0.0099	0.0136	-0.73	0.0016	0.0118	0.13	-0.0317	0.0177	-1.78	0.0075	0.0111	0.67
C. Part-time												
Hourly & salaried	-0.0159	0.0136	-1.17	-0.0072	0.0084	-0.86	-0.0198	0.0079	-2.50	-0.0108	0.0053	-2.03
Hourly	-0.0161	0.0156	-1.03	-0.0080	0.0096	-0.84	-0.0242	0.0084	-2.86	-0.0169	0.0068	-2.47
Salaried	0.0128	0.0509	0.25	0.0064	0.0261	0.24	0.0124	0.0289	0.43	0.0286	0.0149	1.92

Note: Standard errors are clustered on state.

Table 5. DDD Estimated Effects of Minimum Wages on Absenteeism

	Males						Females					
	[1]			[2]			[3]			[4]		
	Overall			Non-Vacation			Overall			Non-Vacation		
	coeff	se	t	coeff	se	t	coeff	se	t	coeff	se	t
A. All												
Hourly & salaried	-0.0419	0.0375	-1.12	-0.0696	0.0250	-2.78	0.0525	0.0419	1.25	0.0715	0.0270	2.65
Hourly	0.0129	0.0430	0.30	-0.0436	0.0284	-1.54	0.0441	0.0498	0.88	0.0824	0.0325	2.53
Salaried	-0.2019	0.0702	-2.87	-0.1575	0.0607	-2.59	0.0980	0.0798	1.23	0.0268	0.0643	0.42
B. Full-time												
Hourly & salaried	-0.0288	0.0501	-0.58	-0.0712	0.0291	-2.45	0.0516	0.0578	0.89	0.0669	0.0373	1.80
Hourly	0.0180	0.0641	0.28	-0.0610	0.0400	-1.53	0.0465	0.0708	0.66	0.0800	0.0385	2.08
Salaried	-0.1208	0.0824	-1.47	-0.1005	0.0617	-1.63	0.0821	0.0998	0.82	0.0386	0.0832	0.46
C. Part-time												
Hourly & salaried	-0.0713	0.0791	-0.90	-0.0647	0.0470	-1.38	0.0427	0.0519	0.82	0.0863	0.0391	2.20
Hourly	-0.0263	0.0769	-0.34	-0.0364	0.0463	-0.79	0.0370	0.0621	0.60	0.0938	0.0487	1.93
Salaried	-0.1941	0.1620	-1.20	-0.1618	0.1554	-1.04	0.1160	0.1230	0.94	0.0260	0.0838	0.31

Note: Standard errors are clustered on state.

Table 6. DDD Estimated Effects of Minimum Wages on Non-Vacation Absenteeism, Women by Marital Status and Presence of Children

	[1] All			[2] Without Children			[3] With Children		
Single Women									
	coeff	se	t	coeff	se	t	coeff	se	t
A. All									
Hourly & salaried	0.0628	0.0364	1.73	0.0633	0.0513	1.24	-0.1293	0.1717	-0.75
Hourly	0.0611	0.0375	1.63	0.0727	0.0589	1.24	-0.1433	0.1606	-0.89
Salaried	0.0779	0.0751	1.04	0.0102	0.0706	0.14	-0.0141	0.4812	-0.03
B. Full-time									
Hourly & salaried	0.0541	0.0527	1.03	-0.0046	0.0896	-0.05	-0.0910	0.1002	-0.91
Hourly	0.0385	0.0533	0.72	-0.0169	0.1163	-0.15	-0.1828	0.0940	-1.95
Salaried	0.1087	0.0913	1.19	0.0310	0.1194	0.26	0.0910	0.3784	0.24
C. Part-time									
Hourly & salaried	0.0839	0.0513	1.64	0.0832	0.0660	1.26	0.0469	0.3017	0.16
Hourly	0.0852	0.0579	1.47	0.1023	0.0741	1.38	0.0592	0.2451	0.24
Salaried	0.0947	0.1806	0.52	-0.1056	0.1183	-0.89	0.6031	1.1144	0.54
Married Women									
A. All									
Hourly & salaried	0.0914	0.0460	1.99	0.0191	0.1132	0.17	0.2048	0.1378	1.49
Hourly	0.1321	0.0588	2.25	0.0761	0.1620	0.47	0.2782	0.1854	1.50
Salaried	-0.0206	0.0876	-0.24	-0.1354	0.1635	-0.83	0.0028	0.0624	0.05
B. Full-time									
Hourly & salaried	0.0813	0.0572	1.42	-0.0403	0.0559	-0.72	0.2287	0.1484	1.54
Hourly	0.1430	0.0728	1.96	-0.1463	0.0792	-1.85	0.2782	0.1940	1.43
Salaried	-0.0426	0.1121	-0.38	0.0208	0.0912	0.23	0.1632	0.0971	1.68
C. Part-time									
Hourly & salaried	0.1024	0.0659	1.55	0.0374	0.1736	0.22	0.2133	0.1794	1.19
Hourly	0.1278	0.0793	1.61	0.1017	0.2174	0.47	0.2792	0.2458	1.14
Salaried	-0.0364	0.1448	-0.25	-0.3515	0.4007	-0.88	-0.2078	0.1861	-1.12

Note: Standard errors are clustered on state.

Table 7. Selection Test: Employment Effects of Minimum Wage on Absent Workers

	Males			Females		
A. Employment						
1. Full-time	coeff	se	t	coeff	se	t
Hourly	1.0487	0.7567	1.39	0.2489	1.3781	0.18
Salaried	1.0581	0.8962	1.18	-0.3503	1.3550	-0.26
2. Part-time						
Hourly	0.8024	0.6687	1.20	-0.5178	0.6928	-0.75
Salaried	2.4200	1.6963	1.43	0.9168	1.4719	0.62
B. Unemployment						
1. Full-time						
Hourly	-0.0901	0.4398	-0.20	0.0736	0.3775	0.20
Salaried	0.2128	0.4136	0.51	0.7254	0.9687	0.75
2. Part-time						
Hourly	0.4935	0.4782	1.03	0.3069	0.3849	0.80
Salaried	0.0542	0.8297	0.07	1.1356	0.7336	1.55
C. Not in Labor Force						
1. Full-time						
Hourly	-0.9586	0.6236	-1.54	-0.3226	1.1856	-0.27
Salaried	-1.2709	0.6577	-1.93	-0.3752	0.8631	-0.43
2. Part-time						
Hourly	-1.2958	0.5754	-2.25	0.2109	0.7151	0.29
Salaried	-2.4742	1.4012	-1.77	-2.0524	1.0545	-1.95
D. Hourly Wage Growth						
1. Full-time						
Hourly	-0.5869	1.2187	-0.48	0.1139	0.6775	0.17
Salaried	-1.3011	1.2634	-1.03	-0.3487	1.2396	-0.28
2. Part-time						
Hourly	0.0947	0.9927	0.10	0.4036	0.5292	0.76
Salaried	-9.7094	2.7463	-3.54	3.0416	1.4984	2.03

Note: This table reports the estimated effect of changes in the minimum wage on the probability that an absent minimum-wage worker is employed, unemployed, or out of the labor force in rotation 8 relative to minimum wage workers who were at work.

Standard errors are clustered on state.