Are the Lasting Effects of Employee-Employer Separations induced by Layoff and Disability Similar? Exploring Job Displacements using Survey and Administrative Data[*]

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Abstract

This paper integrates the existing literatures on displacement and health by examining the enduring effects of job dislocations that are induced by firm and individual shocks to employment. A joint estimation of hourly wage rates and weekly hours illuminates the disparities in these economic outcomes that exist between those who have reestablished themselves in the workplace subsequent to a layoff and those who have returned to work following the onset of a disability relative to those with uninterrupted job histories. As an extension of these ideas, employment transitions and workplace adjustments are modeled to capture spousal reactions to these shocks. Multiple indicators of health from the Survey of Income and Program Participation and Social Security Administrative benefits records are incorporated into the analyses of those with impairments that prompted job loss. These measures allow knowledge to be gleaned regarding the qualitative differences in the lasting impacts of job cessation resulting from medically diagnosed illnesses as compared to estimates uncovered using survey data sources alone. By considering time durations following these periods of separation in light of these indicators of well-being, a more comprehensive understanding of the long-run repercussions of employee-employer separation is acquired.

1   Introduction

Studies that explore the lingering impacts of mass layoff have extensively documented the persistence of firm-side shocks that result in permanent job loss. As an inaugural researcher in this area, Ruhm (1991) noted the insufficient knowledge of the adjustment period subsequent to employer-initiated displacing events and endeavored to address this issue. His discovery of substantial earnings losses that are sustained for years beyond the date of dislocation propagated a proliferation of papers, each with intriguing insights about the

duration and magnitude of the lasting scars of job separations.[1] However, the development of these concepts has remained narrowly focused on layoffs and consistently has excluded any consideration of the lasting effects of analogous shocks to individual workers, such as onsets of serious illness or disability, that cause employer-employee matches to conclude.

My study corrects for this oversight by comparing the enduring detrimental impacts of past firm and individual shocks and, in doing so, presents a unique opportunity to unify the ideas found within the literatures on displacement and health. By linking economic outcomes to latent impairments that initiated past job dislocations, this paper supplements the more traditional health studies that have generally aimed to explore the role of contemporaneous well-being on labor force decisions.[2] Evidence of workers scarred by an unanticipated layoff is abundant, but the severity is unparalleled to the repercussions experienced by those who have parted from their employer as the result of a disabling condition. This is because those returning to work following a displacing health shock may be economically disadvantaged not only by the abrupt job termination, but also by the compounding factors relating to any health problems that persist subsequent to their reemployment.

Within the context of the family, the implications of job loss are not limited to the affected worker alone. Individuals within a household exhibit compensating labor force behaviors in the aftermath of another member's unemployment or illness.[3] Results are not consistent across these studies, however. I additionally investigate spousal reactions to dislocations in order to determine the manner in which layoff and poor health influence married couples as a unit. The differential behaviors of workers and their nondisplaced spouses who are impacted by these two types of events provide an improved understanding of the strengths of shocks to the demand and supply of workers.

For this purpose, I consider the lasting effects of job separations using multiple panels of the Survey of Income and Program Participation (SIPP) and integrated benefits records from the Social Security Administration (SSA). The SIPP has the advantage of providing longitudinal information on demographic and job characteristics, including reasons for work cessation, without restricting the sample to those who are more advanced in age, as is the case with the Health and Retirement Study. The populations examined include individuals whose positions are eliminated as part of layoffs and those who are induced to leave their places of employment as the result of work-limiting conditions.[4] A subset of the employed who are highly attached to the labor force is additionally analyzed using evidence of workplace exits from the records of Social Security Disability Insurance (SSDI) applicants. Since it is plausible that a worker may experience an episode of ill health that shocks her out of work but is not severe enough to meet the impressive standards of SSA for acceptance into either program, the purpose of the inclusion of administrative indicators of health exits is not to strictly assess the validity of the survey measures. Instead, they are presented to provide an understanding the qualitative differences in the lasting effects of acute traumas that have been medically diagnosed as distinguished from the results uncovered using survey data sources alone.

I first review motivating papers to provide background knowledge of the studies that contributed to the development of this topic. Discussed are articles in which health status and spells out of the work force are individually linked to labor behaviors in order to outline the parallels between these bodies of work. I then present a model to explore the convergence of these pieces. I do this by examining the lasting impacts that displacements resulting from layoff and ill health have upon wages and hours in the years following the events by using definitions of wellness from multiple sources. These ideas are then extended within the context of the dynamics of a married couple to determine how spousal job loss influences the economic outcomes, including the duration of employee-employer matches, of nondisplaced partners.

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[1] These papers include articles authored by Jacobson, LaLonde, and Sullivan (1993); Stevens (1997); Fairlie and Kletzer (1998); and Kletzer (1998). Fallick (1996) surveys advancements in this literature.

[2] See Currie and Madrian (1999) for a review of health papers of this sort that utilize data from developed countries. Thomas (2001) provides an excellent survey of studies of this nature that utilize clinical indicators of health status.

[3] See Charles (1999), Coile (2004), Parsons (1977), and Stephens (2001) for relevant papers on the added worker effect.

[4] Work-limiting conditions in this study refer to ill health, disability, and other medical impairments that prevent or restrict an individual from participating in activities that are required for gainful employment. Temporary ailments are not considered to be severe enough to sufficiently impede an individual's abilities for any great duration and are thus not counted among these afflictions. Within the context of this study, people with work-limiting conditions will be referred to as being of ill health, disabled, or impaired despite an awareness of the conceptual differences implied by these terms.

My research reveals that behaviors during the ensuing adjustment period vary by the reason for the unanticipated exit, the number of years that have passed since the event occurred, and the demographic characteristics of the worker that include gender, race, and education. While individuals with a layoff or disability in their past appear to be economically burdened by displacements, those who were unexpectedly forced to part with their employers because of layoff experience rapid improvements to their hourly wage rates while spending more time in the office than do their nondisplaced counterparts. Those with debilitating health shocks that induced a job separation have reemployment wages and hours that are simultaneously and negatively impacted, which results in financial losses that endure far longer. I find that estimates from the administrative measures of health mirror the qualities of those that utilize self-reports of functional limitations, although the magnitude of the impact is more detrimental for those who have applied for SSDI benefits. This result is most exacerbated in the spousal analyses, as women with husbands who have applied for administrative benefits appear to be transitioning to new positions that provide less pay and allow them to sharply reduce their workweeks.

2   Motivating Studies

Among the articles that have attempted to address the realization of past conditions in current labor market outcomes is a piece authored by Chirikos and Nestel (1985). Using the National Longitudinal Surveys of Older Men in 1976 and Mature Women in 1977, Chirikos and Nestel construct four variables from a retrospective history of self-reported health status: continuously good, improving, deteriorating, and continuously poor health over the previous ten years.[5] To study the relationship between well-being and income, they estimate a two-equation model for four sex-race groups. A fascinating result of their procedure is that a history of poor health, whether continual or changing, reduces current economic welfare. This is true for both individuals who have household resources available to them and for those who exhibit increased efforts to devote more time to current employment. It is possible that Chirikos and Nestel unknowingly were reporting on the lasting impacts that periods of forced job withdrawal- rather than strictly ill health- have upon labor outcomes in the long run.

An interesting piece that stratifies those suffering from ailments in order to emphasize the import of disease severity in deriving results is by Smith (1999). Longitudinal survey data from the Health and Retirement Survey (HRS) and Asset and Health Dynamics of the Oldest Old survey (AHEAD) enable him to consider the manner in which unanticipated changes in well-being impact an individual. Without allowing for his estimates to be contaminated by those who are impaired to a differing degree, Smith is able to deduce that severe health shocks produce a 15% decrease in the probability of continued employment, a reduction in own earnings of $2,639, and cause impaired individuals to work four fewer hours per week in the subsequent period. For minor shocks, Smith finds a 5% decrease in the probability of remaining in the work force, a $1,638 decline in job income, and a reduction of time at work by just over one hour following the event.[6] The probability of staying at work falls by only 6% after a period of at least three years, and so Smith additionally finds that the effects of a major health problem endure, but do diminish with time.

Identifying those with more detrimental conditions is clearly key in ensuring that results are not clouded by mixture with the population of individuals with transient ailments. In reviewing breast cancer survivors, Bradley, Bednarek, and Neumark (2001) are able to focus their attention on whether and how substantial health shocks continue to impact a woman's labor market outcomes following recovery. Wave 1 of the HRS provides information on the amount of time that has elapsed since a diagnosis of breast cancer. A probit model reveals that women with histories of this disease are 9% less likely to be working than those without. Conditional on employment, women who have survived three or more years since their diagnosis work approximately 4 more hours and earn 23% more than the noncancer control group; those who have survived two years or fewer do not work a different number of hours nor do they earn more. Without utilizing

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[5]In categorizing people as having one of four types of health histories, Chirikos and Nestel use self-reported impairments, a rating of perceived health, and the existence of conditions that include those which prohibit employment.

[6]The findings mentioned in this review are from the HRS sample and are for impairments that occurred in the previous two years.

information about whether the women diagnosed with breast cancer parted with their places of employment or were on leave, it is difficult to surmise whether the estimates of Bradley, Bednarek, and Neumark represent outcomes stemming from actual employee-employer separations.

Research has documented that layoffs result in lasting effects on economic prosperity, but such work has as of yet not been applied to the framework of forced medical exits from the labor market. Ruhm (1991) considers whether workers in the former context suffer from persistent negative effects related to job displacements which leave them scarred. He explains that "dislocated individuals are defined as scarred if they continue to earn less or to be unemployed more than their nondisplaced counterparts, even after the conclusion of a several-year adjustment period." Using data from heads of households from the Panel Study of Income Dynamics for the 1969-1982 waves, Ruhm partitions the years of the survey to examine histories of employment around five base years. He desires to draw conclusions for those permanently displaced in mass layoffs or plant closures, and does so by estimating three sets of OLS wage regressions and tobit unemployment models in an attempt to control for unobserved heterogeneity. Ruhm's results reveal that while current unemployment has a minimal impact on future joblessness, wage effects from separation are large in magnitude and persist through time. In the year following separation, weekly earnings of displaced workers are 16% lower than those of the nondisplaced, and they remain 14% lower four years later.

Ruhm's work is extended by Jacobson, LaLonde, and Sullivan (1993) using a 5% sample of longitudinally integrated employer-employee administrative data from the state of Pennsylvania for the years 1974-1986. These data enable the authors to separately analyze the within and between effects of displacement on high-tenure individuals. They find that those terminated from positions in distressed firms experience lasting earnings losses that average 25% per year. The authors also determine that these losses are not highly dependent upon worker gender and age, they are significant even for those who are able to obtain subsequent work in firms with similar characteristics, and they arise even prior to the point of separation. Similar findings are uncovered by multiple sources, indicating that they are nationally representative and not just particular to a singular state.[7]

The scope of my research is not limited to the earnings losses of those who have personally suffered layoff or disability. Much remains to be learned about the manner in which these different events affect a spouse, particularly because available papers on these topics present results that appear to be highly dependant upon the implemented methods and data.

Within the context of a married couple, a study by Parsons (1977) finds using the Productive Americans Survey that the responses of spouses of infirm individuals vary by gender: men work fewer hours, whereas women work more following the realization of this type of shock. Haurin (1989) discovers small and statistically insignificant responses of women to the changing health quality of their husbands. Severe impairments, however, are found to notably affect spouses. Consistent with this, Coile (2004) uses the HRS to explore the added worker effect and finds that when husbands suffer a severe health trauma, women decrease labor supply. This is clear evidence of wives choosing to substitute time in the home for hours spent at work when their spouses are recovering. Charles (1999) also employs the HRS and determines, contrary to Coile, that women work more while men reduce labor supply subsequent to the disability of a spouse. Similar behaviors are apparent in a paper by Stephens (2001), who focuses instead on wives' labor supply reactions to husbands' layoffs. He finds that women are able to replace 25% of their husbands' lost income by becoming more present in the work force over the course of several years.

Despite noted advancements in studies that incorporate measures of health and that explore displacing events, the apparent isolation of research in these areas has resulted in a nebulous concept of the manner in which previous disability-related dislocations might affect workers and their spouses. This paper shifts the focus of both bodies of literature in order to appropriately address the differential lasting impacts of forced separations that are caused by firm and individual shocks. The plights of the reemployed can clearly be examined within a structured framework that permits such a comparison.

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[7]Fallick (1996) provides a review.

3 Model

3.1 Own Job Displacements

The lasting economic consequences of layoffs and disability-related job dislocations of individual i employed at job j in time t are determined by jointly estimating a regression of the logarithm of the real hourly wage rate, W_{ijt}, and the logarithm of weekly hours, R_{ijt}, conditional on employment as defined by

$$
\begin{aligned}
W_{ijt} = {} & X_i'\beta_{W1} + X_{ij}'\beta_{W2} + X_{it}'\beta_{W3} + \\
& \sum_m \gamma_{WL_m} L_{it}^m + \sum_m \gamma_{WH_m} H_{it}^m + \theta_i + \varphi_{ij} + \varepsilon_{ijt},
\end{aligned} \tag{1}
$$

$$
\begin{aligned}
R_{ijt} = {} & W_{ijt}\delta + X_i'\beta_{R1} + X_{ij}'\beta_{R2} + X_{it}'\beta_{R3} + \\
& \sum_m \gamma_{RL_m} L_{it}^m + \sum_m \gamma_{RH_m} H_{it}^m + \alpha_i + \chi_{ij} + \eta_{ijt}.
\end{aligned} \tag{2}
$$

These equations are comprised of a vector, X_i, of time-invariant observable characteristics of the worker that include race, gender, education groups, and ethnicity. Static employee-employer match characteristics, X_{ij}, are union status, industry division, and type of employment. Time-varying worker characteristics, X_{it}, consist of marital status, number of children in the household, gender interacted with martial status and number of children in the household, census regional division of residence, and a piecewise-linear spline of changing work force experience. Controls for SIPP panel year are additionally incorporated into the model.[8]

Within this system, I estimate the persistent losses associated with employer-employee displacements in order to measure the quantities that the two populations of interest work and earn as compared to those with continuous employment. For this purpose, I integrate the approaches of Chirikos and Nestel (1985) with those of Jacobson, LaLonde, and Sullivan (1993). I assume that the timing of a layoff or the onset of a sufficiently severe chronic condition that causes a worker to separate from her employer is a largely unanticipated event. Yearly indicator variables, L^m and H^m, denote the time duration since either a layoff or ill-health separation occurred. These enable the parsing of the lingering impacts of these exogenous shocks by capturing the effect of a displacement that occurred m years in the past, where $m = 1, 2, 3, 4, 5$, and more than 5 years ago. Layoff and disability coefficients, $\gamma_{\cdot L_m}$ and $\gamma_{\cdot H_m}$, capture the enduring effects of dislocation.

Hours are also regressed upon the logarithm of the real hourly wage rate, which is endogenous, and so in order to obtain consistent estimations of the coefficients in this model, cross-equation correlations of the heterogeneity terms must be permitted. The individual random effects in the jointly estimated model are normally distributed as

$$
\begin{pmatrix} \theta_i \\ \alpha_i \end{pmatrix} \sim N\left(0, \begin{bmatrix} \sigma_\theta^2 & \\ \sigma_{\theta\alpha} & \sigma_\alpha^2 \end{bmatrix}\right),
$$

and the job heterogeneity terms are distributed as bivariate normal random variables

$$
\begin{pmatrix} \varphi_{ij} \\ \chi_{ij} \end{pmatrix} \sim N\left(0, \begin{bmatrix} \sigma_\varphi^2 & \\ \sigma_{\varphi\chi} & \sigma_\chi^2 \end{bmatrix}\right).
$$

The time-varying residuals are independently and identically distributed normal random variables given by

$$
\varepsilon_{ijt} \sim N\left(0, \sigma_\varepsilon^2\right),
$$

and

$$
\eta_{ijt} \sim N\left(0, \sigma_\eta^2\right).
$$

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[8]Experience, industry division, and type of employment are excluded in the hours equation.

3.2 Spousal Job Displacements

The manner in which an exogenous shock to one's partner induces changes in the economic behaviors of the other member in the couple is next addressed. Spousal compensation for the unanticipated job loss is manifested by job transitions, as well as by changes in hourly wage rates and hours spent at work. I compare the duration of the current spell of employment for those married workers with spouses who have been displaced because of a layoff or a disabling condition with the length of employee-employer attachments of those married workers who are employed but do not have spouses who have experienced either type of forced separation by using the proportional hazard given by

$$
\begin{aligned}
\ln h(t_{ij}) \quad = \quad & T(t_{ij})\gamma + X_i'\beta_{Z1} + X_{it}'\beta_{Z2} + X_{ij}'\beta_{Z3} + \\
& \sum_m \gamma_{ZL_m} L_{it}^m + \sum_m \gamma_{ZH_m} H_{it}^m + \nu_i.
\end{aligned}
\tag{3}
$$

This proportional hazard enables me to model the transition rate out of employment and relate this to previous job dislocations the spouses of the married workers have endured. It is associated with the survivor function

$$
S(t_{ij}) = \exp\left\{ -\int_0^{t_{ij}} h(\tau)d\tau \right\}
$$

and probability density function

$$
f_E(t_{ij}) = h(t_{ij})S(t_{ij}).
$$

I assume that the separations induced by the layoff or disability of the spouse of a worker are exogenous events. Coefficients of the indicator variables that are denoted by L^m and H^m provide knowledge of the lasting impact that spousal separations relating to layoff and ill-health have upon the economic outcomes of their partners. These dummy variables capture the effect of spousal displacements that occurred m years in the past, where $m = 1, 2$, and more than 3 years ago. The probability of a married worker with a spouse who has suffered a job separation remaining with a job relative to this probability for an otherwise identical individual is obtained through estimates of γ_{ZL_m} and γ_{ZH_m}. These coefficients are interacted with gender to capture the lasting impacts of the spouse of the worker experiencing unemployment caused by layoff or ill health.

Additional regressors in the hazard include $T(t_{ij})$, a piecewise-linear spline of the months of current employment for married worker i at job j; X_i, a vector that is composed of gender, race, education groups, and ethnicity; X_{it}, a vector of time-varying characteristics that include the number of children in the household and the interaction of gender with the number of children in the household; X_{ij}, a vector of static employee-employer match characteristics consisting of union status, industry division, and type of employment; and finally piecewise-linear splines of age, labor force experience, and calendar time. SIPP panel year variables are also included in the specification. Heterogeneity is controlled for in the hazard model by including the random effect ν_i that is independently and identically distributed as $N(0, \sigma_\nu^2)$.

To explore the quantities that the employees with spouses who have experienced a separation work and earn as compared to before the displacement of their marital partners, I proceed to jointly estimate a regression of the logarithm of the real hourly wage rate and a regression of the logarithm of weekly hours conditional on employment that is consistent with equations (1) and (2) above. In this specification, the shock indicators are those of the worker's spouse instead of the worker herself.

3.3 Likelihood Functions

I simplify the notation in equations (1) and (2) in order to consider the form of the likelihood I am estimating. I allow the logarithm of the real wage rate to be represented by

$$
\begin{aligned}
W_{ijt} \quad = \quad & X_W'\beta_W + \theta_i + \varphi_{ij} + \varepsilon_{ijt} \\
= \quad & X_W'\beta_W + \xi_{ijt},
\end{aligned}
\tag{4}
$$

and the estimation of the logarithm of weekly hours conditional on employment by

$$R_{ijt} = X_R'\beta_R + \alpha_i + \chi_{ij} + \eta_{ijt}. \tag{5}$$

The likelihood function of the joint model of hours and the wage rate is the product of the marginal probability of wages and the probability of hours conditional on wages:

$$P(W_{ijt}, R_{ijt}|\beta_W, \beta_R, , \sigma_\varepsilon^2, \sigma_\eta^2, \sigma_\theta^2, \sigma_\alpha^2, \sigma_{\theta\alpha}, \sigma_\chi^2, \sigma_\varphi^2, \sigma_{\varphi\chi})$$

$$= \int_\alpha \int_\chi f_W(W_{ijt}|\beta_W, \Sigma_{\xi\xi}) f_R(R_{ijt}|\beta_R, \sigma_\eta^2, \alpha, \chi, W) \times$$

$$f_\chi(\chi|\sigma_{\chi|W}^2, W) f_\alpha(\alpha|\sigma_{\alpha|W}^2, W) d\chi d\alpha$$

$$L_i = (2\pi)^{-\frac{T_i}{2}} |\Sigma_{\xi\xi}|^{-\frac{1}{2}} \exp\left\{-\frac{1}{2}(\vec{W}_i - X_W'\beta_W)'\Sigma_{\xi\xi}^{-1}(\vec{W}_i - X_W'\beta_W)\right\} \times \tag{6}$$

$$(2\pi)^{-\frac{T_i}{2}} (\sigma_\eta)^{-T_i} \int_\alpha \phi\left(\frac{\alpha_i|\vec{W}_i}{\sigma_{\alpha|\vec{W}_i}}\right) \int_\chi \prod_{j=1}^{J_i} \phi\left(\frac{\chi_{ij}|\vec{W}_i}{\sigma_{\chi|\vec{W}_i}}\right) \times$$

$$\prod_{t=1}^{T_{ij}} \exp\left\{-\frac{1}{2}\left(\frac{R_{ijt} - X_R'\beta_R - \alpha_i - \chi_{ij}}{\sigma_\eta}\right)^2\right\} d\chi d\alpha,$$

where J_i is the total number of jobs each worker holds during the panel, T_{ij} is the number of time periods each employee-job match endures,

$$T_i = \sum_{j=1}^{J_i} T_{ij}$$

is the total number of time periods each worker is employed at all jobs,

$$\vec{W}_i = \left\{\{W_{ijt}\}_{t=1}^{T_{ij}}\right\}_{j=1}^{J_i}$$

is the vector of wages over all jobs and time periods for individual i, $\Sigma_{\xi\xi}$ is the covariance matrix of the T_i-vector of residuals for the hourly wage equation, and $|\Sigma_{\xi\xi}|$ is its determinant. The random person effects are identified by the monthly observations of each individual, while the random job match effects are identified by repeated observations associated with that particular job.

For married couples, I allow the proportional hazard function to be represented by

$$\ln h(t_{ij}) = X_Z'\beta_Z + \nu_i. \tag{7}$$

The likelihood of the hazard is then given by

$$P(t_{ij}|\beta_z, \sigma_\nu^2) = \int_\nu f_E(t_{ij}|\beta_Z, \nu) f_\nu(\nu|\sigma_\nu^2) d\nu$$

$$L_i = \int_\nu \phi\left(\frac{\nu_i}{\sigma_\nu}\right) \prod_{j=1}^{J_i} \left\{[h(t_{ij}|\beta_Z)]^{D_{ij}} S(t_{ij}|\beta_Z)\right\} d\nu, \tag{8}$$

where J_i is the total number of jobs for that individual and

$$D_{ij} = \left\{\begin{array}{l} 1, \text{ if the employment spell ends} \\ 0, \text{ if the employment spell is censored} \end{array}\right. .$$

The random person effect is identified by the existence of multiple job spells for each worker.

4 Data

4.1 Survey of Income and Program Participation

The Survey of Income and Program Participation covers the population of noninstitutionalized civilians residing in America. It is a multipanel, longitudinal survey conducted by the U. S. Census Bureau, with each panel spanning between 2.5 and 4 years. Between 14,000 and 36,700 households are selected to be interviewed in each panel of the survey. Household members who are at least 15 years old are interviewed once every four months for the duration of the panel about their employment, program participation, and income. Topical modules supplement the core wave questionnaires by providing more detailed information about past labor force participation, demographic characteristics, disability, and additional sources of income. In this way, the SIPP serves to measure the economic situations of Americans. This study makes use of the 1990-1993 panels in which the possible reasons for work cessation include layoff and a means to derive knowledge of health-related separations.

While the Health and Retirement Study has been used in a number of papers to explore the implications of disability, the construction of the baseline HRS sample restricts the age of those examined to heads of households aged 51-61 and their spouses. An increasing number of younger workers are becoming impaired, however, and it is only with a longitudinal data set such as the SIPP that it is possible to model the behavior of younger cohorts who have experienced exogenous health shocks that have resulted in separations from the work force. With such a sample, it is also possible to derive estimates without concerns that the results might easily be confused by retirement behaviors.

4.1.1 Construction of Indicators of Exogenous Separation

The longitudinal structure of the SIPP panels enables the creation of dummy indicators that are representative of the number of years that have passed since an exogenous shock induced the dissolution of an employee-employer pairing. The Employment History topical module contains detailed questions about former positions. Respondents are able to specify the month and year in which they ended an earlier job and whether the main reason they stopped working for this employer is related to either health or layoff. Furthermore, a second set of questions probes into periods lasting at least 6 months that the individual has spent out of the work force. Own illness or disability are listed among the reasons for these gaps in employment along with the years that span these absences. Potentially, one indicator of past separation due to layoff and up to two indictors of past separation due to poor health can be obtained from this topical module along with the timing of these events.

In the Labor Force and Recipiency core wave questionnaires, those whose work has terminated during the reference period are asked to specify a reason. In this manner, evidence of contemporary separations is collected as time progresses through the longitudinal SIPP panels. The possible explanations for job cessation include being laid off, choosing to retire, being discharged, having been at a temporary job that ended, accepting another job opportunity, and quitting for some other reason. This last option is used in combination with an indicator of wellness to determine when an exogenous health shock has forced a worker to separate from her place of employment.

Care is taken to ensure that exits are in fact exogenous shocks to the employed individual. The Worker Adjustment and Retraining Notification (WARN) Act, effective beginning in February 1989, requires that employers of 100 or more employees provide 60 days of advanced notice of mass layoffs and plant closures so that workers can prepare for the impending dislocation. Thus, a layoff is not included in the list of exit dates if the worker smoothly transitions between jobs during the course of the panel or if she is recalled.[9] Similarly, since severe impairments would likely impact all jobs held if a sudden health shock occurred, an

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[9] A smooth work transition occurs when employment is overlapping and continuous or when the individual has found reemployment within four days of the date of job termination. Stinson (2003) at the U. S. Census Bureau performed extensive research using name matching software to create an internal use SIPP jobs file that corrects the job identifiers across waves. Since displacements are defined as events that result in the permanent conclusion of a job match, a worker who was rehired following a layoff by her previous employer is not flagged as having been separated from this position even if the individual has indicated within the survey that she was laid off.

ill-health exit date is deleted when it is apparent that a smooth transition between jobs has occurred. This measure should further improve the quality of the indicators of disability dislocations.

The wellness variable is acquired from several sources to ensure that it is accurately representative of the individual's perceived current status, with information from the topical modules supplementing the core wave files. The Work Disability History topical module, the Functional Limitations and Disability topical module, the Medical Expenses and Work Disability topical module, and the Labor Force and Recipiency core wave files all contain questions about disabling conditions. If a respondent claims that her health or condition limits the kind or amount of work that can be done;[10] if she has a physical, mental, or other health condition which limits the kind or amount of work that can be done;[11] if she claims to have been employed when a work-limiting disability began;[12] or if her health condition prevents her from working at a job or business,[13] then a wave-level disability variable is flagged. Temporary illnesses that are revealed by follow-up questions to non-permanent job separations are not included in this measure, regardless of duration.

Relying on self-reported measures as true indicators of work-limiting disabilities is somewhat problematic due to the fact that the associated measurement error is likely nonrandom. For example, the use of medical facilities tends to increase with income despite the fact that those who are in higher wage brackets tend to also be of better health. As a result, this group is more educated about various illnesses they might have and are more likely to report them (Currie and Madrian 1999). In addition, unemployed individuals may be inclined to exaggerate poorer health status in an attempt to justify their lack of work (Butler, Burkhauser, Mitchell, and Pincus 1987).

To further complicate these matters is the issue of the interpretation of questions regarding health status or condition. Respondents who indicate that they have a health problem or that they are limited in the kind or amount of work they can perform may suffer from disability, disease, illness, substance abuse, brief ailments, or psychological impairments. On the other hand, some disabilities may not hinder one's capacity to accomplish assigned tasks in the current place of work, but may restrict the choice set of occupations available. These differing categories of workers may be induced to answer survey questions regarding disability status identically, while the dissimilarities of the base issues could confuse the derived results of a focused study.

4.2 Social Security Administrative Records

Ideally, a measure based on clinical evaluations of health status is desired. This is because such an indicator enables the researcher to separate acute, but ephemeral medical conditions that have few long-lasting economic consequences from illnesses that continually plague a person, having a cumulative effect that are detrimental to future economic outcomes. The Social Security Administration has provided benefits data from the 831 Disability and Master Beneficiary Records for the 1990-1993 panels of the SIPP that allow such a distinction to be made. In addition, an exact match earnings file for these panels, known as the Summary Earnings Records, is available from which knowledge of Social Security Disability Insurance program eligibility is derived.

4.2.1 831 Disability

The 831 Disability (F831) master file contains data on the Disability Determination Services' (DDS) decisions regarding applications and subsequent appeals for disability benefits under Titles II and XVI of the Social Security Act. Titles II and XVI detail the Social Security Disability Income (SSDI) and Supplemental Security Income (SSI) programs, respectively. Eligibility requires that a person be unable to perform any kind of substantial gainful work[14] because of a physical or mental impairment (or a combination of impairments). These conditions must be expected either to last a continuous period of at least 12 months or to eventually

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[10] Work Disability, Functional Limitations and Disability, and Medical Expenses and Work Disability topical modules.

[11] All sources.

[12] Work Disability topical module.

[13] Functional Limitations and Disability, and Medical Expenses and Work Disability topical modules.

[14] Substantial gainful activity is defined as employment in which earnings average more than a fixed monthly amount. In 2005, this total is $830.

result in death. Each applicant must be able to verify that they are not gainfully employed and also must have a complete medical evaluation so that the primary diagnosis codes for their ailments can be appropriately supplied to the DDS for review.

Only F831 records with dates of decision for awards beginning in 1989 are available, but these have initial dates of application, appeal, and disability onset that can be from years prior. To correct the left censoring of F831, historic information from the Social Security Administration's Master Beneficiary Records (MBR) are integrated into this study.

Social Security Disability Income Title II allows for the Social Security Disability Income program by outlining federal old-age, survivors, and disability insurance (OASDI) benefits. SSDI provides federal disability insurance benefits for workers who have become disabled or blind before the age of retirement after having contributed to the Social Security Trust Fund. Upon the retirement, disability, or death of a fully insured worker, spouses with disabilities and dependent children of the primary beneficiary are also eligible for disability benefits.

Fully insured workers have recent covered work, which translates into having been employed for 20 of the last 40 quarters, or half of the previous 10 years. Exceptions to this requirement are made for those who become disabled early in their job histories. If impaired before 31, the amount of time in the work force should be half of the time since age 21. In addition to being fully insured and having the necessary medical documentation of the work-limiting condition, to qualify for DI benefits the applicant must also be disability insured. This means she must have worked for about one-fourth of the time elapsing after age 21 and up to the year of disability.

A waiting period of five months[15] must elapse before SSDI benefits are administered according to the guidelines of this program. The philosophy behind this required delay is that it discourages individuals who do not have long-term disabilities from receiving payments from multiple sources during the early months of their conditions. Often with transitory illnesses, private disability plans and employer sick pay provide sufficient resources until the worker becomes able-bodied and is capable of resuming employment. SSDI is intended to assist only those with grave illnesses or conditions and the waiting period induces only these people to apply.

Supplemental Security Income The Supplemental Security Income program was established under Title XVI of the Social Security Act and is a federally administered cash assistance program that is financed by general tax revenues. SSI aids individuals who are at least 65 years of age, blind, or disabled and who demonstrate sufficient income and resource limitations.

SSI and SSDI have essentially the same set of disability requirements[16] that must be satisfied in order to receive income resulting from disability, but those seeking benefits from the former source must also satisfy a family means-test of income. A person can be eligible for SSI benefits even if she has never worked or paid taxes under the Federal Insurance Contribution Act, which is not the case with SSDI. If, on the other hand, the person is fully insured and disability insured with inadequate assets, it is possible for her to simultaneously receive income from both sources. Due to the difficulty involved in determining eligibility for SSI combined with the knowledge that any fully insured worker with limited resources would apply for both types of benefits from SSA, the study of hours and wages is restricted to those with Title II eligibility.

4.2.2 Master Beneficiary Records

The Master Beneficiary Records are used by SSA to administer OASDI payments. In the case of disability insurance, the primary beneficiary[17] is listed along with an array of dates of disability onset, the corresponding dates of filing and decision, and the outcome of the adjudication process. Any individuals who have applied for benefits have a record generated when the application is decided as an award, a disallowance, an

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[15] The 1972 Amendments to the Social Security Act reduced the waiting period for benefits from six months to five.

[16] The applicant must exhibit no substantial gainful employment and must provide evidence of compromising medical conditions that are anticipated to either result in death or persist at least a period of one year.

[17] The primary beneficiary is the worker upon whose earnings the benefit entitlement exists.

abatement, or is withdrawn. An advantage of the use of this file is that a history of onset dates of disabling conditions are revealed along with dates of entitlement to disability payments.[18]

4.2.3 Summary Earnings Records

Sample-limiting restrictions will be imposed on the SIPP panels to include only those who would be eligible to apply for SSDI benefits when including health variables extracted from the benefits records in the estimations. Since a goal of this paper is to utilize not only survey data, but also benefits data from the Social Security Administration, it will be important to select a group of individuals who would be capable of applying for SSDI benefits upon the onset of a serious condition.

The Summary Earnings Records are topcoded at the taxable maximum each year, and contain yearly information on earnings from 1951 onward. Estimates of total quarters worked for the period between 1937 and 1952 exist on this file, as well. Covered quarters of work are recorded from 1951 until 1977, whereafter they are imputed by SSA based upon earnings thresholds. This history enables the yearly derivation of the number of quarters of coverage so that the calculation of fully insured and disability insured status for each individual is possible.[19] Since only those workers who meet the set of standards outlined by the Social Security Administration are candidates to receive disability benefits, limiting the SIPP panels to individuals who are both fully and disability insured provides a restricted sample that can be used to compare the quality of the demographic measures with those found within administrative data sources.

Creating this subset serves a dual purpose. Primarily, the adverse health of these covered workers should be evident in both the demographic survey and benefits records for sufficiently severe maladies, such as ailments that would induce a worker to unexpectedly part ways with her employer. Additionally, this reduced population of workers now consists purely of a highly attached work force. This is key in analyzing exogenous separations, as researchers have traditionally considered displaced workers as those with at least three years of tenure (Fallick 1996). By reducing the sample to employed individuals with sufficient quarters of coverage to be considered both fully and disability insured, I introduce an alternative definition of highly attached workers.

4.2.4 SSDI Applicants

It is necessary to remark upon active workers who have records of medically diagnosed ailments in the benefits records. Essentially, only three means exist by which an individual stops receiving DI benefits: death, recovery (including those who voluntarily return to work and those who reluctantly do so after the termination of their payments following a medical review), and transference to the retirement program. Within the 1990-1993 SIPP panels, it was less common for individuals to become well and choose to leave the DI rolls.[20] Mainly for this reason, those who are employed in the SIPP and who have evidence of impairments acquired from either the F831 or MBR are most likely to be rejected applicants.[21]

Statistics on the percentage of applications that are rejected vary. Social Security Administration (2003) statistics indicate that in the early 1990s, between 43.8% and 47.7% of those who filed claims received awards. However, these are crude rates that were not calculated using edited data, may contain duplicate

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[18]The date of entitlement to disability is the month and year in which the individual is first entitled to disability benefits. The date may be retroactively set up to 12 months before the date of filing because it is meant to accurately reflect the date that DI benefits should have started.

[19]Essentially, this calculation is reduced to the following: if the individual is less than 32 years of age, then she needs to have worked half of the time that has elapsed since age 21; if the individual is 32 or older, then she needs to have worked one-fourth the time that has elapsed since age 21 and one-half of the previous ten years.

[20]The creation of a program under the Ticket to Work and Work Incentives Improvement Act of 1999 was phased in over a 3-year period to encourage those receiving SSDI and SSI to become self-sufficient. Prior to this, and within the scope of this study, workers on the disability rolls who considered taking a trial period to test out their ability to partake in gainful activities risked losing their benefits indefinitely.

[21]Imposed age restrictions exclude workers who might have once received benefits but were transferred to the retirement program when they turned 65.

cases, and are additionally based on the number of applicants in the same year as the awards.[22] The Social Security Advisory Board (1998) presents more detailed estimates of award rates: 32% of initial applications, and 15% of the 50% that are reconsidered by DDS are added to the DI rolls. Of the 25% of individuals who pursue their denied claims, only a small fraction are eventually granted benefits by an administrative law judge, an appeals council, or by federal court decisions. Refiling, appealing a rejected application, or otherwise continuing to engage in the disability determination process requires that the individual remain absent from the labor force. As such, the workers with evidence of health events in the restricted SSA sample are those who have resigned themselves to the idea that despite their own beliefs about the severity of their impairments, the DDS is of the opinion that they are capable of gainful employment.

Precise dates of disability onset from the benefits records are used to establish an alternate set of indicators of health-related shocks out of employment. The timing of the onset of a grave disability that results in the dissolution of a job is specified by a medical doctor on applications for SSDI. When missing, I choose to use the filing date in its place, followed by the date of decision less 4.5 months, which is the average duration of DDS deliberation in the panels. From these dates, administrative verification of the existence of functional limitations is derived. Only shocks occurring after the earliest date of impairment from F831 and MBR records that do not have another reason specified in the SIPP for the job cessation become SSA health shocks.

4.3   Methodology

The data sources previously detailed are integrated into the models I have presented. Each is estimated using both the layoff and disability separation dummies representing the time that has elapsed since the exogenous displacement shock occurred. All known displacements will be tracked in the joint hours and wage model following Stevens (1997). The 1990-1993 SIPP panels are combined for this purpose. The SIPP topical modules and core wave files provide the necessary information regarding the reason for job termination.

The models are then estimated using responses about layoff displacement from the demographic survey and the timing of disability onset acquired from integrated SSA benefits data files. In the examination of their own displacements, only those workers who would be eligible to apply for SSDI benefits if a disabling condition were to occur during their current period of employment will be included. It is assumed that with this set of individual workers, anyone who truly becomes disabled would indeed be induced to apply for benefits and a record of this action would appear in the administrative data. In making this restriction for the comparison of survey health indicators with those found in administrative files, I limit the sample to those who are highly attached to the work force which is consistent with previous research that examines the lingering impacts of separations.

In exploring spousal reactions to a job dislocation within a couple, a similar methodology is followed. However, because it is necessary to consider the marginal workers who may have entered the labor force, in utilizing health measures from the administrative data sources, the sample is restricted to those workers with spouses who are eligible to apply for SSDI benefits. This permits a comparison of the administrative and survey measures of health when the spouse is disabled. Thus, the subset of workers included in the estimation are not themselves highly attached, but their spouses are.

5   Results

5.1   Own Job Displacements

The joint model specification is evaluated with two samples, the first of which is the group of all workers in the stacked 1990-1993 SIPP panels. This collection of individuals is referred to as the unrestricted sample. The second is the set of workers who have both a verified Social Security Number assigned to their SIPP identification number and who are deemed eligible to apply for Social Security Disability Insurance should

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[22] A casual perusal of the F831 reveals that it is frequently the case that applications are approved that were filed in a year that differs from the year of the award.

a debilitating condition occur in the given month. These people are more highly attached to the labor force and thus comprise the restricted sample.[23] Within this limited sample, both demographic and administrative health measures are utilized to determine whether the reason for leaving a position is related to an exogenous health shock. Layoff information is derived solely from the SIPP.

Summary statistics concerning worker and job characteristics are presented in Table 1 for the two samples. The unrestricted subset consists of 34,906 individuals and 62,507 employee-employer matches while 28,164 people and 50,833 jobs comprise the restricted survey sample. The two groups do not differ greatly in their population means. The highly attached work force has a slightly larger number of individuals who have attended some college courses, marginally fewer children, and 1% fewer people have health insurance coverage under another's plan. Additionally, the hourly wage rate is $0.20 greater than that of the average worker in the full sample.

The timing of exogenous shocks is outlined in Table 2 for layoff, SIPP health, and SSA health shocks. Layoffs are the most common type of displacing event. Dislocations derived from survey-based measures of health are the next most frequent in the data. These measures are summarized only for those who are employed. Characteristic of these statistics is a dampening in the percentage of displacements over the years.

Trends in the means of the hourly wage rate and weekly hours in Table 3 are similar in the restricted and unrestricted samples, but the magnitudes of these values are moderately larger in the subset of more highly attached workers. These statistics reveal the enduring implications of job displacements that will appear again later in analyzing the joint model specification. Highly attached employees who have never experienced a displacement approximately earn a wage rate of $15.50 and work just under 39 hours each week. After reemployment following a firm shock, the average wage rate is $13.72 and weekly hours rise. Those with ailment-related job separations are economically harder hit by displacements: new positions within the first twelve months of their recovery are on average found at a the lower rate of around $10.50. After one year, these wages fall even further. This may be evidence that those whose job searches were more lengthy eventually chose to accept low offers.[24] Hours of those with impairments plummet over the years, eventually dropping to 30.56 by the end of the fifth year since the initial date of exit according to SSA health measures.

Table 4 presents Pearson correlation coefficients for the health shocks based upon survey measures of disability and those derived from medial records obtained from the Social Security Administration. The correlation coefficients of these measures range from 33.6% to 43.7%. While these are lower than one might expect, they are consistent with the findings of Baker, Stabile and Deri (2004). In matching the 1994 Canadian National Population Health Survey to the Ontario Health Insurance Plan data in order to validate the self-reported health measures in the survey data with diagnosis and treatment information from the public health care system, the authors found that the correlation coefficients for only three of the thirteen conditions studied was above 50%. Even for serious medical conditions such as cancer, strokes, and back problems, correlations were 46.9%, 47.9%, and 23.1%, respectively.

Understandably, not all people who experience the sudden onset of work-limiting disabilities who are concurrently eligible for SSDI would choose to apply for benefits unless they expected their condition to result in either death or a spell of at least twelve months out of the work force. While the survey measures of health are more sensitive to errors of justification and measurement, they are also likely tracking events that while substantial, are not severe enough to impede eventual recovery. Only dire ailments should induce an unhealthy individual to go through the lengthy process of submitting an application for review by the Disability Determinations Services, as this action requires at least a five month commitment to labor force inactivity which is a considerable risk for those who believe they are unlikely to be awarded DI benefits.

Another reason why the SIPP- and SSA-based measures are not more highly correlated could be related to the issue of timing. People may have chronic conditions that they would readily report in the survey, but

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[23] Excluded from both sets of workers are household workers, armed forces personnel, unemployed military personnel, those with job spans lasting less than one day, those with allocated responses, those younger than 21 or older than 60, those with weekly hours less than or equal to zero or a real hourly wage of less than $0.10, and those who are not original sample members.

[24] Stevens (1997) and Kletzer and Fairlie (2003) also find a depression in the wage rate after a few years have passed since an event of dislocation.

only years after a particularly severe health episode might such a report appear in the administrative records. Thoughts of one's future economic situation may only arise after a period of improved and stabilized health. This delay in the original date of disability onset and the date of filing may contribute to the inconsistencies in these measures.

5.1.1 Collapsed Model

Table 5 first presents the estimated coefficients from the overall model after collapsing the yearly separation indicators into a single measure of whether a worker's history includes an exit induced by the firm or the individual.[25] Members of both affected groups have hourly wages and weekly hours that significantly differ from those of their employed counterparts who have not endured job separations. Reemployment subsequent to layoff increases weekly hours 4.1% above the hours of those with continuing employment in the full SIPP sample, whereas high attachment workers spend 3.1% more time on the job. This partially alleviates the economic burden of earning a wage that is diminished by 7.9% and 9.2% for these subsets, respectively. These actions contrast sharply with the behaviors of those who have been forced to separate from an employer because of a disabling condition. For recovering workers in the restricted sample, weekly hours are reduced 6.8% and the hourly wage rate is 21.3% less than that of the base population.

Worker behaviors subsequent to these exogenous occurrences are succinctly summarized by event type as follows: those with firm-induced job terminations in their past consistently work more hours at a lower hourly wage rate once with a new employer, whereas those who parted from their job because of reasons relating to personal disability work fewer hours while earning a wage rate that is by comparison even more negatively impacted. The full and highly attached samples of workers provide similar estimates of these shocks, and these patterns are reflected when using both the SIPP measures of a limiting health condition and those derived from SSA data sources.

5.1.2 Expanded Model

I next introduce the full model described by equations (1) and (2), extending the model to include detailed information regarding the number of years that have elapsed since the date of the shock in order to more precisely compare the periods of adjustment following these separations. Table 7 presents the estimated coefficients from Table 6 as percent effects for ease of interpretation.[26] Broad patterns emerge that are consistent with the results of the collapsed model in Table 5.

Those with layoffs in their past demonstrate increased hours at work regardless of the number of years that have passed since the date of the event.[27] Individuals in the unrestricted sample with a job history that includes a layoff spend approximately 2% more hours at work in the first two years back. This level of productivity improves to 5.6% more hours on the job after five years have passed since the displacement occurred. Those in the restricted sample who experienced this same event steadily increase their hours at work by around 0.5 percentage points over each of the next several years. In doing so, in five years they shift from working 1.2% to 3.9% more hours than those with continuous employment.

It may be the case that those who previously were laid off are attempting to exhibit a greater degree of productivity to their new employers in order to avoid being the marginal workers chosen by the firm should a reduction of its work force become necessary. However, upon reviewing the coefficient estimates of the wage equation it becomes apparent that this is not the sole possible explanation for this behavior. These employees may also be adjusting the length of their work weeks because their hourly wage rates in the first year since the displacement are only 92% of their values as compared to before they were laid off. As time progresses beyond the actual year of separation, the wage rates for this category of workers improve by

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[25]This is equivalent to allowing the summation index, m, to only take on the value 1 in equations (1) and (2).

[26]The percent effect on the hourly wage and weekly hours of a worker is calculated by exponentiating the estimated coefficient of interest and subtracting one from this value: $e^{\delta} - 1$.

[27]Layoff estimates do not substantially differ when using SIPP and SSA variables in the restricted sample because these indicators remain constant across models. For this reason, only the results of the restricted SIPP sample will be compared to those from the full sample.

around 1 to 2 percentage points each year so that those with the oldest shocks are also those who are the least negatively impacted.

The unrestricted and restricted samples exhibit the same post-layoff trends, but those in the high at-tachment sample have hourly wage rates that are roughly 1 percentage point less each year than those in the unrestricted sample. One explanation for this is that workers who comprise the sample eligible to apply for SSDI may have a stronger desire to form more immediate job attachments when a job relationship is severed. Instead of considering as many competing wage offers as those in the unrestricted sample, these individuals may have chosen to accept a lower hourly wage rate rather than remain among the unemployed. On the other hand, it may be that new employment has been found in a new occupation or industry, and the loss of specific human capital is revealed through the dampened wages. The degree of impact observed in the coefficients of Table 6 is less severe than Steven's (1997) findings, in particular beyond the first year, and my estimates reveal a more rapid decline in the persistence of the shocks.

Those who have reestablished themselves in the workplace after a spell of failing health similarly expe-rience lingering detrimental effects from their time out of the work force. However, in addition to having diminished wage rates, the fact that the shock was internal also reduces the hours of these individuals. Within the first year of the exogenous health event for the unrestricted sample, weekly hours fall by 7.3%. This impact is -5.6% when utilizing survey measures in the limited sample in that same time frame. The impact on hours only appears to truly begin to diminish in the fourth year since the date of the health set-back for those in the subset of highly attached workers, while the complete sample demonstrates monotone improvements throughout. After more than five years since the onset of the impairment, the full sample indicates that those with latent health problems begin to compensate for their losses by working 2.4% more than the control population of workers. The limited sample does not recover as readily, but after five years have passed, this group appears to be indistinguishable from those with continuous employment in terms of the amount of time spent at work.

Monetary losses that are associated with reentry into the work force subsequent to a disabling incident are substantial. A worker in the unrestricted sample who is back at work within one year of an illness has a wage rate that is 79.2% of its former value. After an additional year of recovery, this improves to 86.7%, and after five years more have passed, wages are only 4.7% below the rates of those who have not experienced such dislocations. For the restricted group, the most severe impact to wages is similarly found for those back at work within the first year. These individuals earn 80.4% of their predisplacement hourly wages when using the SIPP health measures. After a second year passes, the losses associated with these rates have been nearly halved to -11.7%. Thereafter, the survey health indicators show that the wage rate for the restricted group remains around 90%. After five years, wages are 93.6% of their values as compared to before they experienced a health shock.

For each specification, effects are more severe for those with a past health ailment than they are for those who have been laid off. In contrast with those who have returned to work following a layoff, the effects on those who have previously endured an illness remain substantial even after five years or more have passed. Being highly attached to the work force seems to be to the benefit of those with impairments within four years of the date of the onset of disability.

Of the health measures used, SSA indicators reveal the most negative consequences for those with a job separation induced by disability. Estimates reveal less presence at work than those derived from survey measures: by comparison within the first three years, weekly hours are 2 to 3 percentage points lower for rejected SSDI applicants. Thereafter, weekly hours dramatically plummet to -9.4% as compared to -4.1% using SIPP indicators. The wage rates of reemployed SSDI applicants are consistently less than those who claim to have work limiting conditions. Three years after the onset of a disability, their wage losses fall to 83.7% of their base value before improving to 87.1% in the following year. After five years, wages remain depressed by 8.3%.

The group of highly attached workers have wage rates that are differentially impacted as compared to the full sample within the first few years after the displacing event depending on the impetus for the exit: being fully and disability insured lessens the negative effects of poor health, whereas it seemingly worsens those of layoff. Using administrative measures, penalties from ill health are found to be significant and lasting,

with greatly depressed wage rates and weekly hours. These behaviors, combined as they are, greatly amplify earnings losses for this class of workers. It is interesting to note that the survey variables do appear to follow the same trends but do not capture the severity of the traumas because the results incorporate those with more mild impairments.

5.1.3 Simulated Earnings Losses

To quantify the impact of these setbacks, I consider the plight of a newly reemployed worker who experienced her first employment shock in the previous year and who does not suffer from any additional separations in the next six years. Using the restricted sample as a base for this comparison, I know from the summary statistics in Table 1 that the average employed individual in the restricted sample earned a wage rate of $15.26 and worked 38.89 weekly hours, resulting in a yearly salary of $30,860.[28] For each type of shock, Table 8 simulates the estimated yearly salaries of workers who experience a layoff or ill health event that forces them to part from their jobs. Along with these values are the calculated differences from the average earnings of an otherwise identical worker who has not endured any exogenous shocks.[29]

In the case of a layoff, the simulated worker earns $2,204 less in the year immediately following the displacing event, but is able to regain some of her losses through improvements to her hourly wage and weekly hours over the next several years. By the completion of her sixth year back, her yearly salary is $709 more than it would have been without the separation. Cumulatively over this period, she is $4,819 less wealthy.

If this were a health setback instead, the worker would find herself in an even more disadvantaged economic situation. Either health measure indicates that the disparity in annual earnings is still larger in magnitude for those who experienced poor health six years ago than after only just the first year following a layoff. Furthermore, the total decrease in earnings over all six years for a layoff is still less than just the first-year losses immediately after recovery from an illness.

Using SIPP and SSA health measures, $7,436 and $8,438 are the respective losses in the initial year which dwindle to $1,971 and $2,554 after completion of the sixth year. The lasting impact of disabling conditions is significant and severe, with salaries remaining just above $4,000 in the third through fifth years following reentry into the workplace using SIPP-based measures and earnings losses decreasing to $6,233 in the third year but spiking to $8,233 in the fifth when utilizing SSA measures. In all, disability that induces an employee-employer separation results in damages of $26,559 or $38,434 to a worker's cumulative income following six years of uninterrupted work depending on whether demographic or administrative records are the basis for the information regarding the health shock.

5.1.4 Demographic Characteristics

Broad categories of education, gender, and race seemingly have important roles in the plight of the displaced as they reenter the work force. A paper by Stevens (1997) remarks upon the significance of the role of education in wage reductions following layoff. She finds that those with graduate schooling are better able to manage the associated losses than are people who have enrolled in some post-secondary education. Kletzer and Fairlie (2003) have independently explored the wage rates and hours of men and women after this type of event, confirming that adjustment behaviors also vary by gender. Analyzing a population of workers dislocated from high-technology positions, a case study by Ong (1991) uncovers that the post-displacement earnings of blacks and Hispanics are more severely hit by abrupt job terminations than are the salaries of whites. I reexamine these findings and extend them below to include the analogous displacing health shocks.

Education Considering the lasting impacts of employee-employer separation by two education groups enables an examination of the manner in which the level of schooling affects future labor outcomes. Table 9 presents the estimated coefficients, while Table 10 presents the percent effects from the joint model that

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[28] Annual salaries are based upon 52 weeks of employment.

[29] Actual earnings losses within the first year following a displacing event are conservative in Table 8 because they do not allow for gaps between jobs during the transitioning period.

interacts the occurrences of job separation with two education groups: those with a high school degree or less and those with more than a high school degree. This partition enables an exploration of the theory that the recovery periods following job separations may differ by education.

Those with more than a high school diploma who have been laid off exhibit behaviors that differ from those of their counterparts who are less educated in two noteworthy manners. The first of these is that their hourly wages are harder hit, but only moderately so. This agrees with Stevens (1997), who finds that groups with 13-15 years of schooling have greater monetary losses than those with only a high school diploma who have returned to work following a layoff. The second is that upon reestablishing themselves at a new place of employment, those with more schooling immediately begin exerting more observable effort on the job. Employees with more than a high school education who suffered a layoff spend a between 3.3% and 5.3% more weekly hours on the job each year they are back, whereas those with less schooling do not significantly alter their behavior in the first few years following a layoff. Only after four years have passed do less educated workers begin to work 1.8% more hours. After five years, this has risen to 3.5%, which is comparable to the level of exertion of the more highly educated.

During the first couple of years back at work, those with disabling conditions and advanced schooling begin to make up for some of their economic losses by improving their weekly hours at work. They are able to do so more rapidly than those with less education. During the third year after the episode of poor health that led to the termination of their job, workers with at most a secondary education in the restricted SIPP-based sample work 92.7% of their predisplacement weekly hours, while SSA measures indicate this is 85.8%. For the better educated, the estimated coefficients do not significantly differ from zero which implies that these workers are have not adjusted their hours from what they would have been absent an illness.

Contrasting with the observed patterns of behavior manifested in the weekly hours of reemployed individuals, the less educated are the ones who are better able to mitigate wage losses over time. For neither education group is this a steady improvement. In fact, after four years the wage rates are again hovering around their values from one year after the date of the displacement: 91.8% and 85.2% for those with less and more education, respectively, according to SIPP indicators. The model that utilizes the administrative measures of impairment-related separations provides the grimmest interpretation of how these workers fare following an exogenous shock, as no indications of relief are apparent. As an example of this, three years after the date of dislocation wage losses for those with at least a secondary school education are 14.9% as compared to the rates of those with continuous employment. One year later, monetary losses have fallen to 24.6% for this category of workers. The survey data depict more mild transitions over this period, with the less educated experiencing reductions in their wage rates of 1.6 percentage points in that time span.

The level of schooling plays an important role in determining the severity of the lasting effects of job dislocations. Most notably, survey measures show that those with more education who return to work following an unanticipated exit almost consistently earn a lower wage rate regardless of whether the source of the forced separation was a layoff or disability.[30] Those with at most a high school degree, however, do not spend as many hours at work as do those who enrolled in advanced courses. For the health separations, this behavior may be associated with the fact that those with more schooling may be less inclined to have jobs that are physically taxing. A health event that forces a worker with a higher level of aptitude to part with her employer may be a larger disturbance, and the more greatly reduced wage rates may be indicative of these workers establishing new job matches that are less demanding. Additionally, better educated workers may generally have more specific human capital that is less transferable across positions.

The disparity in wages by education is most apparent within the collection of workers who have experienced an episode of ill health, particularly when referencing results that incorporate SIPP measures. As time passes since the date of the health shock, those with a high school diploma or less exhibit more marked signs of recovery from these monetary losses, particularly when referencing the results of SIPP indicators. This gap is less apparent in the restricted SSA-based sample, which may be indicative of more equivalent knowledge of impairments across these groups (Currie and Madrian 1999).

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[30]In the year of the displacement, those with less education have wages that are 78.2% of their potential rate, whereas those the more highly educated earn 79.9% of this value. This pattern is again reflected in the fourth year since the job separation.

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Gender Following a layoff, Tables 11-12 indicate that employed females work more each week than males with a similar history. Men do not significantly alter their hours until a few years have passed since the layoff. The amount of increased exertion for men is 3.5% five years or more after the shock, which is consistent with Kletzer and Fairlie (2003). The percent of increased weekly hours for women when referencing the results for the complete sample increases from 4% to 7.9% above the hours nondisplaced employees by the end of the third year before tapering off to 5.9% four years following a layoff.

It is curious that women spend more time than do their male counterparts at work subsequent to a layoff given that post-layoff wage rates for men and women are not dissimilarly impacted. In nearly each of the first three years, females appear to earn only marginally less than do male workers with this type of job interruption. Within a year of the layoff event, men have wage rates that are 92.2% of predisplacement rates, while women earn 91.2%. Three years after they were laid off, women have regained some ground as compared to men, as both have wage rates that are only 3.9% less. My findings for men agree with Kletzer and Fairlie (2003) until around the third year of displacement when my SIPP sample exhibits greater recovery.

In considering forced health exits, it seems that women are not as affected by this type of event as are their male counterparts. Weekly hours in the first four years after an incidence of dislocation induced by ill health steadily improve from 93% to 98.2% for women. SIPP measures of health ailments show that weekly hours decrease from 93.2% to 92.7% over this same period for men, while women experience improvements from 95.4% to hours that do not significantly differ from those of workers who have not been forced to part with a job because of illness. The SSA measures of disability provide the least optimistic interpretation of recovery: men spend 9.3% fewer hours at work in the initial year back, which falls another 3% after four years. For women with these measures, 5% to 9% fewer hours are worked in the first two years after a health shock. Thereafter, women appear to have recovered and are even more present at work than the nondisplaced population, working 3% more hours after five years have passed according to SIPP survey measures.

Overall, reductions to hourly wage rates are the most substantial when a match was terminated because of reasons relating to ill health. Males are acutely burdened within their first year back, with wage rates that are 77.8% of their previous values in the SIPP-based model. Women experience a 17% decrease in their wages the year of the onset of a disabling condition, but this improves to a wage loss of 9.6% after an additional year while men experience earnings that are 85.8% of their predisplacement wage rate in the same period.

The restricted sample based upon the SIPP measures reflects a highly identical pattern for men, while the recovery for women in the first few years after the date of the event is greater, rising to 90.4% of the wage rate after one year. The measures from administrative benefits records demonstrate a more troubling period of recovery for both men and women. The impact on the hourly wage of men fluctuates, ranging from -13.2% of the predisplacement value the third year after the event to around -27% in the surrounding years. The rate for women also exhibits signs of a resurgence in the fourth year, where it remains 19.1% below what it would have otherwise been. Convincing evidence of the severity of the lasting effects of a health shock upon the hourly wage rates exists for both genders.

Race In the case of weekly hours of those who have suffered a layoff, Tables 13-14 make it clear that a distinction between races exists, as nonwhites do not as significantly react to adjust their time spent at work. In the initial year back at work after a layoff, whites work 1.5% more hours each week than do the nondisplaced. Five years later, this percentage for whites has gradually risen to 4.6%. However, it is only in the third year that nonwhites have weekly hours that noticeably differ their pre-shock value. During that period, they spend 3.8% more time at work than do those with continuous employment.

A longer work week may be one way that whites who were laid off compensate for having accepted new positions at lower hourly wage rates. Whites, who consistently work more following a layoff, experience wage rate losses that are similar to nonwhites in the first four years after the event. They earn 91.6% of their predisplacement wage rates within the first year after a layoff. Nonwhites are affected only slightly less over same time period, having a wage rate that is 92.9%. During the four years subsequent to a forced exist of this type, nonwhites and whites consistently reduce the negative impacts from having been once laid off as their wage rates improve 1-3 percentage points each year. Ong's (1991) determination that blacks, upon

being rehired, have yearly earnings that are 96.9% those of whites who have found new jobs is not ruled out by these findings. This is because the cumulative impact on weekly wages for whites and nonwhites ranges from no noticeable difference in the year of the event to between 1.7% to 3.9% during the next two years.

For those with employer-employee separations induced by a disabling condition, nonwhites suffer more in terms of the level of exertion on the job within the first year back than do whites. Whites work 5.3% less and nonwhites work 9.1% fewer hours when using measures of health shocks derived from the demographic survey data. When administrative measures are used in their place, these percentages drop further to -6.2% and -17.4% for whites and nonwhites. The amount of time spent at a job varies with the number of years since the dislocation. Nonwhites are able to begin to work additional hours five years or more since the event, improving their hours by 8.2% when using SIPP health measures and a surprising 37.5% above the number of hours for a worker without a health exit when SSA measures are utilized. Whites exhibit recovery their weekly hours at work over the years, but these are not as impressive as the improvements of nonwhites.

Reductions to hourly wage rates are substantial when a match was terminated because of reasons relating to ill health. Whites are more acutely burdened than nonwhites within their first year back except in the sample using administrative measures of disability. Wages are found to be 80.1% of their previous values for whites when referencing the restricted SIPP shock indicators. By comparison, nonwhite wages are around 82.8% of what they would otherwise have been. Using measures of disability from the Social Security Administration, wage rates are 79.1% and 76.3% for whites and nonwhites within one year of the onset of a disabling condition.

Both races begin to exhibit improvements to their wage rates after the first year since poor health caused a forced exit. The lingering effects of a displacing health condition upon the hourly wage rate of whites is apparent in Table 14, as five years after the event earnings are around 92.4% in the subset based on demographic indicators of health limitations and 90.1% for this sample based upon the administrative evidence of poor health. The lasting impacts for nonwhites is not significant five years or more after the shock.

This analysis of racial differences in reactions to displacement illustrate key disparities in the weekly hours of those with past layoffs. Results also indicate that while whites and nonwhites fare comparably within the year of the job separation, thereafter nonwhites appear to recoup losses at a slower rate. A decomposition in the racial gap in the post-displacement outcomes following Fairlie and Kletzer (1998) would be beneficial in further parsing the reasons behind these dissimilarities.

5.2   Spousal Job Displacements

Only workers who were married for the duration of the panel and whose spouses were also participants in the Survey of Income and Program Participation are included in the proportional hazard and joint estimation of the wage rate and weekly hours.[31] Each model is examined using this full sample of paired couples and a restricted sample. This examination focuses on the lingering impacts of exogenous separations of the spouse rather than of the worker herself, and as such the limited sample becomes one defined by the eligibility of the spouse to apply for disability insurance benefits. This makes it possible to interpret results for spouses who might not ordinarily have been in the labor force.

I begin by reviewing summary statistics for the married workers. Table 15 reveals that the unrestricted sample is composed of 7,671 individuals covering 12,398 jobs; the restricted spouse sample has 6,294 individuals with 10,089 jobs. The full sample is 50.1% male, but restricting based on spousal eligibility for SSDI increases the number of women in the sample to 53.3%. Married workers are more educated than the overall population in Table 1, and those with spouses who are highly attached to the work force on average have spent more time in school. Job characteristics do not differ greatly, with the mean hourly wage $0.24 less in the restricted spouse sample.

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[31]Additional exclusions include household workers, armed forces personnel, unemployed military personnel, those with job spans lasting less than one day, those with allocated responses, those younger than 21 or older than 60, those with spouses who are younger than 21 or older than 60, those with weekly hours less than or equal to zero or a real hourly wage of less than $0.10, and those who are not original sample members.

The timing of the exogenous shocks are presented in Table 16 by sample, type of event, and affected spouse. More husbands have wives who have applied for SSDI benefits within the past two years, but women have nearly twice as many partners with administrative records of ailments that date from more than two years ago. Survey measures of impairments across genders are fairly similar, while layoffs appear to impact men more frequently.

Tables 17a and 17b are of the Pearson correlation coefficients for the survey and administrative health shock indicators of wives and husbands of the employed. Coefficients range between 0.32 and 0.45 along the diagonal for men with displaced wives and between 0.38 and 0.44 for women with spouses who have exited. The correlations in Table 17b are greater than those presented in Table 4 for the restricted sample of all workers, and indicate the higher reliability of the survey measures.

5.2.1 Proportional Hazard

Hazard ratios of the effect of spousal shocks on the job spell duration of married workers are presented in Table 18.[32] These ratios represent the probability of a married worker whose spouse experienced an exogenous health or layoff shock 0-1 years ago, 1-2 years ago, and 2 or more years ago leaving a job relative to this probability for an otherwise identical married worker with a spouse who has never experienced a shock. Employees with spouses without such events in their work history comprise the baseline for this comparison. A hazard ratio greater than one means that the event has a positive influence on the hazard of a job spell concluding, whereas a ratio less than one means that the event has a negative effect on the termination of the job.

Married male workers do not appear to be greatly affected by the layoffs of their wives, while women with husbands who have suffered from a layoff only experience a 13% decrease in the hazard of their job ending two years after the event. Disabling health shocks, however, have more interesting repercussions. Women with husbands who experience disabling health shocks have a 40.7% increase in the hazard of their current job ending when referencing the results from the unrestricted sample. Two or more years after the date of a husband's job exit induced by ill health, the hazard of the wife's job ending is 76% that of the baseline worker's hazard, which is a 24% reduction in the hazard. These findings do not greatly differ for the restricted sample with SIPP health measures. However, the restricted subset that utilizes SSA-based measures demonstrates a 46.5% increase in the hazard of a job ending within the first year of a husband's health shock. This is consistent with a withdrawal from the labor force. Coile (2004) discovered that women decrease their labor supply subsequent to the unexpected and severe onset of a crippling ailment of their husbands, which supports this conclusion.

The unrestricted sample shows that married men with wives who experienced an unexpected disabling condition in the previous year have job hazards that are 47.8% more than those of the baseline married employee. The restricted spouse sample that utilizes the SIPP measures of health indicates that this hazard is 32.1% above that of the baseline worker, which doubles in the next year. It is apparent that spouses who are married to individuals who experience a health exit are also transitioning out of their jobs. This may be to unemployment so that they can assist in nursing duties, or they may be accepting more flexible positions. After two years or more have passed since either type of displacing event, wives are more attached to their jobs. Men in the restricted sample appear to be unaffected by the layoffs of their wives according to this duration analysis. However, they are more inclined to part with their employers in each of the first two years following an exogenous health shock to their wives.

This confirms Charles' (1999) results that husbands are less likely to be employed when their spouses are disabled. He explains that women are more inclined to work for pay in an identical situation. Because Charles' estimations do not attempt to parse the adjustment effects of illness, his claims support the conclusions I have made regarding the behaviors of wives two years or more after their husbands' health-related job separations. The observed reductions in the hazard after a few years since either the onset of the work limiting condition or the layoff of the husband also suggest that health insurance provided by the female's employer has by this time become particularly valuable. This is consistent with Blau (1998), who found that the poor health of

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[32]Hazard ratios are the exponentiation of the coefficients from the hazard model.

an unemployed husband of a working wife reduces her exit rate by 16% compared to wives of unemployed men who are in good health. Families with a male member who has been forced out of the work force may be shifting coverage to the female partner in the couple after two years.

5.2.2 Joint Model

The joint model of hourly wages and weekly hours of married individuals contributes to knowledge of how a couple is affected as a unit by dislocations. The ideas presented by the estimation of the proportional hazard model in Table 18 regarding spell durations of employer-employee matches relate to the concepts revealed by the estimation of this model outlined in Table 21.

Men and women with spouses who have become unemployed because of a layoff behave quite differently from each other. The hours of working husbands are not significantly altered by firm-side exits of their wives at any time during the ensuing years while women work more. Working husbands of laid off wives have wages that are 4.8% above the rates of employees without displaced partners in the second year after separation in the restricted sample, whereas wives in this subset have rates that are diminished by 2.3%.

The reductions in the hourly wage rates of the spouse of a disabled individual in Table 24 appear to be related to either job changes or to temporary new positions[33] as observed in Table 18. For husbands whose wives experienced an episode of ill health within the previous year, wages are around 92% of their value and hours are reduced by 5.9% when utilizing SIPP measures in the restricted sample. Health status derived from benefits records suggest that such men work 90.2% of their weekly hours prior to their wives' displacements. Restricted SIPP measures show that after the initial year, wives' hours at work move in the opposite direction of men with spouses in a symmetric situation: instead of improving, their weekly hours have fallen by another 5 percentage points. Captured within these actions is the apparent rationing of the productive hours of wives so that a portion of their time can be spent assisting in the nursing care of their ill spouses.

Administrative measures present evidence of the strength of spousal reactions to displacing health shocks: wages of women fall to 82% of the rates of workers without partners dislocated due to disability and worsen within a year. The reactions of the wives in a couple plagued by ill health are more exaggerated than those of their disabled partners, as seen by comparing Tables 20 and 23. The wives have weekly hours that drop to 33.2% below the hours of workers of spouses who have consistently been well after two years. These are the most dramatic impacts seen and are indicative of the deteriorating health and advanced medical complications of the spouses of these employed workers.

The SIPP-based estimations have men reacting more strongly initially to their wives' health exits, as evidenced by the more dramatic decline of their wage rates and weekly hours within the first year of the episode. However, as time passes, these male workers begin to return to their previous levels of exertion and earnings, whereas wives with husbands who have experienced disabling shocks begin to take more time away from their jobs to presumably care for their ailing spouses. The model that relies upon administrative measures of well-being portrays a different story, as women are seen to be more reactive to the conditions that displaced their husbands even in the initial year.

6   Conclusion

This study has addressed the manner in which the impacts of displacements originating from layoff or disability continue to affect employees in the years subsequent to their reemployment. Convincing evidence of the lasting shifts in the wage rates and hours of those shocked out of employment has been presented in this paper, further contributing to the existing research on worker dislocations.

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[33]A job transition may occur after the spouse realizes that she needs to adapt her work schedule to accomodate the needs of her ailing partner. For a person who was not previously in the work force, the onset of her spouse's disabling condition may cause her to seek out new employment for a brief duration to temper the short-run impact of her mate's sudden loss of income until he recovers and is able to return to work. Either scenario can be used to explain the results from the hazard model.

Relative to the full population of employed individuals, high attachment workers generally have more moderate shifts in their economic outcomes in the years following exogenous exits. While both types of negative shocks place workers on an initially lower wage trajectory, the consequences dissipate over the adjustment period. Scars from displacement have the most lasting impact on the disabled, plaguing their future work histories to a greater extent. Both the wages and hours of this population are negatively impacted following an unanticipated exit from the work force. Those who return to work after experiencing a layoff spend an increased amount of time at their jobs and are able to recover much of their initial earnings losses with each successive year that passes.

Curiously, those located at the bottom of the educational hierarchy are not the ones whose wages suffer most from employment shocks. The better educated are in fact worse off monetarily following displacing events as compared to those with only a high school diploma regardless of the source of the exit. The disparity by education is most pronounced in the years after an episode of ill health: as compared to employees with an increased taste for learning, those with less schooling work fewer hours each year while earning wage rates that are larger. These differences may be caused by the severity of the impairments that induce job exits for those with more than a high school diploma along with lost specific human capital.

In the gender analysis, I find that men have persistent depressed wage rates, whereas women initially experience more substantial monetary losses but are able to recover by the end of the third year after a layoff. The genders behave uniquely in terms of the time they spend at work after this type of dislocation: women immediately demonstrate large improvements in weekly hours, whereas men only begin to work more than those with continuous employment in the third year after the exit. The magnitude of the detrimental impact of a health shock is most extremely manifested for males in both economic measures.

Estimates from the specification analyzing the role of race make it difficult to draw concrete conclusions about the comparative behaviors of whites and nonwhites. This is because of the variance in the degree of the lingering impacts of displacements over time. Following a layoff, whites consistently spend slightly more time at work, whereas it is generally true that nonwhites do not have weekly hours that significantly differ from those with continuous employment. An event of poor health has greater and more persistent negative impacts for whites in both their wages and supply of labor.

Uncovered by the spousal analyses is an awareness that those with partners who exit their positions due to an unanticipated shock are unambiguously affected by these events. Women with husbands who have been laid off become more attached to their positions as compared to the baseline married employee after at least two years. Health shocks induce working spouses to also transition out of employment in the year of the displacement. For men, this behavior continues into the second year, while wives in the next few years are the inclined to remain with their employer. Shifting health insurance coverage to the unaffected spouse may be the motivation for some of these outcomes. Layoffs of husbands have a positive effect on women's weekly hours, whereas men do not alter their hours when their wives have been displaced. However, in the case of a health shock, men and women similarly become less present at work by decreasing their hours relative to workers without spouses who have experienced an impairment. The response of females to the illnesses of their husbands is more extreme as manifested in their hours at work than is their behavior following their own personal job separations.

Results found using measures of limiting health conditions in survey data sets mirror those found using administrative indicators of disability within a margin of error. The accuracy of the data routinely collected in household surveys do appear to give reasonable results as defined by the signs and orders of magnitude of the impacts as time progresses since the date of the event. The trends exhibited do not appear to substantially differ from benefits data, although it is clear that administrative sources capture more severe traumas. The benefits records provide informative clues about the shortcomings of survey measures of work-limiting impairments. They cannot discriminate between transient and chronic conditions that continuously plague a worker the same way that medical records can.

This study suggests the need for additional investigations into the struggles of workers who become reemployed after recovering from a serious illness. Only by continuing to extend the techniques established by researchers of firm-induced displacements to include examinations of those who separated from their jobs because of medical disability will sufficient knowledge of their plight be uncovered. It will be partic-

ularly important to capture the role that transitioning to positions in different industries and occupations plays in mitigating the impacts of these dislocations in future work. Furthermore, it will be revealing to explore crossovers between these populations, as the propensity of laid off workers with minor ailments to apply for Social Security Disability Insurance in lieu of immediately searching for new job matches remains unaddressed.

References

[1] Abowd, John M., Francis Kramarz and David Margolis (1999). High Wage Workers and High Wage Firms. *Econometrica 67* (2), 251-333.

[2] Baker, Michael, Mark Stabile, and Catherine Deri (2004). What Do Self-Reported, Objective, Measures of Health Measure? *The Journal of Human Resources 39* (4), 1067-1093.

[3] Bartel, Ann and Paul Taubman (1979). Health and Labor Market Success: The Role of Various Diseases. *The Review of Economics and Statistics 61* (1), 1-8.

[4] Benitez-Silva, Hugo, Moshe Buchinsky, and John Rust (2004). How Large are the Errors in the Social Security Disability Award Process? NBER Working Paper No. 10219.

[5] Blau, David M. (1998). Labor Force Dynamics of Older Married Couples. *The Journal of Labor Economics 9* (3), 595-629.

[6] Bradley, Cathy J., Heather Bednarek, and David Neumark (2001). Breast Cancer Survival, Work, and Earnings. NBER Working Paper No. 8134.

[7] Butler, J. S., Richard V. Burkhauser, Jean M. Mitchell, and Theodore P. Pincus (1987). Measurement Error in Self-Reported Health Variables. *The Review of Economics and Statistics 69* (4), 644-650.

[8] Chirikos, Thomas and Gilbert Nestel (1985). Further Evidence on the Economic Effects of Poor Health. *The Review of Economics and Statistics 67* (1), 61-69.

[9] Charles, Kerwin Kofi (1999). Sickness in the Family: Health Shocks and Spousal Labor Supply. Unpublished manuscript, University of Michigan.

[10] Coile, Courtney C. (2004). Health Shocks and Couples' Labor Supply Decisions. NBER Working Paper No. 10810.

[11] Currie, Janet and Brigitte C. Madrian (1999). Health, Health Insurance and the Labor Market. In Ashenfelter, Orley and David Card (eds.), *Handbook of Labor Economics*, Volume 3, Chapter 50, pp. 3309-3416. Amsterdam: North Holland.

[12] Daly, Mary C. and John Bound (1995). Worker Adaptation and Employer Accommodation Following the Onset of a Health Impairment. NBER Working Paper No. 5169.

[13] Fairlie, Robert W. and Lori G. Kletzer (1998). Jobs Lost, Jobs Regained: An Analysis of Black/White Differences in Job Displacement in the 1980s. *Industrial Relations 37* (4), 460-475.

[14] Fallick, Bruce C. (1996). A Review of the Recent Empirical Literature on Displaced Workers. *Industrial and Labor Relations Review 50* (1), 5-16.

[15] Haurin, Donald R. (1989). Women's Labor Market Reactions to Family Disruptions. *The Review of Economics and Statistics 71* (1), 54-61.

[16] Haveman, Robert H. and Barbara L. Wolfe (1984). The Decline in Male Labor Force Participation: Comment. *Journal of Political Economy 92* (3), 532-541.

[17] Haveman, Robert, Barbara Wolfe, Brent Kreider, and Mark Stone (1994). Market Work, Wages and Men's Health. *Journal of Health Economics 13* (2), 163-182.

[18] Jacobson, Louis S., Robert J. LaLonde, and David G. Sullivan (1993). Earnings Losses of Displaced Workers. *American Economic Review 83* (4), 685-709.

[19] Kahn, Matthew (1998). Health and Labor Market Performance: The Case of Diabetes. *Journal of Labor Economics 16* (4), 878-899.

[20] Kletzer, Lori G. (1998). Job Displacement. *Journal of Economic Perspectives 12* (1), 115-136.

[21] Kletzer, Lori G. and Robert W. Fairlie (2003). The Long-Term Costs of Job Displacement for Young Adult Workers. *Industrial and Labor Relations Review 56* (4), 682-698.

[22] Lee, Lung-Fei (1982). Health and Wage: A Simultaneous Equation Model with Multiple Discrete Indicators. *International Economic Review 23* (1), 199-221.

[23] Mitchell, Jean M. and J. S. Butler (1986). Arthritis and the Earnings of Men: An Analysis incorporating Selection Bias. *Journal of Health Economics 5* (1), 81-98.

[24] O'Donnell, Owen (1998). The Effect of Disability on Employment Allowing for Work Incapacity. Unpublished manuscript, University of Kent.

[25] Ong, Paul M. (1991). Race and Post-Displacement Earnings among High-Tech Workers. *Industrial Relations 30* (3), 456-468.

[26] Panis, Constantijn, Roald Euller, Cynthia Grant, Melissa Bradley, Christine E. Peterson, Randall Hirscher, and Paul Steinberg (2000). SSA Program Data User's Manual. *Report for the Social Security Administration*, RAND PM-973-SSA.

[27] Parsons, Donald O. (1980). The Decline in Male Labour Force Participation. *The Journal of Political Economy 88* (1), 117-134.

[28] Parsons, Donald O. (1984). Disability Insurance and Male Labor Force Participation: A Response to Haveman and Wolfe. *The Journal of Political Economy 92* (3), 542-549.

[29] Parsons, Donald O. (1977). Health, Family Structure, and Labor Supply. *The American Economic Review 67* (4), 703-712.

[30] Parsons, Donald O. (1982). The Male Labour Force Participation Decision: Health, Reported Health, and Economic Incentives. *Economica 49* (193), 81-91.

[31] Ruhm, Christopher J. (1991). Are Workers Permanently Scarred by Job Displacements? *The American Economic Review 81* (1), 319-324.

[32] Smith, James P. (1999). Healthy Bodies and Thick Wallets: The Dual Relation between Health and Economic Status. *The Journal of Economic Perspectives 13* (2), 145-166.

[33] Stevens, Ann Huff (1997). Persistent Effects of Job Displacement: The Importance of Multiple Job Losses. *Journal of Labor Economics 15* (1), 165-188.

[34] Stephens, Melvin Jr. (2001). Worker Displacement and the Added Worker Effect. NBER Working Paper No. 8260.

[35] Stinson, Martha (2003). Estimating the Relationship between Employer-Provided Health Insurance, Worker Mobility, and Wages. LEHD Technical Paper No. TP-2002-23.

[36] Social Security Administration (2003). *Annual Statistical Supplement to the Social Security Bulletin*, SSA Publication No. 13-11700.

[37] Social Security Advisory Board (1998). How SSA's Disability Program Can Be Improved, Report 6.

[38] Thomas, Duncan (2001). Health, Nutrition, and Economic Prosperity: A Microeconomic Perspective. CMH Working Paper No. WG1:7.

Table 1: Worker and Job Summary Statistics

	Unrestricted Sample			Restricted Sample		
	Obs	Mean	Std. Dev.	Obs.	Mean	Std. Dev.
Worker Characteristics:						
White	34,906	0.8539	23.3137	28,164	0.8649	22.6529
Hispanic	34,906	0.0913	19.0098	28,164	0.0834	18.3207
Male	34,906	0.4897	32.9985	28,164	0.5121	33.1207
Education:						
Years	34,906	13.2573	181.1480	28,164	13.3062	177.6184
High School	34,906	0.3316	31.0770	28,164	0.3314	31.1903
Some College	34,906	0.2977	30.1843	28,164	0.3077	30.5834
College Degree	34,906	0.1191	21.3804	28,164	0.1221	21.6936
Graduate Schooling	34,906	0.1205	21.4915	28,164	0.1180	21.3774
Time-Varying Worker Characteristics:						
Married	835,852	0.6164	33.0757	696,782	0.6134	33.2157
Number of Children	835,852	1.0063	80.3016	696,782	0.9728	79.0392
Health Insurance Under Another's Plan	835,852	0.1885	26.6054	696,782	0.1782	26.1021
Job Characteristics:						
Number of Jobs	62,507	1.8189	76.7921	50,833	1.8330	77.6084
Union Member	62,507	0.1600	24.1260	50,833	0.1570	23.9809
Job Type:						
Private, Not-for-Profit, Tax Exempt, or Charitable	62,507	0.1371	22.6373	50,833	0.0574	15.3314
Government	62,507	0.1544	21.8843	50,833	0.1176	21.2379
Industry:						
Agriculture and Forestry/Fisheries	62,507	0.0177	8.6883	50,833	0.0167	8.4515
Mining	62,507	0.0048	4.5363	50,833	0.0053	4.7775
Construction	62,507	0.0663	16.3784	50,833	0.0682	16.6157
Manufacturing	62,507	0.1551	23.8212	50,833	0.1647	24.4479
Trans., Comm., and Public Utilities	62,507	0.0558	15.1011	50,833	0.0565	15.2241
Wholesale Trade	62,507	0.0374	12.4829	50,833	0.0401	12.9305
Retail Trade	62,507	0.1976	26.2052	50,833	0.1946	26.0972
FIRE	62,507	0.0583	15.4230	50,833	0.0609	15.7650
Business and Repair Services	62,507	0.3684	31.7433	50,833	0.3597	31.6372
Public Administration	62,507	0.0362	12.2915	50,833	0.0312	11.4616
Time-Varying Job Characteristics:						
Hourly Wage ($2003)	835,852	15.06	1,363.50	696,782	15.26	1,380.99
Weekly Hours	835,852	38.4000	793.2878	696,782	38.8921	776.0856
Months of Experience	835,852	190.8291	7,355.7900	696,782	190.8158	7,307.7000

Note: The restricted sample is limited to those individuals who have a Social Security Number associated with their SIPP internal identification number and who are eligible to apply for Social Security Disability Insurance. Excluded from both sets of workers are household workers, armed forces personnel, unemployed military personnel, those with job spans lasting less than one day, those with allocated responses, those younger than 21 or older than 60, those with weekly hours equal to zero or hourly wages in constant 2003 dollars of less than $0.10, and those who are not original sample members.

Table 2: Summary of the Timing of Exogenous Shocks

	Unrestricted Sample		Restricted Sample	
	Mean	Std. Dev.	Mean	Std. Dev.
Own Exogenous Layoff Shock:				
0-1 Year Ago	0.0741	17.8172	0.0759	18.0652
1-2 Years Ago	0.0295	11.5011	0.0304	11.7188
2-3 Years Ago	0.0265	10.9277	0.0275	11.1486
3-4 Years Ago	0.0179	9.0210	0.0187	9.2509
4-5 Years Ago	0.0112	7.1657	0.0117	7.3477
5+ Years Ago	0.0376	12.9370	0.0393	13.2593
Own Exogenous SIPP Health Shock:				
0-1 Year Ago	0.0222	10.0207	0.0214	9.8689
1-2 Years Ago	0.0050	4.8144	0.0048	4.7311
2-3 Years Ago	0.0038	4.2031	0.0037	4.1665
3-4 Years Ago	0.0028	3.5978	0.0026	3.5010
4-5 Years Ago	0.0019	2.9837	0.0018	2.8545
5+ Years Ago	0.0063	5.3646	0.0059	5.2340
Own Exogenous SSA Health Shock:				
0-1 Year Ago	-	-	0.0088	6.3859
1-2 Years Ago	-	-	0.0012	2.3155
2-3 Years Ago	-	-	0.0008	1.9047
3-4 Years Ago	-	-	0.0004	1.3935
4-5 Years Ago	-	-	0.0003	1.2489
5+ Years Ago	-	-	0.0015	2.6331

Note: Excluded are household workers, armed forces personnel, unemployed military personnel, those with job spans lasting less than one day, those with allocated responses, those younger than 21 or older than 60, those with weekly hours equal to zero or hourly wages in constant 2003 dollars of less than $0.10, and those who are not original sample members. In the unrestricted sample, 835,852 observations exist for all individuals over all time periods; in the restricted sample, 696,782 observations exist.

Table 3: Means of Hourly Wage and Weekly Hours

	Unrestricted Sample		Restricted Sample	
	Hourly Wage	Weekly Hours	Hourly Wage	Weekly Hours
Own Exogenous Layoff Shock:				
No Shock	$15.48	38.26	$15.68	38.78
0-1 Year Ago	$13.28	38.94	$13.72	39.37
1-2 Years Ago	$11.94	37.98	$12.06	38.24
2-3 Years Ago	$12.33	38.55	$12.40	38.70
3-4 Years Ago	$12.90	38.91	$13.13	39.29
4-5 Years Ago	$12.67	39.75	$13.06	40.27
5+ Years Ago	$14.80	39.70	$15.19	40.22
Own Exogenous SIPP Health Shock:				
No Shock	$15.25	38.48	$15.45	38.96
0-1 Year Ago	$10.46	36.81	$10.72	37.51
1-2 Years Ago	$10.04	36.68	$10.30	37.53
2-3 Years Ago	$9.74	35.48	$9.88	36.65
3-4 Years Ago	$10.11	35.08	$10.47	36.19
4-5 Years Ago	$10.14	34.72	$10.30	35.40
5+ Years Ago	$11.22	36.55	$11.49	37.52
Own Exogenous SSA Health Shock:				
No Shock	-	-	$15.32	38.92
0-1 Year Ago	-	-	$10.45	37.49
1-2 Years Ago	-	-	$9.59	35.98
2-3 Years Ago	-	-	$9.44	35.16
3-4 Years Ago	-	-	$11.00	32.36
4-5 Years Ago	-	-	$8.37	30.56
5+ Years Ago	-	-	$11.50	35.57

Note: Workers with more than one event of the same type were excluded from the calculation of these statistics.

Table 4: Pearson Correlation Coefficients for SIPP- and SSA-based Health Shocks

SSA Health Shock	SIPP Health Shock					
	0-1 Year Ago	1-2 Years Ago	2-3 Years Ago	3-4 Years Ago	4-5 Years Ago	5+ Years Ago
0-1 Year Ago	**0.3626**	0.0450	0.0334	0.0217	0.0072	0.0037
	<.0001	<.0001	<.0001	<.0001	<.0001	0.0020
1-2 Years Ago	0.0540	**0.3362**	0.0213	0.0192	0.0041	0.0064
	<.0001	<.0001	<.0001	<.0001	0.0006	<.0001
2-3 Years Ago	0.0388	0.0210	**0.3668**	0.0133	0.0106	0.0027
	<.0001	<.0001	<.0001	<.0001	<.0001	0.0232
3-4 Years Ago	0.0146	0.0214	0.0124	**0.3972**	-0.0009	-0.0016
	<.0001	<.0001	<.0001	<.0001	0.4745	0.1878
4-5 Years Ago	0.0010	-0.0013	0.0057	-0.0009	**0.4369**	-0.0014
	0.4128	0.2909	<.0001	0.4314	<.0001	0.2379
5+ Years Ago	0.0019	-0.0027	-0.0024	-0.0020	-0.0016	**0.3603**
	0.1207	0.0245	0.0478	0.0967	0.1761	<.0001

Note: Correlation coefficients are presented along with the p-values under the hypothesis that $\rho=0$. The restricted sample of 696,782 observations is used.

Table 5: Joint Estimation of Wage and Hours with Person and Job Heterogeneity- Single Indicator of Shock

| | Unrestricted Sample | | Restricted Sample | | | |
| | SIPP Health Measures | | SIPP Health Measures | | SSA Health Measures | |
	Hourly Wage	Weekly Hours	Hourly Wage	Weekly Hours	Hourly Wage	Weekly Hours
Exogenous Shocks:						
Health Shock in Past	-0.2487 ***	-0.0833 ***	-0.2392 ***	-0.0700 ***	-0.2504 ***	-0.0759 ***
	(0.0100)	(0.0090)	(0.0117)	(0.0105)	(0.0176)	(0.0168)
Layoff Shock in Past	-0.0824 ***	0.0402 ***	-0.0950 ***	0.0313 ***	-0.0970 ***	0.0307 ***
	(0.0062)	(0.0061)	(0.0067)	(0.0065)	(0.0067)	(0.0065)
Stdev. Residuals: σ_ε, σ_η	0.3175	0.1799	0.3140	0.1756	0.3140	0.1756
Stdev. Person Effects: σ_θ, σ_α	0.3156	0.2221	0.3054	0.2021	0.3079	0.2025
Corr. Person Effects: $\rho_{\theta\alpha}$	0.4977		0.4815		0.4840	
Stdev. Job Match Effects: σ_ψ, σ_x	0.3586	0.4146	0.3506	0.4103	0.3507	0.4103
Corr. Job Match Effects: $\rho_{\psi x}$	0.2571		0.2608		0.2606	
Number of Workers	34,906		28,164		28,164	
Number of Jobs	62,507		50,833		50,833	
ln-L	-192,712.58		-131,181.42		-131,306.30	

Note: The restricted sample is limited to those individuals who have a Social Security Number associated with their SIPP internal identification number. Only those eligible to apply for SSDI benefits in the given month were included in this sample. Excluded from both sets of workers are household workers, armed forces personnel, unemployed military personnel, those with job spans lasting less than one day, those with allocated responses, those younger than 21 or older than 60, those with weekly hours less than or equal to zero or a real hourly wage of less than $0.10, and those who are not original sample members. Asymptotic standard errors are in parentheses. Significance: '*'=5%; '**'=1%; '***'=0.1%.

Table 6: Joint Estimation of Wage and Hours with Person and Job Heterogeneity

| | Unrestricted Sample | | Restricted Sample | | | |
| | SIPP Health Measures | | SIPP Health Measures | | SSA Health Measures | |
	Hourly Wage	Weekly Hours	Hourly Wage	Weekly Hours	Hourly Wage	Weekly Hours
Own Exogenous Health Shock:						
0-1 Year Ago	-0.2334 ***	-0.0762 ***	-0.2177 ***	-0.0580 ***	-0.2428 ***	-0.0766 ***
	(0.0080)	(0.0057)	(0.0095)	(0.0066)	(0.0169)	(0.0105)
1-2 Years Ago	-0.1424 ***	-0.0596 ***	-0.1248 ***	-0.0563 ***	-0.1484 ***	-0.0874 ***
	(0.0082)	(0.0052)	(0.0094)	(0.0059)	(0.0166)	(0.0081)
2-3 Years Ago	-0.1208 ***	-0.0481 ***	-0.1022 ***	-0.0292 ***	-0.1784 ***	-0.0472 **
	(0.0086)	(0.0056)	(0.0095)	(0.0066)	(0.0170)	(0.0169)
3-4 Years Ago	-0.1029 ***	-0.0362 ***	-0.0982 ***	-0.0423 ***	-0.1380 ***	-0.0983 ***
	(0.0098)	(0.0056)	(0.0109)	(0.0066)	(0.0199)	(0.0171)
4-5 Years Ago	-0.0866 ***	-0.0025	-0.1183 ***	-0.0278 **	-0.2372 ***	-0.0731 ***
	(0.0123)	(0.0067)	(0.0138)	(0.0086)	(0.0258)	(0.0200)
5+ Years Ago	-0.0478 ***	0.0237 **	-0.0660 ***	-0.0041	-0.0864 *	-0.0432
	(0.0134)	(0.0072)	(0.0160)	(0.0093)	(0.0402)	(0.0229)
Own Exogenous Layoff Shock:						
0-1 Year Ago	-0.0800 ***	0.0170 ***	-0.0861 ***	0.0120 ***	-0.0890 ***	0.0116 ***
	(0.0046)	(0.0030)	(0.0049)	(0.0030)	(0.0049)	(0.0029)
1-2 Years Ago	-0.0708 ***	0.0192 ***	-0.0788 ***	0.0143 ***	-0.0813 ***	0.0139 ***
	(0.0045)	(0.0028)	(0.0047)	(0.0028)	(0.0047)	(0.0028)
2-3 Years Ago	-0.0463 ***	0.0340 ***	-0.0587 ***	0.0260 ***	-0.0609 ***	0.0256 ***
	(0.0047)	(0.0029)	(0.0049)	(0.0028)	(0.0049)	(0.0028)
3-4 Years Ago	-0.0308 ***	0.0387 ***	-0.0404 ***	0.0326 ***	-0.0423 ***	0.0321 ***
	(0.0049)	(0.0029)	(0.0051)	(0.0029)	(0.0051)	(0.0028)
4-5 Years Ago	-0.0339 ***	0.0435 ***	-0.0402 ***	0.0349 ***	-0.0418 ***	0.0345 ***
	(0.0055)	(0.0031)	(0.0058)	(0.0031)	(0.0058)	(0.0031)
5+ Years Ago	-0.0067	0.0548 ***	-0.0158 **	0.0385 ***	-0.0172 **	0.0381 ***
	(0.0057)	(0.0033)	(0.0060)	(0.0033)	(0.0060)	(0.0032)
Stdev. Residuals: σ_ε, σ_η	0.3175	0.1798	0.3140	0.1756	0.3140	0.1756
Stdev. Person Effects: σ_θ, σ_α	0.3155	0.2225	0.3053	0.2025	0.3076	0.2028
Corr. Person Effects: $\rho_{\theta\alpha}$	0.4997		0.4836		0.4861	
Stdev. Job Match Effects: σ_ψ, σ_χ	0.3587	0.4146	0.3507	0.4103	0.3508	0.4102
Corr. Job Match Effects: $\rho_{\psi\chi}$	0.2576		0.2611		0.2609	
Number of Workers	34,906		28,164		28,164	
Number of Jobs	62,507		50,833		50,833	
ln-L	-192,588.85		-131,119.91		-131,224.56	

Note: The restricted sample is limited to those individuals who have a Social Security Number associated with their SIPP internal identification number. Only those eligible to apply for SSDI benefits in the given month were included in this sample. Excluded from both sets of workers are household workers, armed forces personnel, unemployed military personnel, those with job spans lasting less than one day, those with allocated responses, those younger than 21 or older than 60, those with weekly hours less than or equal to zero or a real hourly wage of less than $0.10, and those who are not original sample members. Asymptotic standard errors are in parentheses. Significance: '*'=5%; '**'=1%; '***'=0.1%.

Table 7: Percent Effect of Exogenous Health and Layoff Shocks on Hourly Wage and Weekly Hours-Significant Values Only

	Unrestricted Sample		Restricted Sample			
	SIPP Health Measures		SIPP Health Measures		SSA Health Measures	
---	Hourly Wage	Weekly Hours	Hourly Wage	Weekly Hours	Hourly Wage	Weekly Hours
Own Exogenous Health Shock:						
0-1 Year Ago	-0.2082	-0.0734	-0.1956	-0.0564	-0.2156	-0.0737
1-2 Years Ago	-0.1327	-0.0579	-0.1173	-0.0547	-0.1379	-0.0837
2-3 Years Ago	-0.1138	-0.0470	-0.0972	-0.0288	-0.1634	-0.0461
3-4 Years Ago	-0.0978	-0.0356	-0.0935	-0.0414	-0.1289	-0.0936
4-5 Years Ago	-0.0830	-	-0.1116	-0.0274	-0.2112	-0.0705
5+ Years Ago	-0.0467	0.0240	-0.0639	-	-0.0828	-
Own Exogenous Layoff Shock:						
0-1 Year Ago	-0.0769	0.0171	-0.0825	0.0121	-0.0852	0.0117
1-2 Years Ago	-0.0684	0.0194	-0.0758	0.0144	-0.0781	0.0140
2-3 Years Ago	-0.0452	0.0346	-0.0570	0.0263	-0.0591	0.0259
3-4 Years Ago	-0.0303	0.0395	-0.0396	0.0331	-0.0414	0.0326
4-5 Years Ago	-0.0333	0.0445	-0.0394	0.0355	-0.0409	0.0351
5+ Years Ago	-	0.0563	-0.0157	0.0393	-0.0171	0.0388

Note: The percent effect on the hourly wage and weekly hours of a worker is calculated by exponentiating the estimated coefficient of interest and subtracting one from this value: $e^{\delta}-1$.

Table 8: Simulation of Earnings upon Reentry into the Workforce Following an Exogenous Separation

Own Exogenous Shock- Layoff

Year	Hourly Wage	Weekly Hours	Yearly Salary	Difference
1	$14.00	39.36	$28,656	-$2,204
2	$14.10	39.45	$28,932	-$1,928
3	$14.39	39.91	$29,867	-$993
4	$14.66	40.18	$30,620	-$240
5	$14.66	40.27	$30,697	-$163
6	$15.02	40.42	$31,569	$709
Total				-$4,819

Own Exogenous Shock- SIPP Health Measures

Year	Hourly Wage	Weekly Hours	Yearly Salary	Difference
1	$12.27	36.70	$23,424	-$7,436
2	$13.47	36.76	$25,748	-$5,112
3	$13.78	37.77	$27,060	-$3,800
4	$13.83	37.28	$26,815	-$4,045
5	$13.56	37.82	$26,665	-$4,195
6	$14.29	38.89	$28,889	-$1,971
Total				-$26,559

Own Exogenous Shock- SSA Health Measures

Year	Hourly Wage	Weekly Hours	Yearly Salary	Difference
1	$11.97	36.02	$22,422	-$8,438
2	$13.16	35.64	$24,378	-$6,482
3	$12.77	37.10	$24,627	-$6,233
4	$13.29	35.25	$24,365	-$6,495
5	$12.04	36.15	$22,627	-$8,233
6	$14.00	38.89	$28,306	-$2,554
Total				-$38,434

Note: Values are compared with the averages for the restricted sample: an hourly wage of $15.26 and weekly hours of 38.89, which result in a yearly salary of $30,860.

Table 9: Joint Estimation of Wage and Hours by Education Level for the Restricted Sample

	Restricted SIPP Health Measures				Restricted SSA Health Measures			
	Hourly Wage		Weekly Hours		Hourly Wage		Weekly Hours	
	HS or Less	More than HS	HS or Less	More than HS	HS or Less	More than HS	HS or Less	More than HS
Own Exogenous Health Shock:								
0-1 Year Ago	-0.1953 ***	-0.2490 ***	-0.0561 ***	-0.0567 ***	-0.2455 ***	-0.2243 ***	-0.0841 ***	-0.0755 ***
	(0.0144)	(0.0137)	(0.0092)	(0.0099)	(0.0217)	(0.0328)	(0.0134)	(0.0218)
1-2 Years Ago	-0.1010 ***	-0.1621 ***	-0.0744 ***	-0.0366 ***	-0.1138 ***	-0.1951 ***	-0.1995 ***	0.0353 *
	(0.0137)	(0.0142)	(0.0079)	(0.0090)	(0.0235)	(0.0278)	(0.0115)	(0.0138)
2-3 Years Ago	-0.0464 ***	-0.1749 ***	-0.0404 ***	-0.0172	-0.0303	-0.3191 ***	-0.0961 ***	0.0105
	(0.0136)	(0.0144)	(0.0093)	(0.0098)	(0.0379)	(0.0225)	(0.0225)	(0.0363)
3-4 Years Ago	-0.0685 ***	-0.1376 ***	-0.0754 ***	-0.0035	-0.1616 ***	-0.1797 ***	-0.1536 **	-0.0437
	(0.0154)	(0.0167)	(0.0093)	(0.0099)	(0.0346)	(0.0392)	(0.0532)	(0.0316)
4-5 Years Ago	-0.0858 ***	-0.1608 ***	-0.0334 **	-0.0281 *	-0.2822 ***	-0.2588 ***	-0.0676	-0.0719
	(0.0194)	(0.0215)	(0.0122)	(0.0136)	(0.0480)	(0.0395)	(0.0559)	(0.0392)
5+ Years Ago	-0.0556 **	-0.0813 **	0.0060	-0.0256	-0.0643	-0.1583	-0.0352	-0.0495
	(0.0211)	(0.0300)	(0.0125)	(0.0157)	(0.0670)	(0.0925)	(0.0534)	(0.0410)
Own Exogenous Layoff Shock:								
0-1 Year Ago	-0.0793 ***	-0.0934 ***	-0.0073	0.0365 ***	-0.0818 ***	-0.0973 ***	-0.0076	0.0361 ***
	(0.0067)	(0.0072)	(0.0049)	(0.0039)	(0.0068)	(0.0071)	(0.0049)	(0.0039)
1-2 Years Ago	-0.0705 ***	-0.0878 ***	0.0011	0.0322 ***	-0.0730 ***	-0.0911 ***	0.0006	0.0320 ***
	(0.0065)	(0.0071)	(0.0047)	(0.0037)	(0.0065)	(0.0070)	(0.0047)	(0.0037)
2-3 Years Ago	-0.0565 ***	-0.0604 ***	0.0063	0.0519 ***	-0.0585 ***	-0.0637 ***	0.0057	0.0518 ***
	(0.0068)	(0.0072)	(0.0048)	(0.0037)	(0.0068)	(0.0072)	(0.0048)	(0.0037)
3-4 Years Ago	-0.0399 ***	-0.0398 ***	0.0178 ***	0.0518 ***	-0.0419 ***	-0.0426 ***	0.0175 ***	0.0514 ***
	(0.0071)	(0.0076)	(0.0050)	(0.0037)	(0.0072)	(0.0076)	(0.0050)	(0.0036)
4-5 Years Ago	-0.0320 ***	-0.0502 ***	0.0270 ***	0.0447 ***	-0.0335 ***	-0.0527 ***	0.0266 ***	0.0443 ***
	(0.0082)	(0.0082)	(0.0041)	(0.0041)	(0.0082)	(0.0082)	(0.0053)	(0.0040)
5+ Years Ago	-0.0089	-0.0241 **	0.0348 ***	0.0412 ***	-0.0101	-0.0265 **	0.0344 ***	0.0408 ***
	(0.0084)	(0.0087)	(0.0057)	(0.0041)	(0.0084)	(0.0087)	(0.0057)	(0.0040)
Stdev. Residuals: σ_ϵ, σ_η	0.3140		0.1756		0.3139		0.1756	
Stdev. Person Effects: σ_θ, σ_α	0.3052		0.2021		0.3074		0.2025	
Corr. Person Effects: $\rho_{\theta\alpha}$	0.4853				0.4874			
Stdev. Job Match Effects: σ_ψ, σ_χ	0.3508		0.4103		0.3508		0.4103	
Corr. Job Match Effects: $\rho_{\psi\chi}$	0.2609				0.2608			
Number of Workers	28,164				28,164			
Number of Jobs	50,833				50,833			
ln-L	-131,051.88				-131,125.37			

Note: The restricted sample is limited to those individuals who have a Social Security Number associated with their SIPP internal identification number. Only those eligible to apply for SSDI benefits in the given month were included in this sample. Excluded are household workers, armed forces personnel, unemployed military personnel, those with job spans lasting less than one day, those with allocated responses, those younger than 21 or older than 60, those with weekly hours less than or equal to zero or a real hourly wage of less than $0.10, and those who are not original sample members. Asymptotic standard errors are in parentheses. Significance: '*'=5%; '**'=1%; '***'=0.1%.

Table 10: Percent Effect of Exogenous Health and Layoff Shocks on Hourly Wage and Weekly Hours by Education Level- Significant Values Only

| | Restricted SIPP Health Measures | | | |
| | Hourly Wage | | Weekly Hours | |
	HS or Less	More than HS	HS or Less	More than HS
Own Exogenous Health Shock:				
0-1 Year Ago	-0.1774	-0.2204	-0.0546	-0.0551
1-2 Years Ago	-0.0961	-0.1496	-0.0717	-0.0359
2-3 Years Ago	-0.0453	-0.1605	-0.0396	-
3-4 Years Ago	-0.0662	-0.1286	-0.0726	-
4-5 Years Ago	-0.0822	-0.1485	-0.0328	-0.0277
5+ Years Ago	-0.0541	-0.0781	-	-
Own Exogenous Layoff Shock:				
0-1 Year Ago	-0.0762	-0.0892	-	0.0372
1-2 Years Ago	-0.0681	-0.0841	-	0.0327
2-3 Years Ago	-0.0549	-0.0586	-	0.0533
3-4 Years Ago	-0.0391	-0.0390	0.0180	0.0532
4-5 Years Ago	-0.0315	-0.0490	0.0274	0.0457
5+ Years Ago	-	-0.0238	0.0354	0.0421

| | Restricted SSA Health Measures | | | |
| | Hourly Wage | | Weekly Hours | |
	HS or Less	More than HS	HS or Less	More than HS
Own Exogenous Health Shock:				
0-1 Year Ago	-0.2177	-0.2009	-0.0807	-0.0727
1-2 Years Ago	-0.1076	-0.1772	-0.1809	0.0359
2-3 Years Ago	-	-0.2732	-0.0916	-
3-4 Years Ago	-0.1492	-0.1645	-0.1424	-
4-5 Years Ago	-0.2459	-0.2280	-	-
5+ Years Ago	-	-	-	-
Own Exogenous Layoff Shock:				
0-1 Year Ago	-0.0785	-0.0927	-	0.0368
1-2 Years Ago	-0.0704	-0.0871	-	0.0325
2-3 Years Ago	-0.0568	-0.0617	-	0.0532
3-4 Years Ago	-0.0410	-0.0417	0.0177	0.0527
4-5 Years Ago	-0.0329	-0.0513	0.0270	0.0453
5+ Years Ago	-	-0.0262	0.0350	0.0416

Note: The percent effect on the hourly wage and weekly hours of a worker is calculated by exponentiating the estimated coefficient of interest and subtracting one from this value: $e^{\delta}-1$.

Table 11: Joint Estimation of Wage and Hours by Gender for the Restricted Sample

	Restricted SIPP Health Measures				Restricted SSA Health Measures			
	Hourly Wage		Weekly Hours		Hourly Wage		Weekly Hours	
	Men	Women	Men	Women	Men	Women	Men	Women
Own Exogenous Health Shock:								
0-1 Year Ago	-0.2521 ***	-0.1867 ***	-0.0701 ***	-0.0473 ***	-0.2734 ***	-0.2364 ***	-0.0974 ***	-0.0508 *
	(0.0133)	(0.0142)	(0.0092)	(0.0099)	(0.0217)	(0.0300)	(0.0149)	(0.0230)
1-2 Years Ago	-0.1532 ***	-0.1005 ***	-0.0730 ***	-0.0425 ***	-0.2147 ***	-0.0802 **	-0.0977 ***	-0.0939 ***
	(0.0146)	(0.0131)	(0.0083)	(0.0087)	(0.0238)	(0.0294)	(0.0123)	(0.0125)
2-3 Years Ago	-0.1597 ***	-0.0489 ***	-0.0754 ***	0.0120	-0.3013 ***	-0.0267	-0.0550 *	-0.0542
	(0.0139)	(0.0136)	(0.0093)	(0.0100)	(0.0217)	(0.0411)	(0.0229)	(0.0309)
3-4 Years Ago	-0.0935 ***	-0.0901 ***	-0.0781 ***	-0.0110	-0.1417 ***	-0.1475 ***	-0.1304 ***	-0.0574
	(0.0160)	(0.0158)	(0.0096)	(0.0097)	(0.0366)	(0.0433)	(0.0232)	(0.0489)
4-5 Years Ago	-0.1142 ***	-0.1089 ***	-0.0774 ***	0.0093	-0.3203 ***	-0.2125 ***	-0.1507 **	-0.0125
	(0.0237)	(0.0184)	(0.0151)	(0.0118)	(0.0586)	(0.0451)	(0.0469)	(0.0510)
5+ Years Ago	-0.1167 ***	-0.0306	-0.0451 *	0.0296 *	-0.1487	-0.0678	-0.1251 **	0.0185
	(0.0332)	(0.0204)	(0.0191)	(0.0123)	(0.0850)	(0.0590)	(0.0393)	(0.0502)
Own Exogenous Layoff Shock:								
0-1 Year Ago	-0.0810 ***	-0.0918 ***	-0.0010	0.0398 ***	-0.0861 ***	-0.0921 ***	-0.0018	0.0396 ***
	(0.0058)	(0.0091)	(0.0036)	(0.0065)	(0.0058)	(0.0091)	(0.0035)	(0.0065)
1-2 Years Ago	-0.0773 ***	-0.0794 ***	-0.0026	0.0497 ***	-0.0816 ***	-0.0796 ***	-0.0034	0.0498 ***
	(0.0055)	(0.0092)	(0.0033)	(0.0064)	(0.0055)	(0.0092)	(0.0032)	(0.0065)
2-3 Years Ago	-0.0525 ***	-0.0666 ***	0.0063	0.0663 ***	-0.0565 ***	-0.0667 ***	0.0055	0.0663 ***
	(0.0057)	(0.0094)	(0.0033)	(0.0065)	(0.0057)	(0.0093)	(0.0033)	(0.0065)
3-4 Years Ago	-0.0398 ***	-0.0396 ***	0.0112 ***	0.0761 ***	-0.0432 ***	-0.0397 ***	0.0104 **	0.0761 ***
	(0.0061)	(0.0097)	(0.0033)	(0.0066)	(0.0061)	(0.0097)	(0.0033)	(0.0066)
4-5 Years Ago	-0.0566 ***	-0.0141	0.0273 ***	0.0571 ***	-0.0596 ***	-0.0139	0.0264 ***	0.0571 ***
	(0.0071)	(0.0103)	(0.0038)	(0.0068)	(0.0071)	(0.0103)	(0.0038)	(0.0068)
5+ Years Ago	-0.0374 ***	0.0189	0.0343 ***	0.0547 ***	-0.0401 ***	0.0190	0.0335 ***	0.0547 ***
	(0.0073)	(0.0106)	(0.0039)	(0.0070)	(0.0073)	(0.0106)	(0.0038)	(0.0070)
Stdev. Residuals: σ_e, σ_η	0.3139		0.1756		0.3139		0.1756	
Stdev. Person Effects: σ_θ, σ_α	0.3054		0.2021		0.3077		0.2025	
Corr. Person Effects: $\rho_{\theta\alpha}$	0.4844				0.4867			
Stdev. Job Match Effects: σ_ψ, σ_χ	0.3507		0.4103		0.3507		0.4103	
Corr. Job Match Effects: $\rho_{\psi\chi}$	0.2608				0.2607			
Number of Workers	28,164				28,164			
Number of Jobs	50,833				50,833			
ln-L	-131,025.70				-131,140.82			

Note: The restricted sample is limited to those individuals who have a Social Security Number associated with their SIPP internal identification number. Only those eligible to apply for SSDI benefits in the given month were included in this sample. Excluded are household workers, armed forces personnel, unemployed military personnel, those with job spans lasting less than one day, those with allocated responses, those younger than 21 or older than 60, those with weekly hours less than or equal to zero or a real hourly wage of less than $0.10, and those who are not original sample members. Asymptotic standard errors are in parentheses. Significance: '*'=5%; '**'=1%; '***'=0.1%.

Table 12: Percent Effect of Exogenous Health and Layoff Shocks on Hourly Wage and Weekly Hours by Gender- Significant Values Only

	Restricted SIPP Health Measures			
	Hourly Wage		Weekly Hours	
	Men	Women	Men	Women
Own Exogenous Health Shock:				
0-1 Year Ago	-0.2228	-0.1703	-0.0677	-0.0462
1-2 Years Ago	-0.1420	-0.0956	-0.0704	-0.0416
2-3 Years Ago	-0.1476	-0.0477	-0.0726	-
3-4 Years Ago	-0.0893	-0.0862	-0.0751	-
4-5 Years Ago	-0.1079	-0.1032	-0.0745	-
5+ Years Ago	-0.1101	-	-0.0441	0.0300
Own Exogenous Layoff Shock:				
0-1 Year Ago	-0.0778	-0.0877	-	0.0406
1-2 Years Ago	-0.0744	-0.0763	-	0.0510
2-3 Years Ago	-0.0511	-0.0644	-	0.0685
3-4 Years Ago	-0.0390	-0.0388	0.0113	0.0791
4-5 Years Ago	-0.0550	-	0.0277	0.0588
5+ Years Ago	-0.0367	-	0.0349	0.0562

	Restricted SSA Health Measures			
	Hourly Wage		Weekly Hours	
	Men	Women	Men	Women
Own Exogenous Health Shock:				
0-1 Year Ago	-0.2392	-0.2105	-0.0928	-0.0495
1-2 Years Ago	-0.1932	-0.0771	-0.0931	-0.0896
2-3 Years Ago	-0.2601	-	-0.0535	-
3-4 Years Ago	-0.1321	-0.1371	-0.1223	-
4-5 Years Ago	-0.2741	-0.1914	-0.1399	-
5+ Years Ago	-	-	-0.1176	-
Own Exogenous Layoff Shock:				
0-1 Year Ago	-0.0825	-0.0880	-	0.0404
1-2 Years Ago	-0.0784	-0.0765	-	0.0511
2-3 Years Ago	-0.0549	-0.0645	-	0.0685
3-4 Years Ago	-0.0423	-0.0389	0.0105	0.0791
4-5 Years Ago	-0.0579	-	0.0268	0.0588
5+ Years Ago	-0.0393	-	0.0341	0.0562

Note: The percent effect on the hourly wage and weekly hours of a worker is calculated by exponentiating the estimated coefficient of interest and subtracting one from this value: $e^{\delta}-1$.

Table 13: Joint Estimation of Wage and Hours by Race for the Restricted Sample

	Restricted SIPP Health Measures				Restricted SSA Health Measures			
	Hourly Wage		Weekly Hours		Hourly Wage		Weekly Hours	
	White	Nonwhite	White	Nonwhite	White	Nonwhite	White	Nonwhite
Own Exogenous Health Shock:								
0-1 Year Ago	-0.2214 ***	-0.1892 ***	-0.0548 ***	-0.0951 ***	-0.2346 ***	-0.2712 ***	-0.0635 ***	-0.1908 ***
	(0.0101)	(0.0327)	(0.0069)	(0.0229)	(0.0184)	(0.0795)	(0.0110)	(0.0406)
1-2 Years Ago	-0.1210 ***	-0.1471 ***	-0.0659 ***	-0.0071	-0.1268 ***	-0.2193	-0.1118 ***	0.0295
	(0.0103)	(0.0286)	(0.0063)	(0.0181)	(0.0185)	(0.1150)	(0.0091)	(0.0312)
2-3 Years Ago	-0.1079 ***	-0.0703	-0.0373 ***	0.0112	-0.1825 ***	-0.1663 *	-0.0583 **	-0.0165
	(0.0102)	(0.0441)	(0.0070)	(0.0258)	(0.0183)	(0.0841)	(0.0184)	(0.0409)
3-4 Years Ago	-0.0999 ***	-0.0884 *	-0.0428 ***	-0.0459	-0.1342 ***	-0.1487	-0.1049 ***	-0.0515
	(0.0119)	(0.0358)	(0.0069)	(0.0274)	(0.0218)	(0.1654)	(0.0185)	(0.1380)
4-5 Years Ago	-0.1318 ***	-0.0515	-0.0463 ***	0.0529	-0.2641 ***	-0.0661	-0.1223 ***	0.2463
	(0.0146)	(0.0633)	(0.0100)	(0.0296)	(0.0293)	(0.2563)	(0.0249)	(0.1691)
5+ Years Ago	-0.0789 ***	-0.0076	-0.0237 *	0.0796 **	-0.1042 *	0.0527	-0.0902 ***	0.3183 **
	(0.0168)	(0.0828)	(0.0113)	(0.0302)	(0.0434)	(0.1610)	(0.0258)	(0.1188)
Own Exogenous Layoff Shock:								
0-1 Year Ago	-0.0879 ***	-0.0733 ***	0.0145 ***	-0.0035	-0.0913 ***	-0.0735 ***	0.0141 ***	-0.0039
	(0.0052)	(0.0135)	(0.0030)	(0.0160)	(0.0052)	(0.0136)	(0.0030)	(0.0161)
1-2 Years Ago	-0.0784 ***	-0.0811 ***	0.0142 ***	0.0176	-0.0814 ***	-0.0812 ***	0.0138 ***	0.0170
	(0.0050)	(0.0137)	(0.0029)	(0.0162)	(0.0050)	(0.0138)	(0.0029)	(0.0163)
2-3 Years Ago	-0.0574 ***	-0.0667 ***	0.0293 ***	0.0076	-0.0601 ***	-0.0666 ***	0.0288 ***	0.0076
	(0.0052)	(0.0138)	(0.0029)	(0.0155)	(0.0052)	(0.0139)	(0.0029)	(0.0156)
3-4 Years Ago	-0.0405 ***	-0.0387 *	0.0322 ***	0.0374 *	-0.0430 ***	-0.0383 *	0.0318 ***	0.0365 *
	(0.0055)	(0.0150)	(0.0029)	(0.0159)	(0.0054)	(0.0151)	(0.0029)	(0.0161)
4-5 Years Ago	-0.0301 ***	-0.0974 ***	0.0392 ***	0.0115	-0.0323 ***	-0.0968 ***	0.0388 ***	0.0108
	(0.0061)	(0.0168)	(0.0032)	(0.0163)	(0.0061)	(0.0169)	(0.0032)	(0.0164)
5+ Years Ago	-0.0131 *	-0.0271	0.0451 ***	-0.0003	-0.0150 *	-0.0265	0.0446 ***	-0.0011
	(0.0063)	(0.0189)	(0.0033)	(0.0177)	(0.0063)	(0.0190)	(0.0033)	(0.0178)
Stdev. Residuals: σ_ε, σ_η	0.3140		0.1755		0.3139		0.1755	
Stdev. Person Effects: σ_θ, σ_α	0.3053		0.2025		0.3076		0.2028	
Corr. Person Effects: $\rho_{\theta\alpha}$	0.4837				0.4863			
Stdev. Job Match Effects: σ_ψ, σ_χ	0.3507		0.4103		0.3508		0.4102	
Corr. Job Match Effects: $\rho_{\psi\chi}$	0.2611				0.2608			
Number of Workers	28,164				28,164			
Number of Jobs	50,833				50,833			
ln-L	-131,055.23				-131,144.52			

Note: The restricted sample is limited to those individuals who have a Social Security Number associated with their SIPP internal identification number. Only those eligible to apply for SSDI benefits in the given month were included in this sample. Excluded are household workers, armed forces personnel, unemployed military personnel, those with job spans lasting less than one day, those with allocated responses, those younger than 21 or older than 60, those with weekly hours less than or equal to zero or a real hourly wage of less than $0.10, and those who are not original sample members. Asymptotic standard errors are in parentheses. Significance: '*'=5%; '**'=1%; '***'=0.1%.

Table 14: Percent Effect of Exogenous Health and Layoff Shocks on Hourly Wage and Weekly Hours by Race-Significant Values Only

| | Restricted SIPP Health Measures | | | |
| | Hourly Wage | | Weekly Hours | |
	White	Nonwhite	White	Nonwhite
Own Exogenous Health Shock:				
0-1 Year Ago	-0.1986	-0.1724	-0.0533	-0.0907
1-2 Years Ago	-0.1140	-0.1368	-0.0638	-
2-3 Years Ago	-0.1023	-	-0.0366	-
3-4 Years Ago	-0.0951	-0.0846	-0.0419	-
4-5 Years Ago	-0.1235	-	-0.0452	-
5+ Years Ago	-0.0759	-	-0.0234	0.0829
Own Exogenous Layoff Shock:				
0-1 Year Ago	-0.0841	-0.0707	0.0146	-
1-2 Years Ago	-0.0754	-0.0779	0.0143	-
2-3 Years Ago	-0.0558	-0.0645	0.0297	-
3-4 Years Ago	-0.0397	-0.0380	0.0327	0.0381
4-5 Years Ago	-0.0297	-0.0928	0.0400	-
5+ Years Ago	-0.0130	-	0.0461	-

| | Restricted SSA Health Measures | | | |
| | Hourly Wage | | Weekly Hours | |
	White	Nonwhite	White	Nonwhite
Own Exogenous Health Shock:				
0-1 Year Ago	-0.2091	-0.2375	-0.0615	-0.1737
1-2 Years Ago	-0.1191	-	-0.1058	-
2-3 Years Ago	-0.1668	-0.1532	-0.0566	-
3-4 Years Ago	-0.1256	-	-0.0996	-
4-5 Years Ago	-0.2321	-	-0.1151	-
5+ Years Ago	-0.0990	-	-0.0863	0.3748
Own Exogenous Layoff Shock:				
0-1 Year Ago	-0.0873	-0.0709	0.0142	-
1-2 Years Ago	-0.0782	-0.0780	0.0139	-
2-3 Years Ago	-0.0583	-0.0644	0.0292	-
3-4 Years Ago	-0.0421	-0.0376	0.0323	0.0372
4-5 Years Ago	-0.0318	-0.0923	0.0396	-
5+ Years Ago	-0.0149	-	0.0456	-

Note: The percent effect on the hourly wage and weekly hours of a worker is calculated by exponentiating the estimated coefficient of interest and subtracting one from this value: $e^{\delta}-1$.

Table 15: Married Individual's Worker and Job Summary Statistics

	Unrestricted Sample			Restricted Spouse Sample		
	Obs	Mean	Std. Dev.	Obs.	Mean	Std. Dev.
Worker Characteristics:						
White	7,671	0.8913	20.8497	6,294	0.8985	20.1797
Hispanic	7,671	0.0925	19.4093	6,294	0.0860	18.7367
Male	7,671	0.5055	33.4927	6,294	0.4674	33.3469
Education:						
Years	7,671	13.4829	192.3507	6,294	13.5026	186.6202
High School	7,671	0.3280	31.4508	6,294	0.3356	31.5609
Some College	7,671	0.2618	29.4510	6,294	0.2682	29.6083
College Degree	7,671	0.1464	23.6787	6,294	0.1481	23.7410
Graduate Schooling	7,671	0.1457	23.6367	6,294	0.1398	23.1798
Time-Varying Worker Characteristics:						
Number of Children	165,938	1.4681	82.5183	137,200	1.4121	79.9332
Health Insurance Under Another's Plan	165,938	0.2832	30.6364	137,200	0.3042	31.2212
Job Characteristics:						
Number of Jobs	12,398	1.7882	72.6145	10,089	1.7657	70.5753
Union Member	12,398	0.1562	24.0152	10,089	0.1481	23.4621
Job Type:						
Private, Not-for-Profit, Tax Exempt, or Charitable	12,398	0.0565	15.2765	10,089	0.0592	15.5866
Government	12,398	0.1394	22.9088	10,089	0.1338	22.4886
Industry:						
Agriculture and Forestry/Fisheries	12,398	0.0195	9.1553	10,089	0.0174	8.6334
Mining	12,398	0.0042	4.2719	10,089	0.0040	4.1918
Construction	12,398	0.0782	17.7612	10,089	0.0699	16.8376
Manufacturing	12,398	0.1479	23.4865	10,089	0.1479	23.4447
Trans., Comm., and Public Utilities	12,398	0.0563	15.2520	10,089	0.0521	14.6836
Wholesale Trade	12,398	0.0429	13.3988	10,089	0.0428	13.3625
Retail Trade	12,398	0.1753	25.1515	10,089	0.1821	25.4924
FIRE	12,398	0.0605	15.7653	10,089	0.0606	15.7610
Business and Repair Services	12,398	0.3756	32.0346	10,089	0.3834	32.1139
Public Administration	12,398	0.0374	12.5457	10,089	0.0374	12.5252
Time-Varying Job Characteristics:						
Hourly Wage ($2003)	165,938	16.29	1,511.25	137,200	16.05	1,570.01
Weekly Hours	165,938	38.7895	835.5496	137,200	38.4684	837.3836
Months of Experience	165,938	204.6486	6,861.2500	137,200	203.0417	6,828.9200

Note: The restricted sample is limited to those individuals with spouses who have a Social Security Number associated with their SIPP internal identification number. Only those workers with spouses who are additionally eligible to apply for SSDI benefits in the given month are included in this sample.

Table 16: Summary of the Timing of Exogenous Shocks of Worker and Spouse

	Unrestricted Married Sample		Restricted Spouse Sample	
	Mean	**Std. Dev.**	**Mean**	**Std. Dev.**
SIPP Layoff Shock:				
Of Wife				
0-1 Year Ago	0.0637	16.7934	0.0636	16.7340
1-2 Years Ago	0.0243	10.5859	0.0258	10.8659
2+ Years Ago	0.0706	17.6193	0.0757	18.1401
Of Husband				
0-1 Year Ago	0.0948	19.6793	0.0962	19.8135
1-2 Years Ago	0.0357	12.4636	0.0374	12.7556
2+ Years Ago	0.1128	21.2494	0.1137	21.3318
SIPP Health Shock:				
Of Wife				
0-1 Year Ago	0.0357	12.7610	0.0302	11.7338
1-2 Years Ago	0.0088	6.4069	0.0084	6.2555
2+ Years Ago	0.0207	9.7856	0.0200	9.5897
Of Husband				
0-1 Year Ago	0.0286	11.1903	0.0306	11.5745
1-2 Years Ago	0.0067	5.4713	0.0068	5.5108
2+ Years Ago	0.0203	9.4835	0.0201	9.4395
SSA Health Shock:				
Of Wife				
0-1 Year Ago	-	-	0.0114	7.2731
1-2 Years Ago	-	-	0.0026	3.4920
2+ Years Ago	-	-	0.0026	3.4823
Of Husband				
0-1 Year Ago	-	-	0.0098	6.6350
1-2 Years Ago	-	-	0.0014	2.5559
2+ Years Ago	-	-	0.0052	4.8105

Note: Excluded are household workers, armed forces personnel, unemployed military personnel, those with job spans lasting less than one day, those with allocated responses, those younger than 21 or older than 60, those with weekly hours equal to zero or hourly wages in constant 2003 dollars of less than $0.10, and those who are not original sample members. In the unrestricted sample, 85,483 male worker observations and 80,455 female worker observations exist for all individuals over all time periods; in the restricted spouse sample, 66,016 male and 71,184 female worker observations exist.

Table 17a: Pearson Correlation Coefficients for SIPP- and SSA-based Health Shocks of Spouses of Married Male Workers

	SIPP Health Shock of Wife		
SSA Health Shock of Wife	**0-1 Year Ago**	**1-2 Years Ago**	**2+ Years Ago**
0-1 Year Ago	**0.4483**	0.1119	0.0766
	<.0001	<.0001	<.0001
1-2 Years Ago	0.0743	**0.3687**	0.0763
	<.0001	<.0001	<.0001
2+ Years Ago	0.0244	0.0249	**0.3150**
	<.0001	<.0001	<.0001

Note: Correlation coefficients are presented along with the p-values under the hypothesis that ρ=0. The restricted sample of 66,016 observations is used.

Table 17b: Pearson Correlation Coefficients for SIPP- and SSA-based Health Shocks of Spouses of Married Female Workers

	SIPP Health Shock of Husband		
SSA Health Shock of Husband	**0-1 Year Ago**	**1-2 Years Ago**	**2+ Years Ago**
0-1 Year Ago	**0.4324**	0.0209	0.0223
	<.0001	<.0001	<.0001
1-2 Years Ago	0.0037	**0.3772**	-0.0054
	0.3271	<.0001	0.1463
2+ Years Ago	-0.0066	-0.0059	**0.4417**
	0.0770	0.1138	<.0001

Note: Correlation coefficients are presented along with the p-values under the hypothesis that ρ=0. The restricted sample of 71,184 observations is used.

Table 18: Hazard Ratios of the Effect of Spousal Shocks on the Job Spell Duration of Married

	Unrestricted Married Sample	Restricted Spouse Sample	
	SIPP Health Measures	SIPP Health Measures	SSA Health Measures
Exogenous Health Shock of Wife:			
0-1 Year Ago	1.4779 ***	1.3206 ***	1.1061
	(0.0741)	(0.1075)	(0.2724)
1-2 Years Ago	1.3395 *	1.6472 ***	1.7876
	(0.1505)	(0.1592)	(0.3762)
2+ Years Ago	0.9989	0.9892	1.2082
	(0.1108)	(0.1365)	(0.2761)
Exogenous Layoff Shock of Wife:			
0-1 Year Ago	1.1893 ***	1.1282	1.1093
	(0.0668)	(0.0755)	(0.0771)
1-2 Years Ago	1.0457	1.0466	1.0579
	(0.1038)	(0.1145)	(0.1135)
2+ Years Ago	0.9635	0.9099	0.9090
	(0.0667)	(0.0739)	(0.0741)
Exogenous Health Shock of Husband:			
0-1 Year Ago	1.4068 ***	1.3989 ***	1.4651 **
	(0.0958)	(0.0997)	(0.1548)
1-2 Years Ago	1.0935	1.1307	1.0381
	(0.1964)	(0.2112)	(0.4129)
2+ Years Ago	0.7603 **	0.6958 **	0.6067
	(0.1282)	(0.1481)	(0.3186)
Exogenous Layoff Shock of Husband:			
0-1 Year Ago	1.0475	1.0170	1.0211
	(0.0595)	(0.0651)	(0.0650)
1-2 Years Ago	1.0862	1.0279	1.0441
	(0.0826)	(0.0904)	(0.0910)
2+ Years Ago	0.8689 **	0.8587 **	0.8689 **
	(0.0578)	(0.0615)	(0.0616)
Stdev. Person Effect: σ_ν	0.3169	0.2623	0.2635
Number of Individuals	7,671	6,294	6,294
Number of Spells	12,398	10,089	10,089
ln-L	-51,332.33	-41,705.75	-41,716.31

Note: Hazard ratios are the exponentiation of the coefficients from the hazard model.

Table 19: Joint Estimation of Wage and Hours with Heterogeneity in the Unrestricted Sample of Married Workers-Spousal Shocks

	Unrestricted Married Sample SIPP Health Measures	
	Hourly Wage	**Weekly Hours**
Exogenous Health Shock of Wife:		
0-1 Year Ago	-0.0847 ***	-0.0523 ***
	(0.0177)	(0.0095)
1-2 Years Ago	-0.0418 **	-0.0342 ***
	(0.0160)	(0.0093)
2+ Years Ago	-0.0338	-0.0117
	(0.0181)	(0.0106)
Exogenous Layoff Shock of Wife:		
0-1 Year Ago	-0.0278 *	0.0139
	(0.0130)	(0.0127)
1-2 Years Ago	0.0222	-0.0070
	(0.0114)	(0.0117)
2+ Years Ago	0.0388 ***	-0.0018
	(0.0110)	(0.0115)
Exogenous Health Shock of Husband:		
0-1 Year Ago	-0.0591 **	-0.0285 ***
	(0.0183)	(0.0073)
1-2 Years Ago	-0.0263	-0.0743 ***
	(0.0159)	(0.0040)
2+ Years Ago	-0.0247	-0.0731 ***
	(0.0196)	(0.0061)
Exogenous Layoff Shock of Husband:		
0-1 Year Ago	-0.0346 ***	0.0064
	(0.0090)	(0.0046)
1-2 Years Ago	-0.0254 **	0.0202 ***
	(0.0089)	(0.0043)
2+ Years Ago	0.0074	0.0458 ***
	(0.0088)	(0.0042)
Stdev. Residuals: σ_ε, σ_η	0.3160	0.1765
Stdev. Person Effects: σ_θ, σ_α	0.3319	0.2454
Corr. Person Effects: $\rho_{\theta\alpha}$	0.5103	
Stdev. Job Match Effects: σ_ψ, σ_χ	0.3550	0.3954
Corr. Job Match Effects: $\rho_{\psi\chi}$	0.2321	
Number of Workers	7,671	
Number of Jobs	12,398	
ln-L	-49,793.82	

Note: Excluded are household workers, armed forces personnel, unemployed military personnel, those with job spans lasting less than one day, those with allocated responses, those younger than 21 or older than 60 or with spouses younger than 21 or older than 60, those with weekly hours less than or equal to zero or a real hourly wage of less than $0.10, and those who are not original sample members. Asymptotic standard errors are in parentheses. Significance: '*'=5%; ''=1%; '***'=0.1%.**

Table 20: Joint Estimation of Wage and Hours with Heterogeneity in the Restricted Spouse Sample- Spousal Shocks

	Restricted Spouse Sample			
	SIPP Health Measures		SSA Health Measures	
	Hourly Wage	Weekly Hours	Hourly Wage	Weekly Hours
Exogenous Health Shock of Wife:				
0-1 Year Ago	-0.0873 ***	-0.0608 ***	-0.1282 *	-0.1026 *
	(0.0226)	(0.0129)	(0.0509)	(0.0430)
1-2 Years Ago	-0.0477 *	-0.0499 ***	-0.0816	-0.0415
	(0.0237)	(0.0111)	(0.0496)	(0.0319)
2+ Years Ago	-0.0411	-0.0032	-0.0172	0.0410
	(0.0244)	(0.0151)	(0.0584)	(0.0518)
Exogenous Layoff Shock of Wife:				
0-1 Year Ago	0.0039	0.0237	0.0046	0.0247
	(0.0162)	(0.0154)	(0.0163)	(0.0154)
1-2 Years Ago	0.0468 **	-0.0022	0.0471 **	-0.0015
	(0.0143)	(0.0143)	(0.0143)	(0.0142)
2+ Years Ago	0.0552 ***	0.0018	0.0556 ***	0.0024
	(0.0136)	(0.0142)	(0.0137)	(0.0142)
Exogenous Health Shock of Husband:				
0-1 Year Ago	-0.0492 *	-0.0254 **	-0.1990 ***	-0.1521 ***
	(0.0193)	(0.0085)	(0.0594)	(0.0266)
1-2 Years Ago	-0.0163	-0.0812 ***	-0.2231 ***	-0.1804 ***
	(0.0165)	(0.0041)	(0.0594)	(0.0255)
2+ Years Ago	-0.0111	-0.0977 ***	-0.0511	-0.4036 ***
	(0.0206)	(0.0064)	(0.1122)	(0.0264)
Exogenous Layoff Shock of Husband:				
0-1 Year Ago	-0.0227 *	0.0100 *	-0.0231 *	0.0104 *
	(0.0095)	(0.0050)	(0.0095)	(0.0050)
1-2 Years Ago	-0.0231 *	0.0244 ***	-0.0233 *	0.0244 ***
	(0.0094)	(0.0047)	(0.0094)	(0.0047)
2+ Years Ago	0.0090	0.0548 ***	0.0087	0.0540 ***
	(0.0092)	(0.0047)	(0.0092)	(0.0047)
Stdev. Residuals: σ_ε, σ_η	0.3158	0.1783	0.3158	0.1783
Stdev. Person Effects: σ_θ, σ_α	0.3306	0.2450	0.3304	0.2450
Corr. Person Effects: $\rho_{\theta\alpha}$	0.5310		0.5310	
Stdev. Job Match Effects: σ_ψ, σ_χ	0.3525	0.4002	0.3526	0.4003
Corr. Job Match Effects: $\rho_{\psi\chi}$	0.2363		0.2363	
Number of Workers	6,294		6,294	
Number of Jobs	10,089		10,089	
ln-L	-42,475.01		-42,451.65	

Note: The restricted spouse sample is limited to those individuals who have a spouse with a Social Security Number associated with their SIPP internal identification number. Only those with spouses eligible to apply for SSDI benefits in the given month were included in this sample. Excluded are household workers, armed forces personnel, unemployed military personnel, those with job spans lasting less than one day, those with allocated responses, those younger than 21 or older than 60 or with spouses younger than 21 or older than 60, those with weekly hours less than or equal to zero or a real hourly wage of less than $0.10, and those who are not original sample members. Asymptotic standard errors are in parentheses. Significance: '*'=5%; '**'=1%; '***'=0.1%.

Table 21: Percent Effect of Exogenous Health and Layoff Shocks of Spouse on the Hourly Wage and Weekly Hours of Married Workers- Significant Values Only

	Unrestricted Married Sample SIPP Health Measures		Restricted Spouse Sample SIPP Health Measures		SSA Health Measures	
	Hourly Wage	Weekly Hours	Hourly Wage	Weekly Hours	Hourly Wage	Weekly Hours
Exogenous Health Shock of Wife:						
0-1 Year Ago	-0.0812	-0.0510	-0.0836	-0.0590	-0.1203	-0.0975
1-2 Years Ago	-0.0409	-0.0336	-0.0466	-0.0487	-	-
2+ Years Ago	-	-	-	-	-	-
Exogenous Layoff Shock of Wife:						
0-1 Year Ago	-0.0274	-	-	-	-	-
1-2 Years Ago	-	-	0.0479	-	0.0482	-
2+ Years Ago	0.0396	-	0.0568	-	0.0572	-
Exogenous Health Shock of Husband:						
0-1 Year Ago	-0.0574	-0.0281	-0.0480	-0.0251	-0.1805	-0.1411
1-2 Years Ago	-	-0.0716	-	-0.0780	-0.2000	-0.1651
2+ Years Ago	-	-0.0705	-	-0.0931	-	-0.3321
Exogenous Layoff Shock of Husband:						
0-1 Year Ago	-0.0340	-	-0.0224	0.0101	-0.0228	0.0105
1-2 Years Ago	-0.0251	0.0204	-0.0228	0.0247	-0.0230	0.0247
2+ Years Ago	-	0.0469	-	0.0563	-	0.0555

Note: The percent effect on the hourly wage and weekly hours of a worker is calculated by exponentiating the estimated coefficient of interest and subtracting one from this value: $e^{\delta}-1$.

Table 22: Joint Estimation of Wage and Hours with Heterogeneity in the Unrestricted Sample of Married Workers- The Effect of Own Shocks on Married Workers

	Unrestricted Married Worker Sample SIPP Health Measures	
	Hourly Wage	**Weekly Hours**
Own Exogenous Health Shock of Male Worker:		
0-1 Year Ago	-0.2687 ***	-0.0797 ***
	(0.0259)	(0.0196)
1-2 Years Ago	-0.1640 ***	-0.0517 **
	(0.0308)	(0.0166)
2+ Years Ago	-0.1656 ***	-0.0764 ***
	(0.0276)	(0.0180)
Own Exogenous Layoff Shock of Male Worker:		
0-1 Year Ago	-0.0609 ***	-0.0045
	(0.0099)	(0.0060)
1-2 Years Ago	-0.1025 ***	-0.0060
	(0.0097)	(0.0052)
2+ Years Ago	-0.0431 ***	0.0187 ***
	(0.0099)	(0.0050)
Own Exogenous Health Shock of Female Worker:		
0-1 Year Ago	-0.2031 ***	-0.0970 ***
	(0.0311)	(0.0146)
1-2 Years Ago	-0.1177 ***	-0.0342 **
	(0.0269)	(0.0133)
2+ Years Ago	-0.1119 ***	0.0695 ***
	(0.0275)	(0.0136)
Own Exogenous Layoff Shock of Female Worker:		
0-1 Year Ago	-0.0881 ***	0.0367 **
	(0.0152)	(0.0126)
1-2 Years Ago	-0.0492 **	0.0211
	(0.0154)	(0.0120)
2+ Years Ago	-0.0294	0.0581 ***
	(0.0156)	(0.0124)
Stdev. Residuals: σ_ε, σ_η	0.3159	0.1764
Stdev. Person Effects: σ_θ, σ_α	0.3272	0.2449
Corr. Person Effects: $\rho_{\theta\alpha}$	0.5131	
Stdev. Job Match Effects: σ_ψ, σ_χ	0.3551	0.3955
Corr. Job Match Effects: $\rho_{\psi\chi}$	0.2301	
Number of Workers	7,671	
Number of Jobs	12,398	
ln-L	-49,680.78	

Note: Excluded are household workers, armed forces personnel, unemployed military personnel, those with job spans lasting less than one day, those with allocated responses, those younger than 21 or older than 60 or with spouses younger than 21 or older than 60, those with weekly hours less than or equal to zero or a real hourly wage of less than $0.10, and those who are not original sample members. Asymptotic standard errors are in parentheses. Significance: '*'=5%; ''=1%; '***'=0.1%.**

Table 23: Joint Estimation of Wage and Hours with Heterogeneity in the Restricted Married Worker Sample- The Effect of Own Shocks on Married Workers

| | Restricted Married Worker Sample | | | |
| | SIPP Health Measures | | SSA Health Measures | |
	Hourly Wage	Weekly Hours	Hourly Wage	Weekly Hours
Own Exogenous Health Shock of Male Worker:				
0-1 Year Ago	-0.2488 ***	-0.0962 ***	-0.2030 ***	-0.0859
	(0.0270)	(0.0188)	(0.0463)	(0.0588)
1-2 Years Ago	-0.1792 ***	-0.0399 **	-0.1265 *	0.0665
	(0.0316)	(0.0155)	(0.0526)	(0.0467)
2+ Years Ago	-0.1732 ***	-0.0670 ***	-0.3399 ***	-0.0034
	(0.0282)	(0.0170)	(0.0627)	(0.1044)
Own Exogenous Layoff Shock of Male Worker:				
0-1 Year Ago	-0.0664 ***	-0.0055	-0.0685 ***	-0.0058
	(0.0102)	(0.0057)	(0.0102)	(0.0057)
1-2 Years Ago	-0.1067 ***	-0.0069	-0.1086 ***	-0.0073
	(0.0099)	(0.0049)	(0.0099)	(0.0049)
2+ Years Ago	-0.0591 ***	0.0163 ***	-0.0601 ***	0.0160 ***
	(0.0102)	(0.0048)	(0.0102)	(0.0048)
Own Exogenous Health Shock of Female Worker:				
0-1 Year Ago	-0.2053 ***	-0.0466	-0.2536 **	-0.0459
	(0.0429)	(0.0286)	(0.0971)	(0.0726)
1-2 Years Ago	-0.0857 *	-0.0402	-0.0957	-0.0357
	(0.0359)	(0.0250)	(0.1169)	(0.0680)
2+ Years Ago	-0.0940 *	0.0559 *	-0.0569	0.0564
	(0.0376)	(0.0250)	(0.1559)	(0.1368)
Own Exogenous Layoff Shock of Female Worker:				
0-1 Year Ago	-0.0969 ***	0.0383 **	-0.0952 ***	0.0389 **
	(0.0167)	(0.0135)	(0.0168)	(0.0135)
1-2 Years Ago	-0.0606 ***	0.0162	-0.0599 ***	0.0166
	(0.0170)	(0.0129)	(0.0171)	(0.0130)
2+ Years Ago	-0.0450 **	0.0529 ***	-0.0443 *	0.0532 ***
	(0.0171)	(0.0133)	(0.0173)	(0.0133)
Stdev. Residuals: σ_ε, σ_η	0.3105	0.1694	0.3105	0.1694
Stdev. Person Effects: σ_θ, σ_α	0.3189	0.2150	0.3219	0.2156
Corr. Person Effects: $\rho_{\theta\alpha}$	0.4982		0.5005	
Stdev. Job Match Effects: σ_ψ, σ_χ	0.3487	0.3888	0.3486	0.3888
Corr. Job Match Effects: $\rho_{\psi\chi}$	0.2334		0.2338	
Number of Workers	6,225		6,225	
Number of Jobs	10,120		10,120	
ln-L	-27,631.45		-27,668.66	

Note: The restricted sample is limited to those individuals with a Social Security Number associated with their SIPP internal identification number. Only those eligible to apply for SSDI benefits in the given month were included in this sample. Excluded are household workers, armed forces personnel, unemployed military personnel, those with job spans lasting less than one day, those with allocated responses, those younger than 21 or older than 60 or with spouses younger than 21 or older than 60, those with weekly hours less than or equal to zero or a real hourly wage of less than $0.10, and those who are not original sample members. Asymptotic standard errors are in parentheses. Significance: '*'=5%; '**'=1%; '***'=0.1%.

Table 24: Percent Effect of Own Exogenous Health and Layoff Shocks on the Hourly Wage and Weekly Hours of Married Workers- Significant Values Only

	Unrestricted Married Worker Sample SIPP Health Measures		Restricted Married Worker Sample SIPP Health Measures		SSA Health Measures	
	Hourly Wage	Weekly Hours	Hourly Wage	Weekly Hours	Hourly Wage	Weekly Hours
Own Exogenous Health Shock of Male Worker:						
0-1 Year Ago	-0.2356	-0.0766	-0.2203	-0.0917	-0.1837	-
1-2 Years Ago	-0.1513	-0.0504	-0.1641	-0.0391	-0.1188	-
2+ Years Ago	-0.1526	-0.0736	-0.1590	-0.0648	-0.2882	-
Own Exogenous Layoff Shock of Male Worker:						
0-1 Year Ago	-0.0591	-	-0.0642	-	-0.0662	-
1-2 Years Ago	-0.0974	-	-0.1012	-	-0.1029	-
2+ Years Ago	-0.0422	0.0189	-0.0574	0.0164	-0.0583	0.0161
Own Exogenous Health Shock of Female Worker:						
0-1 Year Ago	-0.1838	-0.0924	-0.1856	-	-0.2240	-
1-2 Years Ago	-0.1110	-0.0336	-0.0821	-	-	-
2+ Years Ago	-0.1059	0.0720	-0.0897	0.0575	-	-
Own Exogenous Layoff Shock of Female Worker:						
0-1 Year Ago	-0.0843	0.0374	-0.0924	0.0390	-0.0908	0.0397
1-2 Years Ago	-0.0480	-	-0.0588	0.0163	-0.0581	-
2+ Years Ago	-	0.0598	-0.0440	0.0543	-0.0433	0.0546

Note: The percent effect on the hourly wage and weekly hours of a worker is calculated by exponentiating the estimated coefficient of interest and subtracting one from this value: $e^{\delta}-1$.