Work Hours, Wages, and Vacation Leave

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1. Introduction

Empirical research on work hours is dominated by the massive labor supply literature, in which people choose hours at a parametric wage.[1] However, casual empiricism suggests that firms have strong preferences about employee hours, and there is a good basis in theory for believing this to be the case. The models of Ehrenberg (1971), Lewis (1969), Rosen (1968, 1969), and Deardorf and Stafford (1976) emphasize the role of startup costs, fatigue, and hiring and training costs that are fixed per employee. They also consider nonlinearities in compensation that are induced by fringe benefits, payroll taxes, and overtime pay as well as the costs of coordinating workers who work different hours. Rebitzer and Taylor (1995), Landers et al (1996) and Sousa-Poza and Ziegler (2000) provide a different class of models in which firms regulate hours because hours influence the composition of a firm's workforce.[2]

There is also substantial evidence that the hours choices of workers are in fact constrained by the employer. For example, Altonji and Paxson (1986) and recent studies by Martinez-Granado (1999) and Senesky (2000) show that the variances of changes in hours per week, weeks per year, and hours/year worked are much larger across jobs than within the job. This evidence suggests that work time is to an important extent a job specific phenomenon.[3] Studies of the labor market for older workers have stressed restrictions on going part time with one's current employer as well as a large wage penalty associated with giving up a full time job for part time work in another firm (e.g., Gustman and Steinmeier (1983, 1984), Berkovic and Stern (1991), Hurd (1996), Elder (2000)) and Aaronson and French (2004). [4] In summary, restrictions on choice of hours in a given job appear to be a key feature of the labor market.

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[1] See Killingsworth (1983), Pencavel (1986) and Blundell and MaCurdy (1999) for comprehensive surveys. Cogan (1981), Hanoch (1980) and subsequent studies have modified the basic framework to accommodate fixed costs, so that worker preferences and budget parameters influence the form in which work hours are packaged. .Rosen (1976), Biddle and Zarkin (1989), and Moffitt(1984) are early examples of labor supply studies in which workers choose hours and wages according to a market locus.

[2] Their basic assumptions are that (1) work preferences are heterogeneous and unobserved by the firm and either directly influence productivity through current and future effort levels or turnover decisions or are simply correlated with skill and (2) pay cannot be tied directly to the productivity of individual workers. The difficulty in matching pay to productivity may arise because productivity is unobservable or because of problems in devising and enforcing multi-period contracts, particularly when turnover is a key issue.

[3] The results of Altonji and Paxson (1986) as well as a substantial literature using self reported measures of unemployment, underemployment, and overemployment (eg. Ham (1982, 1986), Kahn and Lang (1988, 1992), and Altonji and Paxson (1988)) suggest that workers face demand constraints that they cannot fully avoid by changing jobs. Research by Paxson and Sicherman (1996) on dual job holding suggests that second jobs are sometimes used to adjust hours on the margin despite the fact that they pay less per hour basis than full time jobs.

Firms regulate days of work by establishing fixed holidays, paid and unpaid vacation and personal days (hereafter, vacation days) and provisions for excused absences due to illness or family considerations, perhaps with pay. Strictly from a budget point of view, there is no meaningful economic distinction between "paid" and unpaid vacation. One can always adjust the wage rate to achieve a given level of annual compensation for a given amount of time worked over the year. However, adjusting time off without leaving an employment relationship involves adjusting vacation days.[5] Indeed, a number of countries, particularly in Europe, regulate work time by requiring employers to provide a minimum number of paid vacation days. Consequently, data on paid vacation days and other forms of regular leave provide a direct measure of the work requirements imposed on the worker by the firm or by law. Leave policy is of interest in its own right and as a window on how hours are determined in the labor market. Analyzing it may help inform the contentious debate over whether Americans work more than the optimal amount given preferences and productivity, as is implied by some adverse selection models of hours determination.[6] Since little is known about this important job characteristic, we fill the gap by providing a set of facts about vacation leave and its relationship to hours worked, hours constraints, wage rates, worker characteristics, experience and job tenure, occupation, and labor market conditions.

Specifically, we use the Panel Study of Income Dynamics (PSID), and other sources, including the Health and Retirement Survey (HRS) to address the following questions about vacation leave.

1. What is the distribution of weeks of paid vacation received and vacation weeks actually taken, and how do they relate? In particular, what is the effect of weeks of paid vacation on weeks actually taken?

2. What is the relationship between weeks of paid vacation and weeks actually taken and weeks worked, hours/week, and annual hours per year on the main job, and hours on other jobs? Do workers offset vacation on the main job by working longer hours?

3. How are personal characteristics that influence wages and hours preference related to vacation time? Is vacation time taken influenced by the amount of paid vacation time received by a spouse, conditional on one's own paid vacation time?

4. Do reported hourly wage rates decline with weeks of paid vacation?

5. How does vacation time vary with labor market experience and seniority?

6. Does vacation time on a previous job influence vacation time on subsequent jobs? We use this question to provide indirect evidence regarding the issue of whether workers negotiate

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[4] Blank (1990a and 1990b) considers selection bias issues and concludes that there is a substantial premium to working full time in many but not all types of jobs. Aaronson and French (2004) provide fairly compelling evidence for a substantial full time premium.

[5] Both firms and individuals also care about the daily work schedule. See Hamermesh (1999) for analysis of the distribution of work hours by time of day and days of the week.

over vacation time when taking new jobs.

7. Is vacation time countercyclical, as predicted by some equilibrium business cycle models?

8. How do weeks paid and weeks taken vary with job characteristics such as union, government status, occupation, and industry? Does depend on percent female in an occupation? Has the relationship between percent female and vacation time weakened over time?

The paper continues with a discussion of the data in Section 2. In Section 3 we present the empirical analysis. In the conclusion we summary the main empirical findings and provide a research agenda.

2. Data

We have identified two U.S. household datasets with panel data on vacation time.[7] The first is the Panel Study of Income Dynamics (PSID). The PSID contains panel data on wage rates, weeks worked and hours per week on the main job, and information about hours on secondary jobs, questions about whether the individual could have worked more or could have worked less on the job, a question about whether he would have liked to have worked more, and a question about whether he would have liked to have worked less even if "you earned less money". It also contains information about union status, industry, and occupation, location, education, race, days missed due to illness, labor market experience, job seniority, quits, and layoffs.

In all years the head of household was asked, "Did you take any vacation or time off during 19XX? How much vacation or time off did you take?" We refer to this variable as VT. Wives were asked these questions in 1976, and from 1979 on. We use data for the calendar years 1975-1991. In the years 1975-1977 and 1984 heads of household who are employed at the survey data are asked, "How many weeks of paid vacation do you get each year?" Wives were asked this question in 1976 and 1984. We refer to this variable as VP.

The measures of quits, layoff, job seniority, job tenure, and labor market experience are taken from Altonji and Williams (2005). The coding of most of the other variables used in the study is reasonably straightforward and are documented in Appendix A.

Our analysis of the effects of occupation makes use of information on occupational characteristics from the Dictionary of Occupational Titles (DOT) aggregated to the three-digit level. The measure of gender composition of the occupation is the proportion of female workers in the worker's three-digit

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[6] See Shor (1991), Kniesner (1993) and Stafford (1992).

Census occupational category. The estimates in the text below use the proportion female based on the 1980 Census. [8]

We make limited use of the <u>Health and Retirement Survey</u> (HRS). The sample is composed of persons between the ages of 51 and 61 at the start of the survey and their spouses. The 1992, 1994, 1996, and 1998, 2000, and 2002 waves contain questions about weeks of paid vacation, the number of days of paid sick leave allowed each year, and the number of days of work missed during the previous 12 months because of health problems. The HRS also provides data on whether the person could increase hours, whether the person would like to increase hours if earnings were increased proportionately, and how many additional hours the person would like to work, as well as data on job seniority, job mobility, and secondary jobs. The information is available for both the sample member and the spouse of the sample member. The major disadvantages of the HRS for our purposes are the fact that it does not ask about weeks of vacation taken and its relatively narrow age range.

3. Empirical Results

3.1 The Distribution of Weeks of Paid Vacation Received and Weeks of Vacation Taken

What is the distribution of paid vacation time and unpaid vacation time? Do people use all of their paid vacation time? Is there substantial unpaid vacation time? How do the two measures interrelate?   To answer these questions, we start by displaying the distribution of weeks of paid vacation and weeks of actual vacation. In section 3.2, we use regression methods to examine the relationship between the two vacation measures and work hours.

We focus on persons who work 35 or more hours per week on their main job, were between the ages of 19 and 59, had left school and not returned, had not retired, and were not self employed. We do not condition on weeks worked per year. To insure that reports of vacation time over the year refer to persons in the same job for the entire year, we also restrict the analysis to persons with at least .5 years of seniority at the time of the survey and exclude observations if the job ended prior to the next interview. Unless stated otherwise, we use these sample restrictions through out the paper.

Figure 1 graphs the distribution of paid vacation weeks (VP) and vacation weeks taken (VT) for men based on the years when both are available. (The distribution of VT using 1975-1991 is similar). 11.4% of the men report 0 paid weeks, 12.4% report 1 week, 36.0 % report 2 weeks, 19.2% report 3

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[7] In the Current Population Survey (CPS) persons who report that they were temporarily absent or on layoff "last week" are asked why they were absent. "On vacation" is one of the responses. The CPS could support an analysis of trends in vacation time but lacks the panel structure and rich set of covariates in the PSID and HRS.
[8] We obtain similar results when we linearly interpolate using information from the 1980 and 1990 Censuses.

weeks, 12.9% report 4 weeks, and 6.2% report 5 weeks. These values account for 97.8% of the observations. The distribution of VT is similar. The distributions of VP and VT for women are similar to those for men (Figure 2). However, 9% of all women report 8 or more weeks of vacation taken while only about 2% report 8 or more paid weeks.

Figure 3 presents the distribution of the difference between vacation weeks taken and vacation weeks paid (VT-VP). The difference is 0 for 53.3% of the observations on men and 50.2 percent of the observations for women.[9] For men the distribution between the values of -4 and 4 is skewed to the left, indicating that men are more likely to take fewer weeks than they are paid for. This is also true for women, although the skew is less pronounced. Taken at face value, the figures suggest that in a given year many workers take less vacation than they are paid for. They also suggest that many men and women can take more vacation than they are paid for. Part of this is probably measurement error. Part may reflect decisions to carry over paid vacation across years and part may reflect occupations with a seasonal component to the work year. For men and women combined teachers account for only 3% of the sample but for 35 % of the cases where VT exceeds VP by more than 2 weeks.

3.2 The Relationship between Weeks of Paid Vacation and Weeks of Vacation, Weeks Worked, and Annual Hours.

The Effect of Weeks of Paid Vacation on Weeks of Vacation Taken

In Table 1 we report the mean of VT and various measures of hours worked as a function of weeks paid, VP. We use the same sample restrictions that were used for Figures 1-3 and in particular focus on persons working 35 or more hours/week in their main job.

Men who report 0 paid weeks take an average of 2.32 weeks. Surprisingly, weeks taken fall to 1.31 for persons reporting 1 paid week. Weeks taken then rise with paid weeks. Women show the same pattern. In particular, persons with 0 weeks of paid vacation report 5.04 vacation weeks taken on average. As one can see from the table, weeks worked on the main job more or less mirror the pattern of vacation weeks taken (Column 2). The table suggests that there are some 35+ per week jobs that allow for

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[9] In figures A1, A2, and A3 we present the distributions of weeks paid, weeks taken, and the difference for people who work between 15 and 34 hours per week on their main job. 35.9% of the men and 44.2% of the women in this group report 0 paid weeks. About 35.9% of the men and 44.4% of the women in this group report 0 vacation weeks taken. It is unclear how part time workers interpret the question "did you take any vacation or time off?"

[11] One cannot directly examine the link between vacation weeks and unemployment weeks because they are mutually exclusive categories in the survey. Effort by the PSID interviewer to insure that reports of vacation weeks, weeks worked on the main job, weeks lost due to illness, etc. sum to 52 may build in negative correlation between measurement error in VT and weeks worked. The mean of VT is .1.303 for individuals who are unemployed at the survey date in given year, 3.123 for persons on temporary layoff, and 2.93 those who are employed. (Due to data limitations these results exclude data prior to 1976 and are not restricted to persons who report union status and government employment status.) A regression containing the controls in Table 1a, column 2 plus industry dummies indicates that mining and extraction, agriculture, forestry and fishing, durable goods, and educational services all have unusually large amounts of VT relative to VP. (not reported.)

substantial amounts of "unpaid" time off but do not provide paid leave. Many of these jobs are in education---40.5% of K12 teachers and 41.2% of K12 and college and university teachers report positive VT and 0 VP. 29.8% of those in the education services industry report positive VT and 0 VP. As noted above, some jobs with 0 paid vacation weeks may have a strong seasonal component to demand, such as construction work. For seasonal jobs, the implicit employment contract may be structured so that vacation is taken during the off season, perhaps with a subsidy from the unemployment insurance system.[11]

The table also shows that regular hours/ week on the main job vary little with weeks of paid vacation for jobs involving 35+ hours. Hours/week on the main job are actually higher for persons with 0 paid vacation weeks in the case of men but not in the case of women. Annual hours worked on the main job and on all jobs are lower, especially for women.

The first row of Table 1a reports OLS estimates of the coefficient of the regression of VT on VP and alternative sets of control variables for the pooled sample of men and women. To reduce the influence of outlier observations and reporting error we first recoded the approximately 1% of observations reporting more than 7 paid weeks to 7. The regression coefficient is only 0.5472 (.0205) when we exclude all controls. When we add controls for education, a quartic in experience, the interaction between education and experience), marital status, disability status, sex, race, city size, region, and the calendar year, the coefficient is falls to 0.4254. Thus, the number of weeks of paid vacation has a strong influence on weeks taken, but the effect is not 1 to 1. The coefficient falls to 0.2172 when we add controls for seniority (a cubic), government employment, and union status. Intertemporal substitution in when paid weeks are actually taken cannot easily explain the short fall, because such substitution is likely to introduce a mean 0 error into the model. However, reporting error in VP could explain the short fall.

We address reporting error in two ways. First, we have re-estimated the models in columns 1-3 using a 2 step estimator in which we first predict weeks of paid vacation using weeks of paid vacation in the previous year and the other variables in the model. The coefficient on paid weeks rises to between .6141 and .2580 depending on the control set (row 2).

Second, we exploit the fact that VP depends strongly on job tenure by re-estimating the models in columns 1 and 2 using the first 3 powers of tenure as the instrumental variables. This requires the assumption that seniority does not have a direct influence on VT given VP. The IV estimates are 0.8236 (.0415) when all controls are excluded and 1.0580 (.0459) when they are included. These results indicate that on average, VT rises one for one with weeks of paid leave even though VT fluctuates around paid

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[14] When we include the basic set of controls we find that hour/wk on the main job drop by -.195 (.018) hours per week with each extra week of vacation. (column 2, row 2), which translates into an annual reduction of about 10 hours for someone working 50 weeks. However, the coefficient is only -.067 when seniority, union status, and government status are controlled for. The corresponding coefficient for annual hours on extra jobs is 3.64 when the basic set of controls is included and 3.17 when the full set is included.

weeks for a given year, which is a sensible finding. We cannot rule out the possibility that the difference in the 2 step estimates using lagged VP and the IV estimates using tenure as an instrument arises because variation across firms in VP has a weaker relationship to VT than the component of variation associated with tenure.   This might be the case if implicit norms about vacation time influence VT given VP and vary less than one to one with VP across firms.

Vacation Time and Hours and Weeks Worked

In the top panel of Table 2, we report OLS estimates of the relationship between VT and various work time measures. Each coefficient (standard error) in the table refers to a separate regression. The column headings identify the dependent variable and the row headings indicate the controls used. To reduce the influence of a small number of extremely large values we recode values of VT that exceed 7 to 7.

When all controls are excluded, the coefficient of VT on annual hours on all jobs is -44.3 (1.1) which indicates that an extra week of vacation is associated with about 1 less week of work (column 1, row 2). The coefficient is -51.6 when the demographic controls are added and is -45.3 when tenure, government employment, and union status are added. Almost all of the effect is through weeks worked on the main job. The relationships between VT and hours/week and VT and annual hours on extra jobs are weak.[14]

The second panel of table 2 presents results using VP as the vacation measure. When the demographic controls are included the effect of VP on weeks worked is only -.087, in sharp contrast to the coefficient of -1.09 using VT. There is a similar discrepancy between the effects of VP and VT on annual hours worked on all jobs (column (6)).

The discrepancy between the results for VP and VT is accounted for by the substantial positive difference in weeks worked between persons who receive 1 paid week and persons who receive 0 paid weeks. (See Table 1). When we add a dummy variable that is equal to 1 if VP is greater than or equal than 1 to the model with the basic control set, the coefficient on VP is -.76 (.05) for weeks worked and - 36.6 (4.5)for annual hours on all jobs. (Table 2a, columns 1 and 6). 2SLS estimates of the effect of VP on weeks worked using the first 3 powers of tenure as the excluded instruments (Table 2a, bottom) are usually more negative than but reasonably consistent with the OLS estimates of the effect of VT in Table 2, especially when sampling error is kept in mind. Basically, an extra week of paid vacation is associated with a reduction in weeks worked on the main job with no offset or even a small reduction in the other dimensions of work hours.

It is interesting to compare our results for vacation time at the individual level to the country level analysis of Altonji and Oldham (2002). They regress annual work hours on the minimum number of

weeks of paid vacation and holiday required by law for a panel of several European countries and the U.S.. When they control both for year and the country, they find that an additional week of legislated paid vacation reduces annual hours by 51.9 (11.7) hours. This estimate in conjunction with other estimates for alternative specifications in their paper implies that mandating an extra week of paid vacation translates approximately one for one into a reduction in weeks worked. It suggests that the laws are binding for vacation time and that there is little or no offset through the other dimensions of hours.

3.3 Personal Characteristics and Vacation Time:

In Table 4 we display the coefficients on personal characteristics in regressions for VT, VP, and VT – VP. Columns 1-3 exclude controls for tenure, union membership, and government employment,. Controls for labor market experience (a cubic), city size, region, and the calendar year are included in the regression models but the coefficient estimates are not reported.

Women take .897 more weeks of vacation than men but receive only .140 more paid vacation. VP and VT are both a bit higher for married people. Blacks receive and take a bit less than 1 fewer days of vacation than whites.

Perhaps surprisingly, those with a health problem that hinders work take about .45 fewer weeks of vacation but receive about the same amount of paid vacation. One might speculate that health problems boost sick time but reduce reported vacation time for a given number of weeks of paid vacation. Paid sick leave might lead to an increase in time taken of due to illness.[15]

These basic results change only slightly when controls for seniority, union status, and government employment are added in columns 4-6of the table.

Interactions between Vacation Time of Husbands and Wives

Is the amount of vacation married men and women take constrained by the paid vacation time of their spouse? To investigate this, we regress VT on VP, VP of the spouse, and separate indicators for (VP ≥ 0) and (VP of spouse ≥ 1) and controls. (See control set 3 in Table 2). The sample is restricted to couples in which both parties work 35 or more hours per week. For husbands the coefficient on VP of the wife is .196 (.076). For wives the coefficient on VP of the husband is -.171 (.134), which is the wrong

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[15] The HRS lacks data on vacation time taken but does report days of work missed due to health and the number of days of paid sick leave at full pay the individual earns each year, which we have converted to 5 day weeks. The data are only obtained for persons who are with new employers or who have changed positions with an employer. In a regression of weeks lost due to illness on VP, paid sick weeks, dummies for VP >0 and control for demographic variables, government employment, union, and seniority, the coefficient on VP is -.041 (.62) and the coefficient on paid sick weeks is .214 (.032). In a regression for paid sick weeks the coefficient on paid vacation weeks is about .243 (.035).

sign but not statistically significant.[16]

We also tried replacing VP of the spouse with the function min(VP, VP of the spouse). If leisure time of the husband and wife are complements, then the spouse with the least amount of vacation may constrain vacation taken by the other. This would imply a positive coefficient on min(VP, VP of spouse) when VP is also controlled for. A substitution effect could go the other way. The coefficient on min(VP, VP of spouse) is 0.392 (0.115) for husband's equation, but -0.253 (0.210) for the wife's.[17]

In summary, VT is increasing for husbands and decreasing for wives in spouse's VP. Putting aside for the one moment the fact that coefficient for wives is statistically insignificant, it is worth noting that one can rationalize the sign pattern and the fact that the mean of VT-VP is positive for women but negative for men under the assumptions that (a) the leisure time of husbands and wives are complements, (b) husbands and wives are substitutes in home production, (c) the penalty for taking leave without pay is higher in the jobs men hold, and (d) both men and women would choose to work less if they could do so at their average wage rate. Under these somewhat questionable assumptions, wives would be more likely than men to choose VT-VP>0, which is qualitatively consistent with the evidence. An increase in VP will have a larger impact on the marginal cost of VT for men than for women. If the marginal cost of VT for women is sufficiently low, then complimentarity in leisure time might lead them to increase VT even if their husbands devote part of increased VP to home production. An increase in VP for women will increase VT for women and could lead to a reduction in VT for husbands if most of the increase in VT for wives is in home production.

3.4 The Relationship between Wage Rates and Weeks of Paid Vacation

Assume that workers are on their labor supply curves and work 50 weeks a year. Then by the envelope theorem they should be willing to reduce weeks worked by one week in exchange for a reduction in pay of about 1/50th, or two percent. Alternatively, consider a worker choosing between a job that offers one week of paid vacation and one week of unpaid leave versus a job offering two weeks of unpaid leave. The worker will be indifferent between the two jobs if they provide the same annual compensation. This will occur if the hourly wage rate for the job with 2 paid weeks is approximately two percent lower than the hourly wage for the other job. This prediction follows from the budget constraint. It is sharper than the predictions one normally obtains from the theory of compensating differentials because in most applications one does know how the job attribute is valued. However, the second

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[16] The sample sizes are only 1038 for husbands and 877 observations for wives in part because data on paid vacation for wives is only available in 1976 and 1984. We obtain similar results when we drop the 35+ hours restriction.

[17] A possible explanation for the asymmetry, aside from sampling error, is that women take less unpaid leave to care for children and relatives when the husband has more paid vacation time. The asymmetry in point estimates is larger in families

comparison refers to jobs in which work hours are the same.

If workers are over employed at the standard level of vacation weeks, as some proponents of minimum vacation laws argue, the compensating differential for giving up a week of paid leave and working should be even larger than 1/50. To see this, assume that at the wage rate $w(VP^*)$ paid by jobs offering VP^* paid weeks workers are not hours constrained. Let $w(VP^{**})$, $VP^{**} < VP^*$, be the wage rate at which the individual is indifferent between working $52 - VP^*$ weeks and receiving $52 \cdot w(VP^*)$ and working $52 - VP^{**}$ weeks for $52 \cdot w(VP^{**})$. Following along the lines of the analysis of hours constraints in Abowd and Ashenfelter (1981), one may show that

$$\frac{w(VP^{**}) - w(VP^*)}{W(VP^*)} \approx .5 \frac{1}{e} \cdot \frac{(VP^* - VP^{**})^2}{52 \cdot (52 - VP^*)} + \frac{VP^* - VP^{**}}{52}$$

where e is the compensated labor elasticity. If e is .2, and VP* is 5, then W(2) should exceed W(5) by about 7% of the W(5) wage. W(2) should exceed W(3) by about .025 percent of the W(2) wage.

In the top panel of table 3 we report estimates of the effect of paid weeks of vacation on the log hourly wage rate. The sample consists of men. Column 1-3 reports results for the combined sample of hourly and salaried workers. Columns 4-6 are hourly workers and columns 7-9 are for salaried workers. The model in column 4 contains the dummy variable ($VP \geq 1$) and the linear term VP.

Those familiar with the sorry history of compensating differentials studies will not be surprised to learn that the prediction of a negative link between the hourly wage rate and weeks of paid vacation fails miserably in the data. In the hourly wage case the coefficient on VP is positive rather than negative: .088 (.0049). The coefficient declines to .0699 (.0058) when demographic controls, seniority, government status, and union status, are all controlled for. Results for the combined sample and for the salaried sample are similar.

Note, however, that the dummy variable on ($VP \geq 1$) is large and negative for the combined sample and for hourly workers, and the implied effect on the wage of moving from 0 paid weeks to one paid week is -.109 (.016) for the combined sample and -.166 (.018) for the hourly sample. In columns 3, 6, and 9 we report estimates of a model containing dummy variables for each vacation category, with VP = 2 as the reference category. As one can see, the move from 0 to 1 week is associated with a decrease in wages in all three samples, as predicted by theory, but the decrease is unreasonably large in two of three samples. After that, wages rise substantially with additional weeks through the 5th week. We have already noted a surprising pattern in the behavior of weeks of vacation taken and in weeks worked in jobs with 0 weeks of paid vacation. For men 35, 13.9, and 11.0 percent of jobs with no paid vacation are in

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with children under 12. For this group the coefficient on min(VP,VP of spouse) is -.516 (.217) for wives and .667 (.161) for

construction or agriculture, forestry and fisheries, or educational services, while only 1.3, 4.3 and 4.0 percent of jobs with paid vacation are in these industries. Men in jobs with no paid vacation have lower tenure, are less educated, are less likely to be married, are more likely to be black, and are less likely to be unionized than men who receive at least a week of paid vacation.

In the bottom panel we report results for women. We find a positive effect of VP on the wage in the sample of women. For hourly and salaried workers combined there is no anomaly associated with the first week of paid vacation. The difference between men and women appears to be related to the types of jobs they hold. Few women are in agriculture and construction, which are the source of many of the VP=0 observations for men. In contrast, for women educational services account for 37.8% of the jobs with no paid vacation but only 9.2 % of the jobs with paid vacation. Personal services accounts for 9.3% and 4.8% respectively.

Appendix Table 2 reports similar results for the HRS. For example, for male hourly workers the coefficients on VP and VP $\geq$ 1 are .0707 (.0056) and -.2024 (.023) in the specification corresponding to column 5 of Table 3.

Presumably, the positive wage coefficient in the HRS and PSID reflects bias from unobserved skills of the worker and/or characteristics of the job that influence wages and paid vacation in the same direction, although adding 2 digit occupation controls, two-digit industry controls, or both makes little difference.

The HRS sample is sufficient to permit estimation of wage change regressions of the form

$$\Delta W_{it} = a_0 + a_1 \Delta VP_{it} + a_2 \Delta[1(VP_{it} \geq 0)] + a_3 L_{it} + a_4 Q_{it} \Delta VP_{it} + a_5 Q_{it} \Delta[1(VP_{it} \geq 0)] + a_6 L_{it} \Delta VP_{it} + a_7 L_{it} \Delta[1(VP_{it} \geq 0)]$$
$$+ a_8 \Delta OCC_{it} + a_9 \Delta Z_{it} + u_{it}$$

where Δ is the first difference operator, Q_{it} is 1 if the person changed jobs between surveys due to a quit and L_{it} is 1 if the person changed jobs due to a layoff, OCC_{it} is a vector of occupation dummies, and Z_{it} consists of a cubic in tenure, a quartic in experience, health limitations, marital status, government status survey year dummies, and region dummies. We also control for the survey year and estimate on the sample of job changers who were less than 60, had not retired, and worked more than 35 hours per week in both years.

Usui (2004) shows that under reasonable assumptions, a_4 is unbiased as an estimate of the relationship between VP and the wage if the wage differential associated with VP is a compensating differential for an amenity such as VP. It is downward biased if wages overcompensate for VP. The intuition is that if wages exactly compensate for VP then the reservation value of the change in the match

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husbands.

specific component of wages given ΔVP doesn't vary with VP. If wages over compensate (fall too little) as VP increases, the reservation value of the change in the match specific wage component required to induce a worker to move falls with ΔVP, leading to a negative bias. Usui (2004) also shows that a_5 is an upper bound estimate under the assumption that workers who are laid off draw at random from the job offer distribution and wages overcompensate for VP.

The estimates are reported in Table 4a. As one can see from column (5), for the combined sample of hourly and salary workers the estimate of a_4 is .083 (.019) and the estimate of a_6 is .058 (.019). The corresponding values for women are .018 (.011) and .037 (.022). The estimate of a_4 has the wrong sign for both groups, and this result cannot be attributed to bias from unobserved variation in worker skill and is also hard to square with a simple story about bias due heterogeneity in wage offers across job matches for a given value of VP.

3.6 Hours Constraints and Vacation Time

We used a series of questions in the PSID about whether the individual would like to reduce hours "even if it meant less money" and whether the individual is free to reduce hours to construct an indicator of whether the individual is over employed. We also used a parallel set of questions to construct a measure of underemployment.   Precise estimates from separate probit models with controls for personal characteristics, union status, government status, and job seniority and dummy for vacation time greater than or equal to 1 show that the effect of VT and VP on the probability of reporting over employment is essentially 0. Using similar questions in the HRS we find that 1 week of paid vacation raises the probability of over employment by .005 (.0025). In both the PSID and HRS the probability of reporting underemployment falls with VT and with VP. In the PSID an extra week of VP is associated with a reduction of .021 (.006) in the probability of reporting underemployment, which compares to the mean probability of .272. Consequently, we have no evidence suggesting that vacation time alleviates overemployment or exacerbates underemployment. [18]

3.7 The Effects of Experience, Seniority and Mobility on Vacation Time

In this section we examine the effects of experience, seniority and mobility on vacation time. In addition to measuring the effects of experience and seniority on vacation time, we provide strong evidence that vacation time is determined by employer wide policy rather than by employer/worker negotiation.

Cross Tabulations of Vacation Time by Experience and Tenure

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[18] In the PSID we obtain similar results for women with children under 12.

As a starting point, in Table 5 we report the mean and standard deviation of paid vacation by experience and seniority in the previous year for full time men. Aggregating across experience cells, the mean of VP rises from 1.86 weeks when tenure is less than 1 to 3.02 when tenure is greater than 15. A striking fact is that VP has little to do with experience conditional on tenure. This is consistent with the notion that vacation policy is firm wide, based on seniority, and not negotiated between the firm and individual workers. The results for women in Table 5 are similar although the sample size is small in many cells. We also obtain similar results for both men and women when we use weeks of vacation taken. (Not shown)

For a sample of job changers, a tabulation of weeks taken (VT) on the new job by tenure on the previous job shows little systematic variation with either experience or prior tenure (not shown). This is true for quits as well as layoffs. These results indicate that seniority-based vacation on a job is usually lost when a person moves. They suggest that employees are unable or unwilling to negotiate vacation on the new job on the basis of vacation on the previous one.

OLS and Instrumental Variables Estimates of the Experience and Tenure Profiles

In Table 6 we present estimates of the effects of labor market experience and tenure on VT, VP, and VT-VP. The estimates are based on regression models that a cubic in tenure, a quartic in experience, the interaction between experience and education, and a set of control variables. We estimate separate models for men and women. Many of the same issues that arise in estimating the effects of tenure on wages are relevant for the study of the effect of tenure on vacation time.[19]

For a sample of job changers, a tabulation of weeks taken (VT) on the new job by tenure on the previous job shows little systematic variation with either experience or prior tenure (not shown). This is true for quits as well as layoffs. These results indicate that seniority-based vacation on a job is usually lost when a person moves. They suggest that employees are unable or unwilling to negotiate vacation on the new job on the basis of vacation on the previous one.

Column (1) presents OLS estimates of the effect of 2, 5, 10, and 20 years of tenure and of experience prior to the start of the job. The results show that VT rises by about .26 (.02) over the first two years on the job, 1.14 (.048) over the first 10 years, and 2.00 (.044) over the first 20.   The relationship between VT and experience is flat. Column (2) uses Altonji and Shakotko's (1987) instrumental variable approach. The estimated effects of seniority on VT are about one third less than the OLS estimates. The

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[19] See Altonji and Shakotko (1987), Abraham and Farber (1987), Topel (1991), Altonji and Williams (1998, 2005) and Farber (1999) for detailed discussions of the issues and the alternative estimation approaches.
[21] Buckley (1989) presents summary tables on vacation time using the Employment Benefit Survey for an earlier year. The CPS does not appear to have ever collected information about vacation weeks.

point estimates of the effects of experience are essentially 0.

The second panel of the table reports estimates for VT for the sample used to study VP. The estimates of the effect of seniority are very similar to estimates for the full sample, although the standard errors are much larger in the IV case. (Emiko---remove the table column that display 2-step estimator)

The third panel reports estimates of the effects of tenure and experience on VP. The OLS estimates and the IV estimates are very similar for both men and women through ten years of seniority. The IV estimates actually lie above the OLS estimates at 20 years, although the IV estimates are very noisy and the difference is not statistically significant. In general, the choice between OLS and the IV estimator makes much less difference for vacation time than wages. Paid vacation time varies very little with experience. Both the OLS and the IV estimates imply that for men paid vacation rises more rapidly with tenure and than weeks of vacation taken. The point estimates suggest the opposite for women, although standard errors are large for both groups, especially in the IV case for women.

Table 7 presents average paid holidays and paid vacation and average paid sick leave for full-time employees in medium and large private establishments by tenure. It is based on the 1997 Employer Benefits Survey. The table implies that vacation days increase by an average of about one half days per year over the first 20 years and very little after that.[21] One cannot tell from the table how uniform the policies are within the many firms, but the employer survey is very consistent with the PSID based estimates of the tenure profile of VP.

The Link between Vacation Weeks Across Jobs

We obtain some indirect evidence on the extent to which vacation time depends on the situation and preferences of individual employees by examining the relationship between vacation time across jobs. If vacation time is something that can be bargained over, then workers who had long vacations on their previous job will use these as a bargaining chip for more vacation time on the new job in much the same way that wage rates on a previous job influence reservation wages for any new job. Furthermore, if the amount of paid and unpaid leave is to some extent at the discretion of an employee, then those who chose relatively long vacations on a previous job will be inclined to do so on the new job. On the other hand, if vacation time is set by rigid firm wide policy, then prior vacation time will have little influence on the vacation in the new job, other than through selection in which jobs are chosen.

In table 8 we report the coefficient of the regression of VT on current job on the average of VT during the last two years of the previous job, after controlling for current seniority and experience at the start of the job as well as a set of other control variables.[22] We average VT to reduce the effects of

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[22] We continue to drop an observation if tenure at the survey date is less than .5 or if it is the last observation on job.

reporting error and random variation in when paid vacation on the previous job is taken. The coefficient on past VT is .2163 (.056). Measurement error in the two-year averages probably biases these estimates downward, while fixed heterogeneity across workers in leisure preferences or in the prevailing vacation packages in particular occupations and industries biases them upward. When we add dummies for the current 2 digit occupation, the coefficient falls to .094 (.059). When we restrict the sample to cases in which the previous job ended due to a quit, we obtain the estimates of .292 or .157 depending on whether or not we control for occupation (column 4 and 5). The results for layoffs are .216 (.090)with occupation controls excluded and .167 (.192) with occupation controls included.

Table 9 reports similar regressions using VP. Because this variable is only available for the years 1975-1978 and 1984, the sample sizes of job changers are small. When we use VP in the last year of the previous job rather than the average of the values for last two years we obtain a coefficient of .181 (.057) when occupation controls are excluded and only .087 when occupation controls are included. These coefficients rise to .295 (094) and .223 (106), respectively, when we use two year averages, although the sample size is only 120.

Taken at face value, the results suggests that prior vacation has only a small effect on vacation on the new job once occupation is controlled for. Some relationship would be expected to arise through the effect of vacation time in the old job on the reservation locus of job characteristics required to induce a switch. It is fully consistent the evidence mentioned above that tenure on the previous job has little to do with vacation time on the new job. Evidently, people who have a lot of vacation on a job are unable or unwilling to bargain for a similar vacation on the new job. To a large degree, vacation policy is set firm wide.

To put the results in perspective, the middle panel of table 8 reports regressions of hours per week on the current job on the average of hours per week in the last two years on the previous job. The coefficient is .3062 when occupation is not controlled for and .2562 when occupation is controlled for. These coefficients are larger than the corresponding values for vacation time, but suggest that work hours are heavily influenced by the specific job and not easily amenable to bargaining. In contrast, the bottom panel presents regressions of the log of the hourly wage rate in the current job on the average for the last two years on the previous job. The coefficients are .682 and .666. Part of the difference probably reflects a more important role for fixed individual heterogeneity in the determination of wage rates than in the preferences for hours. That is, even if people are perfectly free to choose hours per week and vacation time, there might be less heterogeneity in these variables than in the productivity factors underlying wage rates. Overall, the results suggest, in common with other evidence mentioned in the introduction, that vacation time as well as work hours are governed by broad policies of the employer. They are not heavily influenced by the preferences or alternative opportunities of a particular worker.

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3.9 Implicit Contracts, Intertemporal Substitution of over the Business Cycle and Vacation Time

To the extent that leisure is substitutable over time, one might expect VT - VP to be countercyclical. It is efficient for workers to shift VT from booms to periods when business is slow. Research on intertemporal substitution over the business cycle has generally failed to explain movements in hours as a response on the labor supply curve to procyclical movements in wage rates. However, a number of researchers have argued that weeks worked and hours are governed by implicit contracts in which hours decisions respond to an unobservable shadow price of labor that equates marginal revenue production with the marginal utility of leisure rather than to the contractual wage, which reflects marginal revenue product over a longer horizon.[23] Such models are difficult to assess, however, because the shadow price is not observed. An examination of vacation time taken relative to vacation time paid for provides a window on this possibility. Under such an implicit contract VT would equal VP in a normal year, but the timing of vacations would respond to the needs of the firm as well as the needs of the worker. Under the reasonable assumption that firms do not change paid vacation policy in response to short-term business conditions, cyclical variation in VT-VP would be similar to variation in VT, ignoring compositional changes in the job mix and work force over the business cycle.

We examine this issue by regressing VT on state level business cycle indicators for 1975-1992. The indicators consist of the state unemployment rate, the change in the state unemployment rate, and the percentage change in state employment. We control for individual fixed effects to guard against spurious correlation between the labor market indicators and unobserved compositional changes in the workforce that influence vacation time, as well as for experience, job seniority, government and union status, marital status, region, city size, and a quadratic time trend. Standard errors account for clustering at the state year level. In separate regressions we obtain a coefficient of .0125 (.0072) when we use the state unemployment rate as our business cycle indicator and a coefficient of .025 (.0080) when we use the change in the state unemployment rate. The results suggest that vacation time is in fact weakly countercyclical, as predicted by models of intertemporal substitution. However, the magnitudes of the coefficients are quite small.

In summary, we have a little evidence that firms and workers adjust weeks worked through the timing of vacations in response to changes in demand, but the magnitudes are small.[25]

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[23] See, for example the discussion in Barro (1977).

[25] If consumers are credit constrained, then complimentary between market goods (travel fares, lodging, etc.) and time in the production of vacations is an offsetting force that could lead to procyclical variation in vacation time taken. However, the analysis of intertemporal labor supply is changed considerably when the assumption of perfect credit markets, and rational, forward looking planning is modified.

3.10 The Effects of Union Membership, Government Employment, Industry and Occupation Characteristics on Vacation Time

The above analysis suggests that vacation time reflects employer policy. We now examine variation in vacation time across job types. Conditional on demographic characteristics and experience and tenure, union membership boosts VT by .44 weeks and VP by only .23 weeks. Government workers take 1.21 more weeks of vacation per year and receive .60 more paid weeks. (Table 4, columns 4 and 5). Perhaps unions and civil service structures suppress "rat races" and so reduce the incentive of employees to forgo paid vacation. Another potential explanation in the case of government workers is that "comp" time is more prevalent in the public sector, is taken as additional vacation, and is not reported as paid vacation. We don't have any evidence on this at this point.

Table 10 presents estimates of the effects of occupation on VT and VP when personal characteristics, union membership, and government status are controlled. The reference occupation is Operatives, Except Transport. In the case of VT we report estimates using the sample for 1975-1992 and for observations for which VP is available. The largest coefficient in the VP equation is for armed forces (2.04). Interestingly, for that group the coefficient on VT is only -.425. In general, one obtains positive coefficients for VP in professional occupations. The two largest coefficients on VT are, not surprisingly, for K12 teachers (7.475) and college teachers and librarians (2.59).[26]

The Effect of Percent Female on Occupation

Rosen (1969) and Deardorff andh Stafford's (1976) analyses suggest that job characteristics will be determined in part by the preferences of the typical worker in a job. Usui (2001) shows that for both men and women average annual hours worked is negatively related to the percentage of females in the occupation. In the PSID vacation time is positively related to percent female. Did the large changes over the past 3 decades in the gender composition of the workforce and sharp increase in the amount that women work lead a weakening of the relationship? The coefficient on percent female in an occupation is .469 (.095) men and 1.228 (.293) for women for the years 1975-1983 in gender specific regressions that controls for personal characteristics, seniority, government employment, union membership, a detailed list of occupational characteristics based upon the Dictionary of Occupational titles, and a dummy for

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[26] We also regressed VP on characteristics drawn from the Dictionary of Occupational titles, entering characteristics one at a time in regressions with our other control variables. Measures of general education development - math, language, reason, and specific vocational preparation (SVP) all enter positively and are high significant. Measures of strength, climbing, stooping, balancing, kneeling, crouching, crawling, reaching, handling, fingering, feeling, talking, hearing, tasting/smelling, near acuity, far acuity, depth perception, accommodation, color vision, and field of vision, are negative in most cases. Proxies for bad environmental conditions typically enter negatively are statistically significant in some cases.

whether the person is a teacher. For the period 1983-1991, the coefficient is .270 (.134) for men and .432 (.217) for women. One hypothesis is that the decline in coefficients is the result of a decrease in the desired number of weeks of vacation among women between periods, as the labor force attachment of women has increased. Unfortunately, we cannot examine adjustments in paid vacation time over the same period.

4. Discussion and Conclusions

References

Aaronson, D. and French, E., "The Effect of Part-Time Work on Wages: Evidence from the Social Security Rules", Journal of Labor Economics, 2004

Abraham, K. G. and Farber, H. S., "Job Duration, Seniority, and Earnings." *American Economic Review*, 77(3), June 1987, 278-297.

Altonji, Joseph G. and Jennifer Oldham, "Vacation Laws and Annual Work Hours", *Economic Perspectives*, 2003, issue Q III, pages 19-29.

Altonji, Joseph G., and Christina H. Paxson, "Job Characteristics and Hours of Work." in R. Ehrenberg (ed.), *Research in Labor Economics*, Vol. 8, Greenwich, Westview Press, 1986, 1-55.

Altonji, Joseph G., and Christina H. Paxson, "Labor Supply Preferences, Hours Constraints, and Hours-Wage Tradeoffs." *Journal of Labor Economics* 6(2), 1988, 254-276.

Altonji, Joseph G., and Christina H. Paxson, "Labor Supply, Hours Constraints, and Job Mobility." *Journal of Human Resources* 27(2), 1992, 256-278.

Altonji, Joseph G., and Robert Shakotko, "Do Wages Rise with Job Seniority?" *Review of Economic Studies* 54(3), 1987, 437-460.

Altonji, Joseph G., and Nicolas Williams "The Effects of Labor Market Experience, Job Seniority and Mobility on Wage Growth." *Research in Labor Economics*, Vol. 17, 1998, 233-276.

Altonji, Joseph G., and N. Williams, "*Do Wages Rise with Job Seniority? A Reassessment.*" *Industrial and Labor Relations Review,* forthcoming, 2005.

Berkovec, J., and S. Stern, "Job Exit Behavior of Older Men." *Econometrica*, 59, 1991, 189-210.

Blank, Rebecca M., "Are Part-time Jobs Bad Jobs?" in *A Future of Lousy Jobs*, Gary Burtless, ed. Washington, D.C.: Brookings Institution. (1990a)

Blank, Rebecca M. "Understanding Part-time Work." in *Research in Labor Economics*, Volume 11, Laurie Bassi and David Crawford (eds.) Greenwich, CN: JAI Press. (1990b)

Bell, Linda A. and Freeman, Richard B. "*Why do Americans and Germans Work Different Hours?*" National Bureau of Economic Research Working Paper No. W4808, July 1994.

Biddle, J., and G. Zarkin, "Choice among Wage-Hours Packages: An Empirical Investigation of Labor Supply." *Journal of Labor Economics* 7(4), 1989, 415-437.

Blundell, Richard and MaCurdy, Thomas. "Labor Supply: a Review of Alternative Approaches." *Handbook of Labor Economics*. New York, Elsevier, v3, chapter 27, 1999.

Buckley, John E., "Variations in Holidays, Vacations, and Area Pay Levels." *Monthly Labor Review*, February 1989, 24-31.

Cogan, John F., "Fixed Costs and Labor Supply", *Econometrica* 49, pp. 945-964, July 1981.

Deardorff, A., and F. Stafford, "Compensation and Cooperating Factors." *Econometrica* 44, 1976, 671-684.

Ehrenberg, Ronald S. *Fringe Benefits and Overtime Behavior.* Lexington, MA: Heath, 1971.

Elder, Todd, "Reemployment Patterns of Displaced Older Workers." unpublished paper, Northwestern University, November 2000.

Farber, Henry S., ΑMobility and Stability: The Dynamics of Job Change in Labor Markets.@ In *Handbook of Labor Economics*. Volume 3, edited by Orley Ashenfelter and David Card. Amsterdam; New York: Elsevier.

Green, Francis, and Potepan, Michael J., "Vacation Time and Unionism in the U.S. and Europe." *Industrial Relations*, 27(2), Spring 1988, 180-194.

Gustmann, A., and T. Steinmeier, "Minimum Hours Constraints and Retirement Behavior." *Contemporary Policy Issues*, a supplement to *Economic Enquiry* 3, 1983, 77-91.

Gustmann, A., and T. Steinmeier, "Partial Retirement and the Analysis of Retirement Behavior." *Industrial and Labor Relations Review* 37(3), 1984, 403-15.

Ham, J., "Estimation of a Labor Supply Model with Censoring Due to Unemployment and Underemployment." *The Review of Economic Studies* 49(3), 1982, 335-354.

Ham, J., "Testing Whether Unemployment Represents Life-Cycle Labor Supply." *The Review of Economic Studies* 53(3), 1986, 559-578.

Hamermesh, Daniel S. and Trejo, Stephen J. "*The Demand for Hours of Labor: Direct Evidence from California.*" National Bureau of Economic Research Working Paper No. 5973, March 1997.

Hamermesh, Daniel S. "The Timing of Work over Time." *Economic Journal*, 109(452), January 1999, 37-66.

Hanoch, Giora, "Hours and Weeks in the Theory of Labor Supply", in James Smith (ed.), *Female Labor Supply: Theory and Estimation*, pp. 119-165, Princeton, NJ, Princeton University Press, 1980.

Hurd, M. (1996): "The Effect of Labor Market Rigidities on the Labor Force Behavior of Older Workers," *Advances in the Economics of Aging*, University of Chicago Press, Chicago, 11-58.

Kahn, Shulamit and Kevin Lang. "The Causes of Hours Constraints: Evidence from Canada." unpublished paper, 1988

_____ "The Effects of Hours Constraints on Labor Supply Estimates." *Review of Economics and Statistics*, November 1991, 605-11.

_____. "Constraints on the Choice of Work Hours: Agency versus Specific-Capital." *Journal of Human Resources*, Fall 1992, 661-78.

Kane, Thomas J., Cecelia Elena Rouse, and Douglas Staiger, "*Estimating Returns to Schooling When*

Schooling is Misreported", National Bureau of Economic Research Working Paper No. 7235, July 1999.

Killingsworth, Mark R., *Labor Supply*, New York, Cambridge University Press, 1983.

Kniesner, Thomas J., "The Overworked American?" *Journal of Human Resources* 28(3), Summer 1993.

Landers, Renee M., Rebitzer, James B. and Taylor, Lowell J. "Rat Race Redux: Adverse Selection in the Determination of Work Hours in Law Firms." *American Economic Review*, Vol. 86, No. 3., June 1996, 329-348.

Leete, Laura, and Juliet B. Schor, "Assessing the Time-Squeeze Hypothesis: Hours Worked in the United States, 1969-89." *Industrial Relations* 33(1), January 1994, 25-43.

Lewis, H. G., "Employer Interests in Employee Hours of Work." unpublished English version of "Interes del Empleador en las Horas de Trabajo del Empleado," *Cuadernos de Economia* 18, 1969, 38-54.

Martinez-Granado, Maite. "Testing Labour Supply and Hours Constraints," unpublished paper, Universidad Carlos III, December 1999.

Moffit, Robert, "The Estimation of a Joint Wage-Hours Labor Supply Model." *Journal of Labor Economics* 2, October 1984, 550-566.

Paulson, Jennifer L. "Vacation Time in the United States and Europe." unpublished senior honors thesis, Department of Economics, Northwestern University, May 2001.

Paxson, Christina H. and Sicherman, Nachum, "The Dynamics of Dual Job Holding and Job Mobility." *Journal of Labor Economics*, 14(3), 1996, 357-393.

Pencavel, John, "Labor Supply of Men", in O. Ashenfelter and R. Layard (eds.), *Handbook of Labor Economics*, 1986.

Rebitzer, James and Lowell Taylor, "Do Labor Markets Provide Enough Short-Hour Jobs? An Analysis of Work Hours and Work Incentives." *Economic Inquiry*, 33(2), April 1995, 257-73.

Rosen, H., "Taxes in a Labor Supply Model with Joint Wage-Hour Determination." *Econometrica* 44, 1976, 485-507.

Rosen, Sherwin, "On the Interindustry Wage and Hours Structure." *Journal of Political Economy* 77, 1969, 249-273.

Schor, Juliet B., *The Overworked American: The Unexpected Decline of Leisure*, New York, Basic Books, 1991.

Senesky, Sarah. "Testing Whether Intertemporal Labor Supply is Determined Between Jobs." Mimeo, Yale University, 2000.

Sousa-Poza, Alfonso and Alexandre Ziegler, "Asymmetric Information on Worker's Productivity as a Cause for Inefficient Long Working Time." unpublished paper, University of St. Gallen, 2000.

Stafford, Frank P., Review of *The Overworked American*, by Juliet B. Schor, in *Journal of Economic Literature* 30(3), 1992, 1528-29.

Stewart, M. B., and J. Swaffield, "Constraints on the Desired Hours of Work of British Men." *The Economic Journal* 107, 1997, 520-535.

Topel, R. H. "Specific capital, mobility, and wages: Wages rise with job seniority." *Journal of Political Economy*, 99(1), February 1991, 145-176.

Usui, Emiko. "Wages, Non-Wage Characteristics, and Predominantly Female Jobs." unpublished paper, Wayne State University, November 2004.

Appendix A: Description of Variables Used

Panel Study of Income Dynamics
Employment Variables:
1. *Paid vacation* (*VP*) is only asked in 1975, 1976, 1977, and 1984 for the heads and 1976 and 1984 for the wives. In 1975-1977, respondent is asked "How many weeks of paid vacation do you get each year?" In 1984, respondents who answered to "yes" to "Not counting holidays like Christmas and Labor Day, do you get paid vacation or personal days?" was questioned "How much paid vacation or personal time do you get each year?" In 1984, respondents reported VP either in days per year, weeks per year, hours per year, or other (combination). We use information for those who reported in weeks.
2. *Vacation taken* (*VT*): Respondents who answered "yes" to "Did you take any vacation or time off during 19XX?" were asked "How much vacation or time off did you take?"
3. Indicators for quits and layoffs, job seniority and labor market experience are taken from Altonji and Williams (2005).
4. *Hourly rate of pay*: To reduce the influence of measurement error and outliers, wage rates are set to missing when they are less than $1.5. Wages are also dropped if the they are more than 800% or a fall to $1/8^{th}$ of the previous year's value.
5. *Industry and Occupation*: Coded in the Census 1970 codes.
6. 0-1 indicators for union membership and government employment.
7. *Hours Constraints*: We construct the variables for overemployment and underemployment following Altonji and Paxson (1988, page 263, fn 7).

Demographic Variables:
1. *Marital status*: 0-1 indicator for married with spouse present and never married, divorced, separated, or deceased.
2. *Race*: Separate 0-1 indicators for black and nonwhite/nonblack. The excluded category in the regressions is white.
3. *Education*: 1-16 (fourth year college), 17 (at least some graduate work).
4. *Health limitation*: 0-1 indicator for whether the respondent has physical or nervous condition that limits the type of work or the amount of work.
5. *Region and urbanicity of current residence*: Separate 0-1 indicators for northeast, north central, and west. The excluded category is south. 0-1 indicator for whether the residence is in SMSA. 0-1 indicator for whether the residence is in a large city more than 500,000 people.

Health and Retirement Study
Information on age, gender, race, census region, education, current marital status, whether health limits work, labor force status, hours of work per week at current job, wage rate, job seniority and labor market experience are taken from files produced by RAND Corporation.

Employment Variables:
1. *Paid vacation* (*VP*): Response to "How many weeks of paid vacation do you get each year?"
2. 0-1 indicators for quits and layoffs: The respondent was asked "Why did you leave that employer?" If the respondent reported either business closed or laid off/let go, then the separationa layoff. If the respondent reported poor health/disabled, family care, better job, quit, family moved, divorce/separation, transportation, to travel, or transferred, then indicate as a quit. The respondent was allowed to report more than one reason for leaving the employer.
3. *Hourly rate of pay*: Wage information is available for respondent who were working at an interview. To reduce the influence of measurement error and outliers, wage rates are set to missing when they are

less than \$1.5. Wages that are more than 800% or less than 1/8th of the previous year's value are dropped as well.

4. 0-1 indicators for union membership and government employment.
5. *Industry and Occupation*: Industry is classified into 13 categories. Occupation is classified into 17 fields.
6. *Hours Constraints*: We construct the variable for overemployment and underemployment.following Altonji and Paxson (1988, page 263, fn 7)

Demographic Variables:
1. *Marital status*: 0-1 indicator for married/married spouse absent/partnered and separated/divorced/widowed/never married.
2. *Race*: Separate 0-1 indicators for black and nonwhite/nonblack. The excluded category is white.
3. *Education*: 1-16 (fourth year college), 17 (at least some graduate work).
4. *Health limitation*: 0-1 indicator for whether an impairment or health problem that limits the kind or amount of paid work for the respondent.
5. *Region of current residence*: Separate 0-1 indicators for northeast, midwest, and west. The excluded category is south.

Proportion female in an occupation

Proportion female in an occupation is computed from the three digit occupation code in the Public Use Microdata 5-Percent Samples of the 1980 and 1990 US Censuses of Population. We match the proportion female to individuals on the basis of their recorded occupation in two ways: (1) assign proportion female of an occupation to the worker's reported occupation using the 1980 Census and (2) linearly interpolate it using the 1980 and 1990 Censuses.

Occupational Characteristics

The Dictionary of Occupational Titles (*DOT*) has the following information on occupational characteristics. General education development, which is measured by reasoning, math, language, and specific vocational preparation. Aptitudes are in 11 fields: general learning, verbal, numerical, spacial, form perception, clerical perception, motor coordination, finger dexterity, manual dexterity, eye-hand coordination, and color discrimination. Physical demands are in 20 fields: strength, climbing, balancing, stooping, kneeling, crouching, crawling, reaching, handling, fingering, feeling, talking, hearing, tasting/smelling, near acuity, far acuity, depth perception, accommodation, color vision, and field of vision. Environmental conditions are in 14 fields: weather, cold, hot, wet/humid, noise, vibration, atmospheric condition, move mechanic parts, electric shock, high exp. places, radiation, explosives, toxic caustic chemicals, and other environmental conditions.

Figure 1: Distribution of Vacation Weeks for Men
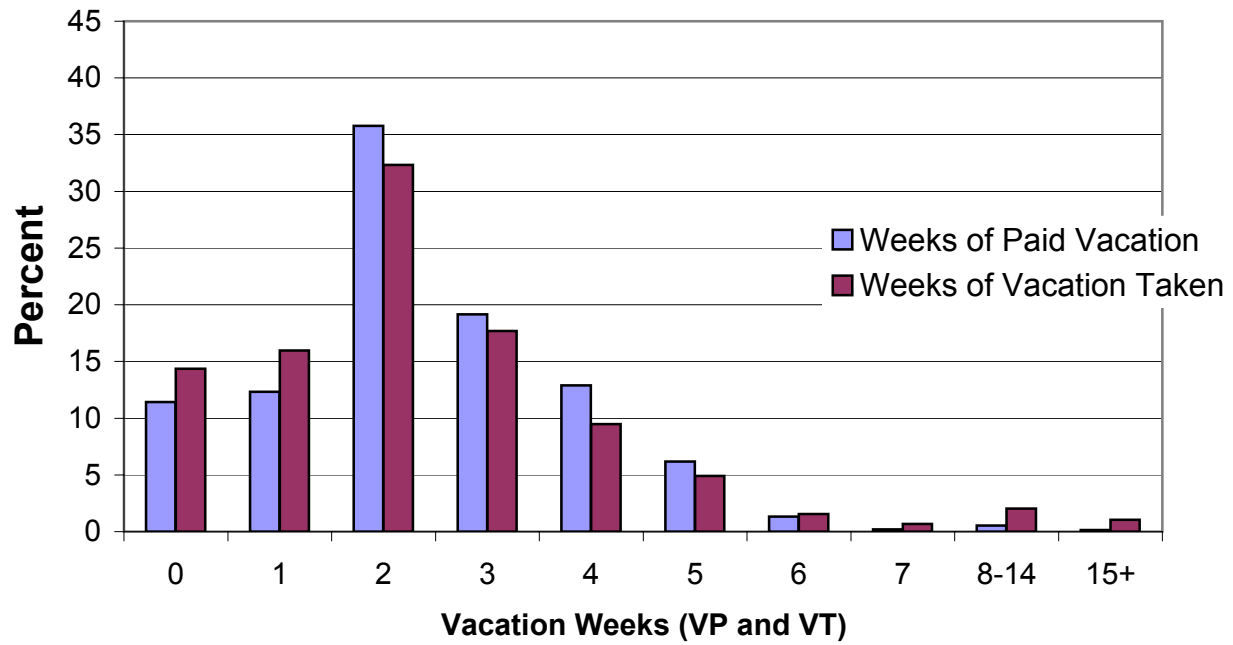
Figure 2: Distribution of Vacation Weeks for Women
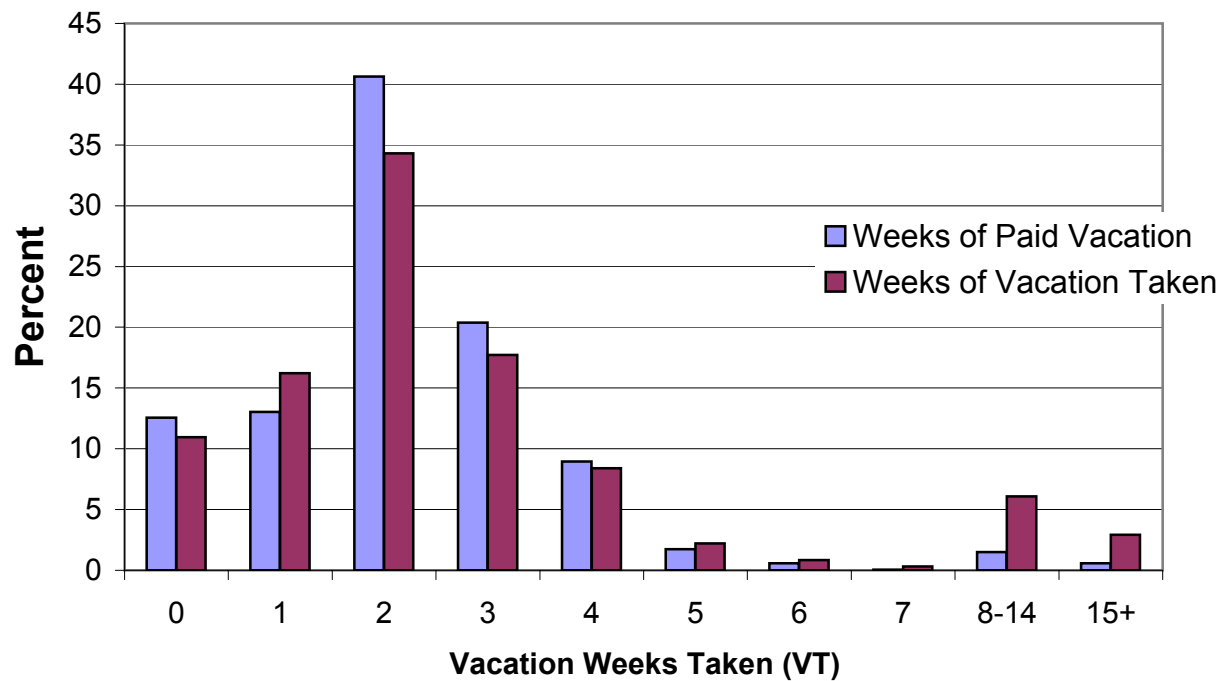
Figure 3: Distribution of Vacation Weeks Taken - Vacation Weeks Paid

Vacation Weeks Taken - Vacation Weeks Paid (VT-VP)
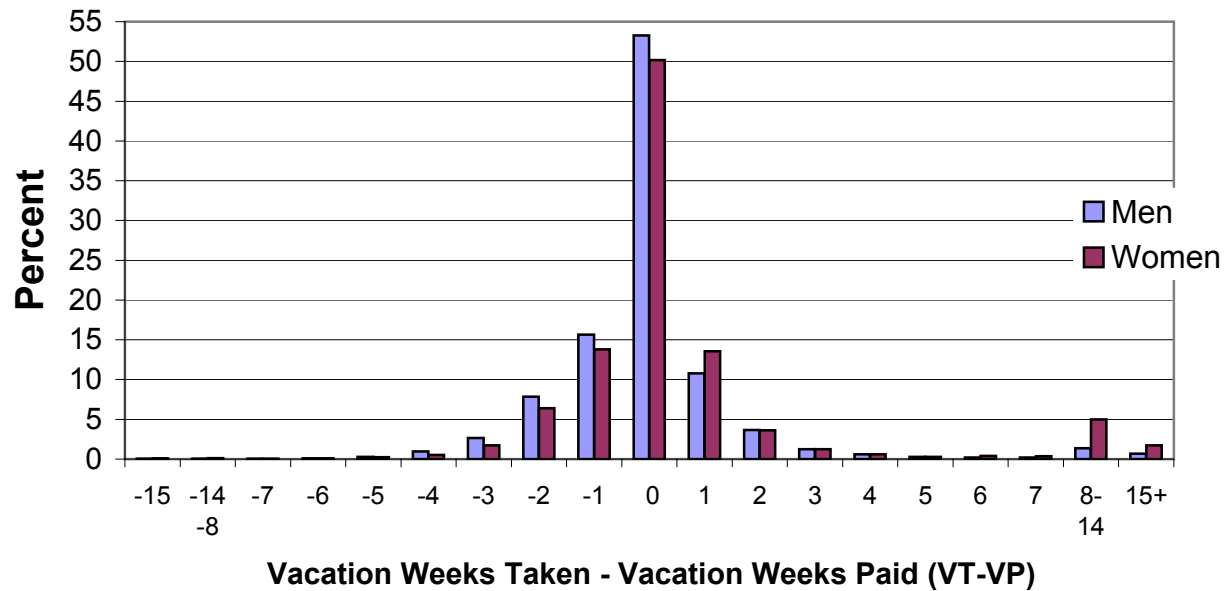
Notes: The samples contain individuals who work 35 or more hours per week in their main job, were between age 19 to 59, had left school and not returned, had not retired, and were not self-employed. It also restricts to persons who have at least .5 years of seniority at the time of the survey and exclude observations if the job ended prior to the next interview.

Table 1

The Means of Vacation Weeks Taken, Weeks Worked on Main Job, Hours/week on Main Job, Annual Hours Worked on Extra Jobs, and Annual Hours Worked on All Jobs by Weeks of Paid Vacation

Men

Weeks Paid Vacation (VP)	(1) Vacation Weeks Taken (VT)	(2) Weeks Worked, Main Job	(3) Hours / Week, Main Job	(4) Overtime Hours, Main Job	(5) Annual Hours Worked, Main Job	(6) Annual Hours Worked, Extra Jobs	(7) Annual Hours Worked, All Jobs
0	2.32	44.90	46.31	23.71	2139.80	125.33	2187.46
1	1.31	48.41	44.56	48.80	2154.35	53.11	2267.88
2	1.92	48.26	44.46	42.88	2186.96	67.35	2262.66
3	2.79	47.46	43.95	54.27	2142.47	55.05	2202.20
4	3.46	47.02	44.58	50.59	2098.10	80.50	2206.56
5	4.54	45.95	44.22	77.17	2113.01	28.83	2150.23
6	4.44	46.27	45.77	30.20	2134.90	19.65	2222.29
7+	8.60	41.11	47.17	14.29	1967.86	27.00	2108.87
Total	2.51	47.35	44.63	45.99	2149.48	69.77	2227.02

Women

Weeks Paid Vacation (VP)	(1) Vacation Weeks Taken (VT)	(2) Weeks Worked, Main Job	(3) Hours / Week, Main Job	(4) Overtime Hours, Main Job	(5) Annual Hours Worked, Main Job	(6) Annual Hours Worked, Extra Jobs	(7) Annual Hours Worked, All Jobs
0	5.04	42.82	40.43	19.18	1734.88	53.80	1793.89
1	1.51	47.54	40.69	25.26	1955.06	43.53	1972.51
2	2.29	47.31	40.55	24.09	1956.87	18.53	1961.62
3	3.44	46.09	40.21	25.64	1865.58	37.07	1902.03
4	3.76	45.87	40.85	25.03	1897.34	43.21	1922.77
5	4.47	45.87	40.67	16.08	1840.33	50.79	1967.60
6	5.60	45.07	41.00	4.57	2084.57	0.00	1859.33
7+	12.05	38.76	42.78	12.50	1630.75	0.00	1682.42
Total	3.16	46.18	40.56	23.59	1896.10	33.71	1920.01

Notes: The numbers in the table are means of the column variable conditional on the row value of weeks of paid vacation. The samples contains individuals who work 35 or more hours per week in their main job, were between age 19 to 59, had left school and not returned, had not retired, and were not self-employed. It also restricts to persons who have at least .5 years of seniority at the time of the survey and exclude observations if the job ended prior to the next interview. The number of observations for men (women) are 7,122 (2,594) for vacation weeks taken, 7,128 (2,598) for weeks worked on main job, 7,133 (2,600) for hours per week on main job and hours worked on all jobs, 1,518 (946) for overtime hours, annual hours worked on main job, and annual hours worked on extra jobs. We have fewer observations for column (4)-(6) because only observations from year 1984 are available.

Table 1a
The Effect of Vacation Weeks Paid on Vacation Weeks Taken

Estimation Method	Control Variables		
	None	**Add Demographic Variables**	**Add Tenure, Union and Government**
	(1)	**(2)**	**(3)**
OLS	0.5472	0.4254	0.2173
	(0.0205)	(0.0220)	(0.0240)
2 Step. Use lagged VP to predict VP	0.6141	0.4813	0.2580
	(0.0254)	(0.0292)	(0.0361)
IV, tenure used as Instruments	0.8236	1.0580	
	(0.0415)	(0.0549)	

Notes: The first row reports the OLS estimates. The second row uses a two step estimator in which weeks of paid vacation are predicted using weeks of paid vacation in the previous year and the other controls in the model. Third row uses an IV estimator with a cubic in tenure as the excluded instrumental variables. The column heading identify the controls. The first specification contains no controls. The second specification includes education, experience (a quartic and an interaction between education and experience), dummies for sex, marital status, residence in an SMSA, residence in city more than 500,000 people, disability status, 2 race dummies, 3 regional dummies, and calendar year dummies. The third specification adds tenure (a cubic), dummies for union membership and government employment. The sample size for the OLS and IV estimates are 9,716. The sample sizes for the two step estimates are 3,795 for the first step and 7,904 in the second step. The sample selection criteria are described in text and in the note to table 1. Standard errors are in parentheses.

Table 2
The Effect of Vacation Weeks Taken and Weeks of Paid Vacation on Hours Measures

	Weeks Worked, Main Job	Hours / Week, Main Job	Overtime hours, Main Job	Annual Hours Worked, Main Job	Annual Hours Worked, Extra Jobs	Annual Hours Worked, All Jobs

Controls	(1)	(2)	(3)	(4)	(5)	(6)
Effect of Vacation Weeks Taken (VT) on Hours Measures						
1. None	-1.0288	-0.0842	-0.5884	-54.4514	3.9917	-44.2590
	(0.0115)	(0.0169)	(0.3270)	(1.1996)	(0.6330)	(1.0976)
2. Add Demographic Variables	-1.0883	-0.1946	0.6974	-60.0366	3.6440	-51.6169
	(0.0123)	(0.0175)	(0.3529)	(1.2315)	(0.6824)	(1.1306)
3. Add Tenure, Union and Government	-1.0469	-0.0674	-0.0553	-52.6699	3.1657	-45.3092
	(0.0132)	(0.0188)	(0.3801)	(1.3159)	(0.7348)	(1.2138)
N	55506	55611	30157	33727	33727	55611
Effect of Weeks of Paid Vacation (VP) on Hours Measures						
	(1)	(2)	(3)	(4)	(5)	(6)
1. None	-0.0865	-0.0412	4.2840	3.0570	-6.8355	-3.6513
	(0.0391)	(0.0524)	(1.6214)	(6.4444)	(3.0791)	(3.4690)
2. Add Demographic Variables	-0.0185	-0.2121	5.6758	1.7527	-10.8530	-13.3870
	(0.0429)	(0.0561)	(1.7734)	(6.7210)	(3.3632)	(3.6502)
3. Add Tenure, Union and Government	0.2425	-0.1295	5.6401	25.2410	-11.4675	2.9394
	(0.0473)	(0.0616)	(1.9667)	(7.3015)	(3.7263)	(4.0434)
N	9726	9733	2464	2464	2464	9733

Table 2a
The Effect of Weeks of Paid Vacation on Hours Measures
Controls: Demographic Variables

Vacation Variable	OLS: Regression Coefficient (Standard Error)					
	(1)	(2)	(3)	(4)	(5)	(6)
Paid Vacation (VP)	-0.7620	-0.1087	4.5985	-25.2199	-4.3021	-36.5632
	(0.0520)	(0.0692)	(2.3557)	(8.8892)	(4.4644)	(4.5387)
$1(VP \geq 1)$	5.1004	-1.2533	5.8526	156.6283	-37.5176	159.7548
	(0.2134)	(0.2839)	(8.9234)	(33.6729)	(16.9115)	(18.6112)
N	9726	9733	2464	2464	2464	9733

	IV using Tenure, Tenure^2, and Tenure^3 as Excluded Instruments: Regression Coefficient (Standard Error)					
	(1)	(2)	(3)	(4)	(5)	(6)
Paid Vacation (VP)	-1.0457	-0.3421	1.4253	-88.7560	-9.5867	-61.3001
	(0.1149)	(0.1529)	(4.8136)	(18.3462)	(9.1219)	(10.0353)
$1(VP \geq 1)$	5.7963	-0.6811	13.7594	314.9446	-24.3496	220.4057
	(0.3298)	(0.4387)	(13.7503)	(52.4069)	(26.0571)	(28.7858)
N	9726	9733	2464	2464	2464	9733

Notes: Each Panel of Table 2 reports three specifications. The first specification includes only an intercept. The specification contains a set of demographic characteristics. These consist of education, experience (a cubic and an interaction between education and experience), dummies for sex, marital status, residence in an SMSA, residence in city more than 500,000 people, disability status, 2 race dummies, 3 regional dummies, and calendar year dummies. The third specification adds seniority (a cubic), dummies for union membership and government employment. The top panel of Table 2a reports OLS estimates of the effects of paid vacation and an indicator equal to 1 if paid vacation is equal to 1 week or more. The equations include the demographic controls used in specification 2 of Table 2. The bottom panel of Table 2A reports IV estimates, with weeks of paid vacation treated as endogenous and the $\mathbf{1}(VP \geq 1)$ treated as exogenous and the tenure variables as the excluded instruments.

Table 3
Personal Characteristics and Vacation Time

| | *Dependent variables* | | | | | |
| | Panel A | | | Panel B | | |
Variable	Vacation Taken (VT) (1)	Vacation Paid (VP) (2)	Taken-Paid (VT-VP) (3)	Vacation Taken (VT) (4)	Vacation Paid (VP) (5)	Taken-Paid (VT-VP) (6)
Female	0.897	0.140	0.757	0.947	0.202	0.745
	(0.077)	(0.045)	(0.079)	(0.075)	(0.042)	(0.080)
Education	0.478	0.189	0.290	0.442	0.180	0.261
	(0.024)	(0.014)	(0.024)	(0.023)	(0.013)	(0.025)
Marital Status	0.241	0.123	0.118	0.180	0.068	0.113
	(0.081)	(0.047)	(0.083)	(0.078)	(0.044)	(0.083)
Disability Status	-0.418	-0.045	-0.372	-0.419	-0.042	-0.377
	(0.122)	(0.071)	(0.126)	(0.118)	(0.066)	(0.125)
Black	-0.161	-0.195	0.034	-0.289	-0.252	-0.037
	(0.074)	(0.043)	(0.076)	(0.072)	(0.041)	(0.077)
Non white, Non black	-0.156	-0.386	0.230	-0.061	-0.277	0.215
	(0.196)	(0.115)	(0.202)	(0.189)	(0.107)	(0.202)
Residence in SMSA	0.025	0.246	-0.221	-0.047	0.170	-0.217
	(0.072)	(0.042)	(0.074)	(0.070)	(0.039)	(0.074)
Union Membership				0.421	0.240	0.182
				(0.067)	(0.038)	(0.071)
Government Employment				1.218	0.601	0.617
				(0.070)	(0.039)	(0.074)
Control for Tenure	No	No	No	Yes	Yes	Yes
Adjusted R^2	0.100	0.139	0.039	0.167	0.254	0.046
N	9716	9716	9716	9716	9716	9716

Notes: All models control for experience (a cubic and an interaction between education and experience), dummy variables for residence in an SMSA, residence in a city with more than 500,000 people, 3 regions, and 3 calendar year. Columns (4)-(6) also include tenure (a cubic), dummies for union membership and government employment. The sample selection criteria are described in the note to table 1. Standard errors are in parentheses.

Table 4
The Effect of Weeks of Paid Vacation on the log of the Hourly Wage

Men

	Hourly and Salary			Hourly Only			Salary Only		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VP	0.0767	0.0680		0.0885	0.0699		0.0600	0.0519	
	(0.0039)	(0.0045)		(0.0049)	(0.0058)		(0.0062)	(0.0070)	
VP $\geq$ 1	-0.1098	-0.1089		-0.1726	-0.1664		0.0602	0.0735	
	(0.0163)	(0.0163)		(0.0182)	(0.0179)		(0.0321)	(0.0331)	
VP=0			-0.0403			0.0151			-0.1816
			(0.0136)			(0.0148)			(0.0280)
VP=1			-0.1364			-0.1037			-0.2227
			(0.0132)			(0.0138)			(0.0310)
VP=3			0.0906			0.0723			0.1104
			(0.0118)			(0.0137)			(0.0204)
VP=4			0.1542			0.1351			0.1408
			(0.0149)			(0.0198)			(0.0225)
VP=5			0.1963			0.1808			0.1826
			(0.0205)			(0.0254)			(0.0396)
VP=6			0.1356			0.1954			0.0582
			(0.0354)			(0.0429)			(0.0590)
VP=7+			0.1489			0.2494			0.0815
			(0.0438)			(0.0992)			(0.0522)
Controls for tenure, union and government	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Adjusted R^2	0.454	0.4802	0.4878	0.3778	0.4485	0.4479	0.4843	0.4999	0.5152
N	6130	6130	6130	3955	3955	3955	2175	2175	2175

Sample (heading above Hourly and Salary / Hourly Only / Salary Only)

Table 3 contd.

Women   *Sample*

Vacation Variable	Hourly and Salary			Hourly Only			Salary Only		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**
VP	0.0761	0.0497		0.1314	0.1068		0.0313	0.0122	
	(0.0062)	(0.0066)		(0.0097)	(0.0107)		(0.0082)	(0.0084)	
VP ≥ 1	-0.0113	0.0506		-0.0653	-0.0339		0.0596	0.1249	
	(0.0248)	(0.0252)		(0.0325)	(0.0330)		(0.0383)	(0.0389)	
VP=0			-0.1512			-0.1806			-0.1373
			(0.0204)			(0.0264)			(0.0318)
VP=1			-0.1024			-0.1108			-0.0777
			(0.0198)			(0.0224)			(0.0413)
VP=3			0.0784			0.0926			0.0517
			(0.0174)			(0.0229)			(0.0258)
VP=4			0.2061			0.2540			0.1460
			(0.0243)			(0.0336)			(0.0341)
VP=5			0.2943			0.4598			0.1575
			(0.0497)			(0.0794)			(0.0629)
VP=6			0.0878			0.1998			-0.0049
			(0.0829)			(0.1286)			(0.1050)
VP=7+			-0.0238			0.0444			-0.0812
			(0.0469)			(0.2009)			(0.0506)
Controls for tenure, union and government	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Adjusted R^2	0.3935	0.4261	0.4441	0.3451	0.3838	0.3887	0.3809	0.4134	0.4298
N	2378	2378	2378	1384	1384	1384	994	994	994

Notes: The table reports OLS regression coefficients relating the ln hourly wage rate to measures of weeks of paid vacation. The wage measure is based on direct questions about rate of pay and refers to the main job at the time of the survey. In columns 1,2,4,5,7, and 8 the vacation variables are the number of weeks (VP and and indicator for VP ≥ 1. Columns 3, 6, and 9 contain dummy variables for each number of weeks of paid vacation with VP=2 as the reference category. All models include education, experience (a cubic and an interaction between education and experience), dummies for sex, marital status, residence in SMSA, residence in city more than 500,000 people, disability status, 2 race dummies, 3 regional dummies, and calendar year dummies. Column 2,3,5,6,8, and 9 also tenure (a cubic), dummies for union membership and government employment. The sample selection criteria are described in the note to table 1. Standard errors are in parentheses.

Table 4a
The Effect of Weeks of Paid Vacation on the log of the Hourly Wage: HRS

Men	*Sample*						Hourly Only	Salary Only
			Hourly and Salary					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ΔVP	0.0057	0.0060	0.0058				0.0167	-0.0059
	(0.0028)	(0.0028)	(0.0028)				(0.0036)	(0.0044)
Δ1(VP ≥ 1)	-0.0243	-0.0352	-0.0371				-0.0186	-0.0050
	(0.0163)	(0.0165)	(0.0165)				(0.0163)	(0.0318)
Quit × ΔVP				0.0812	0.0832	0.0747		
				(0.0190)	(0.0190)	(0.0130)		
Quit × [Δ1(VP ≥ 1)]				-0.1424	-0.1714	-0.1652		
				(0.0618)	(0.0625)	(0.0438)		
Layoff × ΔVP				0.0568	0.0578	0.0508		
				(0.0184)	(0.0187)	(0.0126)		
Layoff × [Δ1(VP ≥ 1)]				(0.0019)	-0.0279	-0.0308		
				(0.0606)	(0.0622)	(0.0429)		
Stayer × ΔVP						-0.0023		
						(0.0030)		
Stayer × [Δ1(VP ≥ 1)]						-0.0427		
						(0.0203)		
Quit						0.1010		
						(0.0175)		
Layoff				-0.0950	-0.0959	0.0025		
				(0.0343)	(0.0345)	(0.0187)		
Controls for tenure, and government	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Add occupation dummies	No	Yes	Yes	No	Yes	Yes	No	No
Add industry dummies	No	No	Yes	No	No	No	No	No
Adjusted R^2	0.0299	0.0381	0.0498	0.1840	0.2031	0.0601	0.0402	0.0101
N	3709	3709	3709	332	332	3674	1841	1616

Table 4a contd.

	Sample							
Women			**Hourly and Salary**				**Hourly Only**	**Salary Only**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ΔVP	-0.0092	-0.0093	-0.0093				0.0051	-0.0122
	(0.0019)	(0.0019)	(0.0019)				(0.0026)	(0.0028)
Δ1(VP ≥ 1)	0.0349	0.0332	0.0292				0.0309	0.0150
	(0.0123)	(0.0123)	(0.0123)				(0.0118)	(0.0222)
Quit × ΔVP				0.0193	0.0184	0.0206		
				(0.0112)	(0.0112)	(0.0076)		
Quit × [Δ1(VP ≥ 1)]				-0.0066	-0.0238	-0.0273		
				(0.0485)	(0.0494)	(0.0340)		
Layoff × ΔVP				0.0387	0.0370	0.0342		
				(0.0223)	(0.0223)	(0.0151)		
Layoff × [Δ1(VP ≥ 1)]				0.0248	0.0268	0.0358		
				(0.0666)	(0.0667)	(0.0460)		
Stayer × ΔVP						-(0.0122)		
						(0.0020)		
Stayer × ΔVP						-0.0122		
						(0.0020)		
Stayer × [Δ1(VP ≥ 1)]						0.0229		
						(0.0140)		
Quit						0.0579		
						(0.0142)		
Layoff				-0.1313	-0.1115	-0.0444		
				(0.0299)	(0.0305)	(0.0190)		
Controls for tenure, and government	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Add occupation dummies	No	Yes	Yes	No	Yes	Yes	No	No
Add industry dummies	No	No	Yes	No	No	No	No	No
Adjusted R^2	0.0380	0.0527	0.0587	0.1560	0.1739	0.0667	0.0720	0.0277
N	4591	4591	4591	416	416	4545	2179	1981

Notes: The table reports OLS regression coefficients relating the ln hourly wage rate to measures of weeks of paid vacation. The wage measure is based on direct questions about rate of pay and refers to the main job at the time of the survey. The vacation variables are the number of weeks (VP and and indicator for VP ≥ 1). All models include education, experience (a cubic and an interaction between education and experience), dummies for sex, marital status, disability status, 2 race dummies, 3 regional dummies, tenure (a cubic), dummy for government employment, and calendar year dummies. The samples contain individuals who work 35 or more hours per week in their main job, were less than 60, had not retired, and were not self-employed. To reduce the influence of measurement error and outliers, we have set the wage rates to missing when they are less than 1.5. We have set the wage changes involving an increase of 800% or a fall to less than 1/8th of the previous years value to missing as well. Standard errors are in parentheses.

Table 5
Weeks of Paid Vacation by Lagged Tenure and Experience
Means, Standard Deviations and Frequencies of Weeks of Paid Vacation

<u>**Male Stayers**</u>

Experience level	Tenure in previous year 0<=Lag T	1<=Lag T	3<=Lag T	6<=Lag T	15<=Lag T	Total
0<=Exp<5	1.8285714	2.015873	1.9393939	.	.	1.9623288
	1.0491049	2.4505236	1.1439896	.	.	2.0713938
	70	189	33	0	0	292
5<=Exp<10	1.7291667	1.9602804	2.2957746	2.5375723	.	2.1481481
	1.4590866	1.443977	1.7000481	2.0159333	.	1.6563653
	144	428	497	173	0	1242
10<=Exp<2	1.5544554	1.7854985	2.2320574	2.6583333	3.3150685	2.3835318
	1.099775	1.0951275	1.3628247	1.4443088	2.6660245	1.4822711
	101	331	418	1008	73	1931
20<=Exp	1.6567164	1.6119403	2.1020408	2.6636364	3.8288727	3.0425573
	1.0667458	.99932813	1.2996964	1.839068	1.6501899	1.8113073
	67	201	294	825	1233	2620
Total	1.6884817	1.8581375	2.2190016	2.6500997	3.8001531	2.5990304
	1.233744	1.5158502	1.4898073	1.6695834	1.7253663	1.741997
	382	1149	1242	2006	1306	6085

<u>**Female Stayers**</u>

Experience level	Tenure in previous year 0<=Lag T	1<=Lag T	3<=Lag T	6<=Lag T	15<=Lag T	Total
0<=Exp<5	2.8837209	1.8210526	3.6363636	.	.	2.261745
	4.1702421	2.158501	4.2958754	.	.	3.0852657
	43	95	11	0	0	149
5<=Exp<10	1.8571429	2.123913	2.3563433	2.0053191	.	2.1571019
	2.1502619	2.5169456	2.157835	1.1511908	.	2.1842393
	105	230	268	94	0	697
10<=Exp<2	1.4225352	1.6532663	2.0697674	2.5962882	2.3333333	2.1828598
	1.0373314	1.0226609	2.0145594	2.1564435	1.8187062	1.920382
	71	199	301	458	27	1056
20<=Exp	1.5888889	1.3846154	1.8597744	2.4767802	3.1091371	2.3702964
	.98447545	1.0094459	1.0430408	2.7908879	2.5584031	2.3568207
	45	78	133	323	197	776
Total	1.8617424	1.8247508	2.1624825	2.4886857	3.015625	2.2348581
	2.2999451	1.9201017	1.9963622	2.3395412	2.4905159	2.1991159
	264	602	713	875	224	2678

Notes: The upper number in each cell is the mean of VP, the middle number is standard deviations, and the bottom is the number of observations. The sample selection criteria are described in the note to table 1.

Table 6
OLS, and IV1 Estimators

Weeks of Vacation Taken (VT) 1975-1991

	Men		Women	
	OLS	IV	OLS	IV
	(1)	(2)	(3)	(4)
2 Years of Tenure	0.2585	0.1915	0.3290	0.3830
	(0.0189)	(0.0323)	(0.0421)	(0.0732)
5 Years of Tenure	0.6146	0.4462	0.7551	0.7966
	(0.0372)	(0.0688)	(0.0798)	(0.1512)
10 Years of Tenure	1.1364	0.7967	1.3143	1.1565
	(0.0483)	(0.1098)	(0.0965)	(0.2362)
20 Years of Tenure	1.9958	1.3058	2.0623	1.3125
	(0.0439)	(0.1799)	(0.0932)	(0.4112)
5 Years of Experience	-0.0876	-0.1667	0.2295	0.1429
	(0.0399)	(0.0452)	(0.0837)	(0.1020)
10 Years of Experience	-0.0564	-0.1782	0.2499	0.1174
	(0.0418)	(0.0526)	(0.0875)	(0.1191)
20 Years of Experience	0.0228	-0.1631	0.2260	0.0647
	(0.0420)	(0.0631)	(0.0962)	(0.1312)
30 Years of Experience	-0.0759	-0.3724	-0.0236	-0.2386
	(0.0760)	(0.1064)	(0.1924)	(0.2287)
Adjusted R^2	0.1747	0.1633	0.2040	0.1999
N	35522	35522	20089	20089

Weeks of Vacation Taken (VT) 1975-1977, 1984

	Men		Women	
	OLS	IV	OLS	IV
	(1)	(2)	(3)	(4)
2 Years of Tenure	0.2395	0.1441	0.4037	0.2715
	(0.0422)	(0.1153)	(0.1144)	(0.3337)
5 Years of Tenure	0.5719	0.3589	0.8939	0.6476
	(0.0829)	(0.2477)	(0.2175)	(0.6847)
10 Years of Tenure	1.0685	0.7025	1.4536	1.2056
	(0.1067)	(0.4004)	(0.2661)	(1.0475)
20 Years of Tenure	1.9412	1.2640	1.9471	2.1615
	(0.0968)	(0.6562)	(0.2710)	(1.7814)
5 Years of Experience	0.0380	-0.0359	0.5160	0.5159
	(0.0899)	(0.1064)	(0.2226)	(0.2714)
10 Years of Experience	0.0286	-0.0644	0.4971	0.5039
	(0.0946)	(0.1144)	(0.2347)	(0.2940)
20 Years of Experience	-0.0367	-0.1787	-0.0427	-0.0180
	(0.0923)	(0.1337)	(0.2410)	(0.2886)
30 Years of Experience	-0.1588	-0.4349	-0.8945	-0.8707
	(0.1614)	(0.2758)	(0.4586)	(0.5698)
Adjusted R^2	0.1762	0.1617	0.1658	0.1639
N	7122	7122	2594	2594

Table 6, continued
Weeks of Paid Vacation (VP) 1975-1977, 1984

	Men		Women	
	OLS	IV	OLS	IV
	(1)	(2)	(3)	(4)
2 Years of Tenure	0.3193	0.3213	0.3325	0.2633
	(0.0248)	(0.0675)	(0.0623)	(0.1819)
5 Years of Tenure	0.7402	0.7671	0.7370	0.6250
	(0.0486)	(0.1449)	(0.1184)	(0.3733)
10 Years of Tenure	1.3149	1.4276	1.2093	1.1512
	(0.0627)	(0.2343)	(0.1448)	(0.5711)
20 Years of Tenure	2.1780	2.5347	1.7314	1.9970
	(0.0568)	(0.3841)	(0.1475)	(0.9712)
5 Years of Experience	0.0221	0.0333	0.0723	0.0732
	(0.0528)	(0.0623)	(0.1211)	(0.1479)
10 Years of Experience	0.0329	0.0444	0.0320	0.0237
	(0.0555)	(0.0670)	(0.1277)	(0.1603)
20 Years of Experience	0.1000	0.1456	-0.0379	-0.0264
	(0.0542)	(0.0783)	(0.1312)	(0.1573)
30 Years of Experience	0.1473	0.2718	0.0260	0.0855
	(0.0948)	(0.1614)	(0.2496)	(0.3107)
Adjusted R^2	0.3247	0.3172	0.1447	0.1397
N	7122	7122	2594	2594

Weeks of Vacation Taken Minus Weeks of Paid Vacation (VT-VP) 1975-1977, 1984

	Men		Women	
	OLS	IV	OLS	IV
	(1)	(2)	(3)	(4)
2 Years of Tenure	-0.0799	-0.1772	0.0712	0.0082
	(0.0454)	(0.1248)	(0.1212)	(0.3536)
5 Years of Tenure	-0.1683	-0.4082	0.1569	0.0226
	(0.0890)	(0.2681)	(0.2303)	(0.7255)
10 Years of Tenure	-0.2463	-0.7251	0.2443	0.0544
	(0.1147)	(0.4334)	(0.2819)	(1.1100)
20 Years of Tenure	-0.2368	-1.2708	0.2157	0.1645
	(0.1040)	(0.7103)	(0.2870)	(1.8877)
5 Years of Experience	0.0159	-0.0693	0.4437	0.4427
	(0.0966)	(0.1152)	(0.2357)	(0.2876)
10 Years of Experience	-0.0044	-0.1088	0.4651	0.4802
	(0.1017)	(0.1239)	(0.2486)	(0.3116)
20 Years of Experience	-0.1368	-0.3243	-0.0048	0.0084
	(0.0992)	(0.1447)	(0.2553)	(0.3058)
30 Years of Experience	-0.3061	-0.7067	-0.9205	-0.9561
	(0.1735)	(0.2985)	(0.4857)	(0.6038)
Adjusted R^2	0.0247	-	0.0688	0.0656
N	7122	7122	2594	2594

Notes: All models control for education, experience (a quartic and an interaction between education and experience), seniority (cubic), dummies for sex, marital status, residence in an SMSA, residence in city more than 500,000 people, disability status, 2 race dummies, 3 regional dummies, and calendar year dummies. The IV results in column (2) and (4) treat both the time trend and the tenure variables as endogenous and are based on Altonji and Shakotko's (1987) methodology. The deviation of the tenure variables from their job means are used as instruments, along with the deviation of time from its mean for each individual. The sample selection criteria are described in the note to table 1. Standard errors are in parentheses.

Table 7

Average paid holidays and days of paid vacation and paid sick leave, full-time employees in medium and large private establishments, 1997

Leave category	All employees	Professional, technical, and related employees(1)	Clerical and sales employees(2)	Blue-collar and service employees(3)
Paid holidays...................	9.3	9.6	8.8	9.4
Paid vacation days after specified years of service:(4)				
1 year......................	9.6	12.4	9.9	7.9
3 years.....................	11.5	13.3	11.4	10.5
5 years.....................	13.8	16.0	14.2	12.4
10 years....................	16.9	18.9	17.0	15.6
15 years....................	18.8	20.7	19.4	17.4
20 years....................	20.3	21.9	20.5	19.2
25 years....................	21.5	23.1	21.7	20.3
30 years....................	21.7	23.4	22.0	20.6
Paid sick leave days after specified years of service:(4)				
1 year......................	11.2	13.3	10.1	9.9
3 years.....................	13.0	16.1	12.1	10.4
5 years.....................	15.2	19.3	14.5	11.5
10 years....................	17.6	22.6	17.3	12.6
15 years....................	18.8	24.7	18.1	13.2
20 years....................	20.5	27.3	20.2	13.6
25 years....................	21.1	28.0	20.8	14.1

 1 Includes professional, technical, executive, and administrative occupations.
 2 Includes clerical, administrative support, and sales occupations.
 3 Includes production, craft, repair, laborer, and service occupations.
 4 A specific number of days per year granted after completion of the indicated service or accrued during the next 12-month period.

 NOTE: Computed averages exclude days at partial pay and workers in plans that do not stipulate at least 1 full day.

Source: Employee Benefits in Medium and Large Private Establishments, 1997
Bureau of Labor Statistics, USDL 99-02. Data are from BLS Employee Benefits Survey.

Table 8: Link between Vacation Weeks Taken, Hours Worked Per Week and Hourly Rate of Pay Across Jobs

Effects of Vacation on Previous Job on Vacation in New Job

	All Job Changers			Quits			Layoffs		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Avg. of Vacation Taken in last two years	0.2163 (0.0563)	0.0942 (0.0587)	0.0747 (0.0576)	0.2917 (0.0742)	0.1574 (0.0804)	0.0904 (0.0770)	0.2800 (0.0902)	0.1672 (0.0919)	0.2157 (0.0877)
Occupation Index	No	No	0.6422 (0.0798)	No	No	0.6218 (0.0872)	No	No	1.4255 (0.2831)
Occupation Dummies	No	Yes	No	No	Yes	No	No	Yes	No
Adjusted R^2	0.1131	0.1580	0.1579	0.1333	0.1959	0.1900	0.1121	0.1728	0.1784
N	1235	1235	1235	748	748	748	338	338	338

Effects of Hours Worked Per Week on Previous Job on Hours Worked Per Week in New Job

	All Job Changers			Quits			Layoffs		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Avg. of Hours/Week in last two years	0.3062 (0.0290)	0.2562 (0.0314)	0.2534 (0.0313)	0.3204 (0.0435)	0.2913 (0.0481)	0.2835 (0.0476)	0.3806 (0.0527)	0.3025 (0.0610)	0.3097 (0.0573)
Occupation Index	No	No	0.4699 (0.1095)	No	No	0.3050 (0.1618)	No	No	0.6136 (0.2089)
Occupation Dummies	No	Yes	No	No	Yes	No	No	Yes	No
Adjusted R^2	0.1716	0.1982	0.1833	0.1429	0.1561	0.1460	0.1949	0.2183	0.2145
N	1250	1250	1250	754	754	754	341	341	341

Effects of Hourly Rate of Pay on Previous Job on Hourly Rate of Pay in New Job

	All Job Changers			Quits			Layoffs		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Avg. of Log Wage in last two years	0.6818 (0.0281)	0.6659 (0.0290)	0.6271 (0.0292)	0.6959 (0.0352)	0.6874 (0.0365)	0.6459 (0.0369)	0.6504 (0.0546)	0.6394 (0.0567)	0.5873 (0.0563)
Occupation Index	No	No	0.4653 (0.0789)	No	No	0.3986 (0.0991)	No	No	0.5323 (0.1510)
Occupation Dummies	No	Yes	No	No	Yes	No	No	Yes	No
Adjusted R^2	0.6661	0.6950	0.6769	0.6866	0.7170	0.6946	0.6496	0.6936	0.6643
N	1050	1050	1050	619	619	619	297	297	297

Notes: Two specifications are used to control for the occupation of the previous job. The first specification includes 27 occupation dummies, including a dummy missing data on occupation.. Occupation index is based on the coefficients on the occupation dummies in a cross section regression for vacation weeks taken (VT) on which are obtained from a cross sectional regression, as a variable to control for occupation. Sample size for the cross section regression are 50,851, 50,957 and 47,234 for vacation time, hours worked per week, hourly rate of pay, respectively. All models control for education, experience (a cubic and an interaction between education and experience), seniority (cubic), dummies for sex, marital status, union membership, government employment, residence in an SMSA, residence in city more than 500,000 people, disability status, 2 race dummies, 3 regional dummies, and calendar year dummies. The sample selection criteria are described in the note to table 1. Standard errors are in parentheses.

Table 9
The Link between Vacation Weeks Paid Across Jobs

The Effect of Paid Vacation on Previous Job on Paid Vacation in New Job
All Job Changers

	(1)	(2)	(3)	(4)	(5)	(6)
Paid Vacation in last year	0.1812	0.0867	0.1274			
	(0.0572)	(0.0585)	(0.0586)			
Avg. of Paid Vacation in last two years				0.2954	0.2226	0.2150
				(0.0938)	(0.1061)	(0.1001)
Occupation Index	No	No	0.8361	No	No	0.7382
			(0.2678)			(0.3554)
Occupation Dummies	No	Yes	No	No	Yes	No
Adjusted R^2	0.2638	0.3631	0.2933	0.3562	0.4318	0.3773
N	233	233	233	120	120	120

Notes: Two specifications are used to control for the occupation of the previous job. The first specification includes 27 occupation dummies. Missing values on occupation are categorized as well. The second specification (occupation index) uses coefficients on occupation dummies, which are obtained from a cross sectional regression, as a variable to control for occupation. Sample size for the cross section regression is 8,500. All models control for education, experience (a cubic and an interaction between education and experience), seniority (cubic), dummies for sex, marital status, union membership, government employment, residence in an SMSA, residence in city more than 500,000 people, disability status, 2 race dummies, 3 regional dummies, and calendar year dummies. The sample selection criteria are described in the note to table 1. Standard errors are in parentheses.

Table 10

The Effects of Occupation on Vacation Weeks Taken, Vacation Weeks Paid, and Vacation Weeks Taken - Vacation Weeks Paid

Variable	Vacation Taken (VT)		Paid Vacation (VP)		Vacation Taken - Paid Vacation (VT-VP)	
	Coefficient	Std. Err.	Coefficient	Std. Err.	Coefficient	Std. Err.
Physician, Dentist	0.203	0.269	0.403	0.396	-0.067	0.696
Other Medical & Paramedical	0.423	0.102	0.905	0.172	-0.388	0.303
Accountant & Auditor	-0.059	0.111	0.267	0.165	0.018	0.290
Teacher K12	7.432	0.075	0.905	0.116	7.330	0.205
Teacher College, Librarian	2.609	0.113	0.276	0.188	2.773	0.330
Architects; Physical & Biological	0.009	0.080	0.256	0.113	-0.020	0.199
Technician	0.132	0.064	0.407	0.103	-0.232	0.181
Public Advisor	-0.226	0.092	0.331	0.144	-0.266	0.253
Judge; Lawyer	-0.494	0.172	0.554	0.320	-0.896	0.562
Other Professional	1.541	0.143	0.059	0.220	1.631	0.390
Manager, Official & Proprietor (not self)	-0.061	0.050	0.287	0.074	-0.257	0.130
Manager, Official & Proprietor (self-emp)	0.637	0.634	-0.942	1.097	-0.300	1.929
Secretary, typists	-0.050	0.070	0.120	0.109	-0.317	0.193
Other Clerical Workers	0.147	0.047	0.260	0.067	0.019	0.117
Retail Store Salesman & Sales Clerk	-0.124	0.100	-0.167	0.119	0.255	0.210
Craftsmen, Foreman	0.090	0.082	0.358	0.108	-0.142	0.190
Other Craftsmen	-0.148	0.045	-0.243	0.060	0.132	0.106
Government Protective Service Worker	0.095	0.192	0.141	0.181	0.219	0.320
Armed Force	0.420	0.099	2.016	0.162	-1.494	0.284
Transport Equipment Operative	-0.045	0.059	0.046	0.079	0.005	0.139
Unskilled laborer	-0.377	0.064	-0.298	0.084	0.085	0.147
Farm Laborer & foreman	-0.421	0.131	-1.054	0.156	1.107	0.276
Private Household Worker	-0.766	0.218	-1.127	0.288	-0.056	0.515
Other Service Worker	0.003	0.049	-0.060	0.070	0.245	0.124
Farmers & Manager	0.144	0.354	-1.131	0.518	1.809	0.911
Adjusted R^2	0.353		0.283		0.208	
N	54164		9256		9239	

Notes: The reference category for the occupational dummies is operatives, except transport. All models control for education, experience (a cubic and an interaction between education and experience), seniority (cubic), dummies for sex, marital status, union membership, government employment, residence in an SMSA, residence in city more than 500,000 people, disability status, 2 race dummies, 3 regional dummies, and calendar year dummies. The sample selection criteria of the data are described in the note to table 1.

Appendix Table 2
The Effect of Weeks of Paid Vacation on the log of the Hourly Wage: HRS

Men	Sample								
	Hourly and Salary			**Hourly Only**			**Salary Only**		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VP	0.1126	0.0788		0.1136	0.0707		0.0993	0.0724	
	(0.0036)	(0.0044)		(0.0042)	(0.0056)		(0.0058)	(0.0067)	
VP ≥ 1	-0.2503	-0.1797		-0.2682	-0.2024		-0.1845	-0.0837	
	(0.0207)	(0.0213)		(0.0223)	(0.0230)		(0.0381)	(0.0400)	
VP=0			0.0410			0.0479			0.0213
			(0.0191)			(0.0209)			(0.0356)
VP=1			-0.1532			-0.1145			-0.2069
			(0.0218)			(0.0228)			(0.0452)
VP=3			0.1553			0.0682			0.2124
			(0.0168)			(0.0202)			(0.0260)
VP=4			0.2402			0.1417			0.3025
			(0.0174)			(0.0216)			(0.0266)
VP=5			0.3001			0.2071			0.3856
			(0.0194)			(0.0243)			(0.0294)
VP=6			0.3521			0.2974			0.3820
			(0.0264)			(0.0343)			(0.0383)
VP=7+			0.1857			0.2346			0.1173
			(0.0321)			(0.0462)			(0.0441)
Controls for tenure, and government	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Adjusted R^2	0.4146	0.4284	0.4389	0.3357	0.3588	0.3597	0.3676	0.3794	0.4092
N	6999	6999	6999	3773	3773	3773	3226	3226	3226

Appendix Table 2 contd.

HRS, Women *Sample*

Vacation Variable	Hourly and Salary			Hourly Only			Salary Only		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VP	0.0886	0.0560		0.1066	0.0747		0.0548	0.0310	
	(0.0032)	(0.0036)		(0.0044)	(0.0052)		(0.0047)	(0.0049)	
VP $\geq$ 1	-0.1236	-0.0407		-0.0562	0.0038		-0.1361	-0.0441	
	(0.0170)	(0.0172)		(0.0202)	(0.0206)		(0.0279)	(0.0284)	
VP=0			-0.0689			-0.1711			0.0234
			(0.0151)			(0.0179)			(0.0250)
VP=1			-0.1446			-0.1389			-0.1584
			(0.0178)			(0.0188)			(0.0388)
VP=3			0.0880			0.0635			0.1101
			(0.0129)			(0.0159)			(0.0201)
VP=4			0.1505			0.1474			0.1412
			(0.0143)			(0.0184)			(0.0215)
VP=5			0.2538			0.2480			0.2612
			(0.0184)			(0.0244)			(0.0266)
VP=6			0.3042			0.3388			0.2565
			(0.0278)			(0.0444)			(0.0355)
VP=7+			0.1119			0.1592			0.0365
			(0.0228)			(0.0429)			(0.0286)
Controls for tenure, and government	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Adjusted R^2	0.4068	0.4340	0.4437	0.3181	0.3379	0.3427	0.3270	0.3552	0.3751
N	8517	8517	8517	4648	4648	4648	3869	3869	3869

Notes: The table reports OLS regression coefficients relating the ln hourly wage rate to measures of weeks of paid vacation. The wage measure is based on direct questions about rate of pay and refers to the main job at the time of the survey. In columns 1,2,4,5,7, and 8 the vacation variables are the number of weeks (VP and and indicator for VP $\geq$ 1. Columns 3, 6, and 9 contain dummy variables for each number of weeks of paid vacation with VP=2 as the reference category. All models include education, experience (a cubic and an interaction between education and experience), dummies for sex, marital status, disability status, 2 race dummies, 3 regional dummies, and calendar year dummies. Column 2,3,5,6,8, and 9 also tenure (a cubic), dummies for union membership and government employment. The samples contain individuals who work 35 or more hours per week in their main job, were younger than age 59, had not retired, and were not self-employed. To reduce the influence of measurement error and outliers, we have set the wage rates to missing when they are less than 1.5. We have set the wage changes involving an increase of 800% or a fall to less than 1/8th of the previous years value to missing as well. Standard errors are in parentheses.

The Effect of Weeks of Paid Vacation on the Wages, First Difference Specification, Mer

				Sample			Hourly Only	Salary Only
			Hourly and Salary					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ΔVP	0.0057	0.0060	0.0058				0.0167	-0.0059
	(0.0028)	(0.0028)	(0.0028)				(0.0036)	(0.0044)
Δ1(VP ≥ 1)	-0.0243	-0.0352	-0.0371				-0.0186	-0.0050
	(0.0163)	(0.0165)	(0.0165)				(0.0163)	(0.0318)
Quit × ΔVP				0.0812	0.0832	0.0747		
				(0.0190)	(0.0190)	(0.0130)		
Quit × [Δ1(VP ≥ 1)]				-0.1424	-0.1714	-0.1652		
				(0.0618)	(0.0625)	(0.0438)		
Layoff × ΔVP				0.0568	0.0578	0.0508		
				(0.0184)	(0.0187)	(0.0126)		
Layoff × [Δ1(VP ≥ 1)]				(0.0019)	-0.0279	-0.0308		
				(0.0606)	(0.0622)	(0.0429)		
Stayer × ΔVP						-0.0023		
						(0.0030)		
Stayer × [Δ1(VP ≥ 1)]						-0.0427		
						(0.0203)		
Quit						0.1010		
						(0.0175)		
Layoff				-0.0950	-0.0959	0.0025		
				(0.0343)	(0.0345)	(0.0187)		
Controls for tenure, and government	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Add occupation dummies	No	Yes	Yes	No	Yes	Yes	No	No
Add industry dummies	No	No	Yes	No	No	No	No	No
Adjusted R^2	0.0299	0.0381	0.0498	0.1840	0.2031	0.0601	0.0402	0.0101
N	3709	3709	3709	332	332	3674	1841	1616

The Effect of Weeks of Paid Vacation on the Wages, First Difference Specification, Women

|			Hourly and Salary				Hourly Only	Salary Only
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ΔVP	-0.0092	-0.0093	-0.0093				0.0051	-0.0122
	(0.0019)	(0.0019)	(0.0019)				(0.0026)	(0.0028)
Δ1(VP ≥ 1)	0.0349	0.0332	0.0292				0.0309	0.0150
	(0.0123)	(0.0123)	(0.0123)				(0.0118)	(0.0222)
Quit × ΔVP				0.0193	0.0184	0.0206		
				(0.0112)	(0.0112)	(0.0076)		
Quit × [Δ1(VP ≥ 1)]				-0.0066	-0.0238	-0.0273		
				(0.0485)	(0.0494)	(0.0340)		
Layoff × ΔVP				0.0387	0.0370	0.0342		
				(0.0223)	(0.0223)	(0.0151)		
Layoff × [Δ1(VP ≥ 1)]				0.0248	0.0268	0.0358		
				(0.0666)	(0.0667)	(0.0460)		
Stayer × ΔVP						-(0.0122)		
						(0.0020)		
Stayer × ΔVP						-0.0122		
						(0.0020)		
Stayer × [Δ1(VP ≥ 1)]						0.0229		
						(0.0140)		
Quit						0.0579		
						(0.0142)		
Layoff				-0.1313	-0.1115	-0.0444		
				(0.0299)	(0.0305)	(0.0190)		
Controls for tenure, and government	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Add occupation dummies	No	Yes	Yes	No	Yes	Yes	No	No
Add industry dummies	No	No	Yes	No	No	No	No	No
Adjusted R²	0.0380	0.0527	0.0587	0.1560	0.1739	0.0667	0.0720	0.0277
N	4591	4591	4591	416	416	4545	2179	1981

Figure A1: Distribution of Vacation Weeks for Men
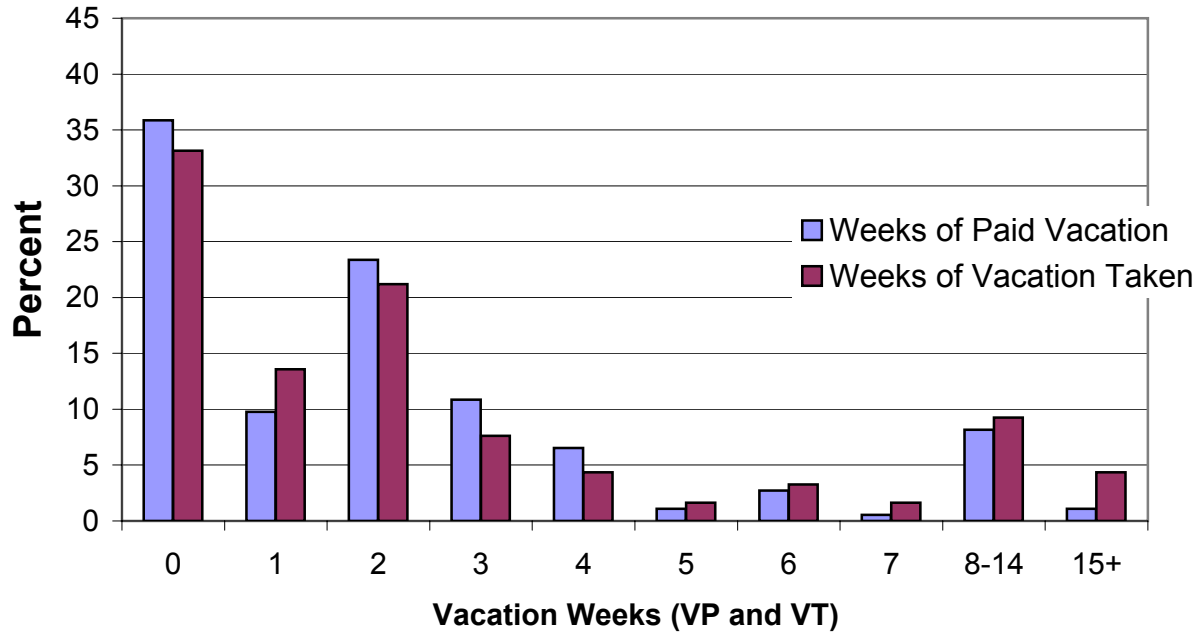
Figure A2: Distribution of Vacation Weeks for Women
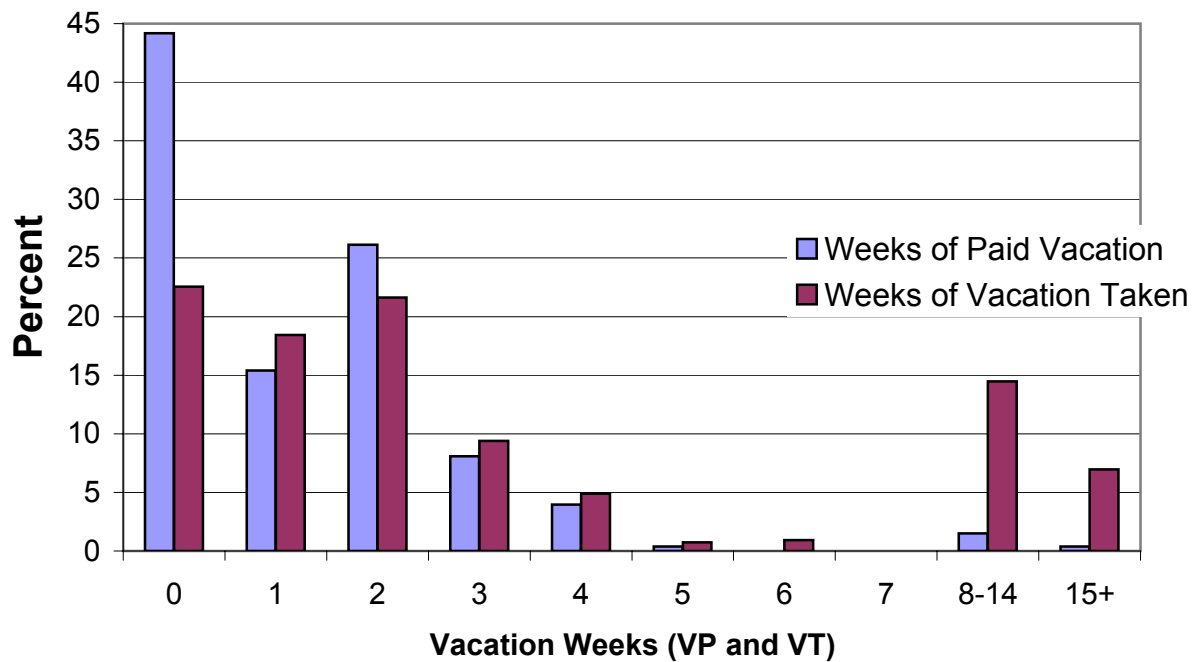
Figure A3: Distribution of Vacation Weeks Taken - Vacation Weeks Paid

Vacation Weeks Taken - Vacation Weeks Paid (VT-VP)
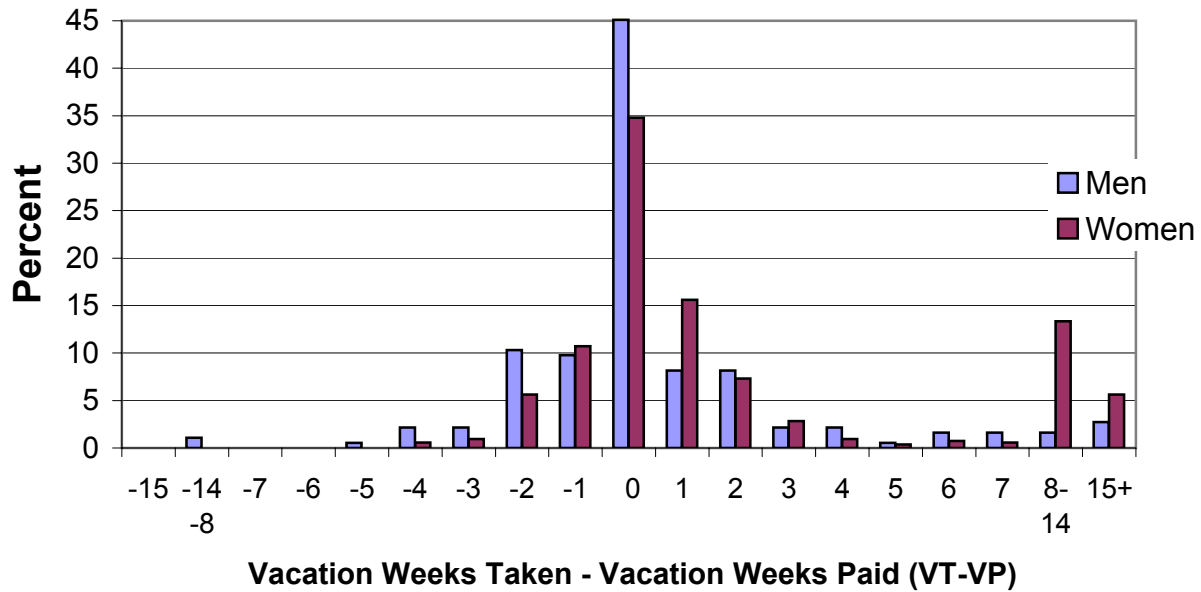
Note: The sample contains individuals who work between 15 and 34 hours per week in their main job. The other restrictions are same as in the note to Figures 1,2 and 3. That is, individuals were between age 19 to 59, had left school and not returned, had not retired, and were not self-employed. It also restricts to persons who have at least .5 years of seniority at the time of the survey and exclude observations if the job ended prior to the next interview.