WORK CONTINUATION WHILE TREATED FOR BREAST CANCER: THE ROLE OF WORKPLACE ACCOMMODATIONS

DAVID NEUMARK, CATHY J. BRADLEY, MIGUEL HENRY, AND BASSAM DAHMAN*

Given the short- and long-term disabilities associated with breast cancer and its treatment, the authors investigate the influence of workplace accommodations on the employment and hours worked of women newly diagnosed with breast cancer. Accommodations that allow women to work fewer hours or that ease the burden of work could also generate health benefits by reducing workplace demands and allowing women more time to tend to treatment needs and recovery. In prior research, the authors found modest labor supply impacts on employment for this group of women. Evidence from this study suggests that some accommodations are associated with fewer hours worked, while some are associated with higher employment or hours. In addition, some of the accommodations that may affect hours of work—sometimes positively and sometimes negatively—are associated with positive health benefits.

Cancer is included as a specific condition that warrants workplace accommodations under the provisions of the Americans with Disabilities Act

*David Neumark is a Professor in the Department of Economics, and Director of the Center for Economics & Public Policy, University of California, Irvine; a Research Associate at the National Bureau of Economic Research; and a Research Fellow at the Institute for the Study of Labor (IZA). Cathy J. Bradley is a Professor in the Department of Healthcare Policy and Research and the Massey Cancer Center at the Virginia Commonwealth University, Richmond, Virginia. Miguel Henry is an Economist in the Actuarial and Economic Division of the National Council on Compensation Insurance. Bassam Dahman is an Assistant Professor in the Department of Healthcare Policy and Research at the Virginia Commonwealth University, Richmond, Virginia. Research was supported by NCI grant number R01-CA122145, "Health, Health Insurance, and Labor Supply." Dahman's research was also supported by the Biostatistics Core, Massey Cancer Center, P30CA016059, Massey Cancer Center Core Grant. The authors are grateful to Mirna Hernandez for project coordination, Scott Barkowski for programming support, the interviewers and medical record auditors who collected the data, and the many subjects who generously donated their time to the project. This research was conducted while Dr. Henry was an instructor at Virginia Commonwealth University. The views expressed are the authors' and do not necessarily reflect the views of the National Council on Compensation Insurance (NCCI), Inc. A data appendix with additional results, and copies of computer programs used to generate the results presented in the article, are available from Bassam Dahman at bdahman@vcu.edu.

Keywords: workplace accommodations, breast cancer, labor supply

ILR Review, 68(4), August 2015, pp. 916–954
DOI: 10.1177/0019793915586974.
Journal website: ilr.sagepub.com
Reprints and permissions: sagepub.com/journalsPermissions.nav

(ADA) Amendments Act of 2008 (U.S. Employment and Equal Opportunity Commission 2008). This law makes discrimination against qualified individuals with a disability illegal and requires the provision of "reasonable accommodation," which includes changes in the physical environment or job flexibility such as modified work schedules or reassignment to a vacant position (U.S. Department of Justice 2012).

Female breast cancer survivors constitute the largest percentage of all cancer survivors (22%) and the largest percentage (41%) of all female cancer survivors (National Cancer Institute 2011a). Numerous studies of breast cancer's impact on employment have been done (Bouknight, Bradley, and Luo 2006; Bradley, Oberst, and Schenk 2006; Bradley, Neumark, Luo, and Bednarek 2007; Bradley, Neumark, and Barkowski 2013), motivated by the fact that breast cancer strikes women of working ages and screening is recommended to start at age 40 (American Cancer Society 2012), resulting in many working-age women being diagnosed with and treated for the disease.

Breast cancer is treated surgically, through either a lumpectomy or mastectomy, and depending on the characteristics of the tumor, biomarkers, nodal involvement, and breast cancer risk factors, chemotherapy and/or radiation may be prescribed (National Cancer Institute 2015). The active treatment period is when work loss is inevitable and often longer-term health effects emerge. Approximately 60% of women reported having a physical disability at 12 months following diagnosis (Oberst et al. 2010). Mastectomy, for example, can result in reduced upper-body strength and mobility limitations (Hansen, Feuerstein, Calvio, and Olsen 2008; Calvio et al. 2010). Women treated with chemotherapy work fewer hours and have more work limitations relative to their prediagnosis work performance (Hoyer et al. 2012). Cognitive limitations, especially those related to attention and memory, are ongoing complaints for cancer survivors who received chemotherapy (Boykoff, Moieni, and Subramanian 2009; Calvio, Feuerstein, Hansen, and Luff 2009; Calvio et al. 2010). Fatigue is also problematic for these patients and can continue long after treatment is complete (Lavigne, Griggs, Tu, and Lerner 2008). Together, this evidence suggests that workplace accommodations during and following treatment—in some cases mandated by the ADA—may be needed to allow women to continue employment.

In a prior study, we found that 83% of women with breast cancer remained working two months following treatment. At nine months following initiation of treatment, 90% of women were working (Bradley et al. 2013). Given the short- and long-term disabilities associated with breast cancer and its treatment, these rather modest labor supply impacts led us to investigate in this article the role workplace accommodations may have had in breast cancer survivors' employment and hours worked. Although accommodations would be expected to make remaining employed easier for women, the effects on hours could go, a priori, either way. Accommodations could reduce the weekly hours worked by allowing women a flexible or reduced schedule, more rest breaks, or a helper, perhaps enabling women to remain employed while undergoing treatment. Alternatively, some accommodations, such as

rehabilitation services or special equipment, may allow women not only to remain employed but also to work more hours than they would without the benefit of these accommodations. Presumably accommodations, particularly those that allow women to work fewer hours or ease the burden of work, could also generate health benefits because they reduce workplace demands and allow women more time to tend to treatment needs and recovery.

In this article, we examine the type of accommodations women received and their subsequent impact on labor supply two and nine months following the initiation of treatment for breast cancer. Given the timing of treatment, these two time points provide insight into the accommodations provided during the active treatment period (two-month interview) and when treatment is complete for many, although not all, women (nine-month interview).

Our descriptive evidence points to a high degree of accommodation of women with breast cancer by their employers. This evidence is consistent with Burkhauser et al. (2012), who used the Health and Retirement Study (HRS) and reported accommodations by respondents who had a wide range of disabilities.[1] Moreover, in a study of nearly 60,000 claims filed under the ADA, Feurerstein, Luff, Harrington, and Olsen (2007) found that only 2.9% of them were related to cancer. Compared to employees with orthopedic, sensory, neurological, and medical impairments who filed claims, employees with cancer were less likely to file a claim for failure to provide reasonable accommodation. In a prior study of employed women diagnosed with breast cancer, 87% reported that their employer was accommodating to their illness and need for treatment (Bouknight et al. 2006).

In addition to overall labor supply responses to accommodation, we study whether labor supply responses to accommodation vary depending on whether women perform physical or mental job tasks. Finally, we examine the association between accommodations provided early in the treatment phase and physical health status reported at the nine-month interview, when treatment is complete or nearly complete.

Inherent difficulties are involved in measuring workplace accommodations and estimating their effects on labor supply. One problem is heterogeneity bias arising from a correlation between accommodations and unobservable determinants of labor supply. For example, women more interested in remaining employed (or working more hours) may be precisely the ones who received accommodations. Alternatively, those with the most severe health impacts may receive accommodations. Either would undermine a causal interpretation, and as these two examples suggest, the bias could go in either direction.

The second problem, more specific to this particular topic, is that workplace accommodations may be less likely to be reported for women who substantially reduced their labor supply, in particular for those who stopped

[1]They also found that structural accommodations such as those that required modification to the workplace were less frequent.

working irrespective of employer accommodation and thus who may not have had an opportunity to determine whether the employer would have provided an accommodation. If we treat no *report* of accommodations as failure of the employer to accommodate, this can generate a bias toward reported accommodations enabling greater labor supply.

We propose a few ways to address these challenges in studying the effects of workplace accommodations on the labor supply of women with breast cancer. Our evidence suggests that some accommodations appear to affect the number of hours worked negatively and that some affect hours worked and employment positively. In addition, some of the accommodations that appear to influence the hours of work are associated with positive health benefits.

Data

The procedures for enrolling subjects in the study have been described elsewhere (Bradley et al. 2013). In brief, we enrolled 625 employed women subsequently diagnosed with breast cancer who were within two months of initiating treatment with intent to cure. To obtain this sample, we collaborated with three hospital-based treatment centers and five oncology centers in urban and rural areas in Virginia. The women were between ages 21 and 64 years and employed. And, because this study was part of a larger study that examined the impact of health insurance on work outcomes, the women were insured either through their employer or through a spouse's employer (if married). The study was intended to examine differences in labor supply among married women with different sources of health insurance, but the study team received an administrative supplement to enroll and interview 150 single women who may also experience insurance-related pressures to remain employed.

We conducted telephone interviews with women at baseline, at which time they were asked to describe their employment situation prior to diagnosis and within two months following surgery or the initiation of chemotherapy or radiation. They were interviewed again around nine months after initiating treatment. The interviews began in fall 2007, and the last interview was completed in September 2011.

The questionnaires asked information about the women's demographic characteristics, weekly hours worked, firm characteristics, job tasks performed, and accommodations received from an employer. We also audited the women's medical records to extract information about cancer stage, surgery, and treatment. We retained 95% of the enrolled sample during the study period. Of those who dropped out of the study and for whom we have cancer stage information, more of them had Stage III cancer than the women who were retained. Thus, those who dropped out may have been sicker and required more extensive treatment than the retained women, potentially leaving the sample with fewer women who required work accommodations to continue employment. Of the 625 women in our sample, we

excluded 12 women who dropped out following surgery or the initiation of chemotherapy or radiation, 16 women who dropped out before the nine-month interview, 9 women with missing data, and 32 women who reported that they were self-employed (the ADA is irrelevant to those who are self-employed), leaving a sample of 556 patients, 106 of whom were not employed at the two-month interview.

We asked accommodation questions at the two-month interview (which occurred within two months of the women's initiating chemotherapy and/or radiation) and the nine-month interview (which often occurred a month or two after the target date). The timing of the interviews was chosen to capture the active treatment period and a period following the completion of treatment for the majority of women. Radiation (at the time of the study) is typically given daily for a period for five to six weeks, whereas chemotherapy regimens vary widely. Intravenous chemotherapy can be given weekly, biweekly, every three weeks, or monthly. These regimens can last four to six weeks or for several months. Dose-limiting toxicities can extend the time women are treated with chemotherapy, particularly if regimens are delayed or altered. In our study, all women were treated surgically, and 76% were receiving chemotherapy or radiation at the two-month interview, whereas only 14% were receiving chemotherapy or radiation at the nine-month interview. Women with shorter treatment cycles or who tolerated treatment well may have recovered by the time of the nine-month interview.

The accommodation questions were the same questions as those used in the HRS, a valid and reliable instrument. Women were asked if they received any of the following nine accommodations: someone to help you, shorter workday, flexible time to come in and leave work, more breaks and rest periods, job change to something you could do, help learning new skills, special equipment, special transportation, and assistance with receiving rehabilitative services from an external provider.[2] In each case, women were asked whether their employer provided the accommodation. For example, women were asked, "Does your employer get someone to help you?" The response categories were "Yes," "No," and "Refused."[3]

Empirical Approach

For all outcomes described in this section, we estimate two models. The first includes accommodations captured in a single dummy variable that indicates whether a woman received any accommodation from a list of specific

[2]Women were also asked if they strongly agreed, agreed, disagreed, or strongly disagreed with the statement "Your employer was accommodating to your need for treatment." We chose not to use this question in our analysis because it asks for a more subjective impression that could reflect the actions or sentiment of the employer, coworkers, or work environments rather than whether the women received a specific accommodation. Furthermore, using either this question or the set of questions about specific accommodations to measure whether women had *any* accommodation (see Table 1), we found that the degree of missing responses for whether a worker had any accommodation was very similar.

[3]The questionnaire is available on request.

accommodations women were asked about. The second model simultaneously includes separate dummy variables for all nine individual accommodations (got shorter workday, allowed more rest breaks, etc.).[4]

Labor Supply Outcomes

We define *employment* as a binary outcome (E_{it}) that equals 1 if the individual woman (indexed by i) reports that she worked one or more hours for pay or profit at the two-month or nine-month interview (indexed by t). $\mathbf{A}_{it}$ denotes a vector of dummy variables for the individual accommodations in the models that include all accommodations together or a single indicator variable representing the receipt of any accommodation, at the tth interview. $\mathbf{X}_{i1}$ denotes a vector of exogenous baseline variables, and $\mathbf{T}_{it}$ denotes health status and treatment variables, which we measure at the same period as the labor supply outcome. We estimate linear regression models relating employment or hours to accommodations and the controls. Because of the issues involved with the measurement of accommodations noted previously, however, we vary the periods at which labor supply and accommodations are measured, as well as the sample used.

In our first approach, because accommodations may not be reported by those not working in the corresponding period, we condition on being employed at the two-month interview and estimate the effect of accommodations reported at the two-month interview on labor supply at the nine-month interview. (Recall that our study sample is conditioned on employment at the baseline, before diagnosis.) Specifically, letting the time index (t) equal 1 for the baseline, 2 for the two-month interview, and 3 for the nine-month interview, we first estimate a linear probability model for employment of the form:

$$(1) \qquad E_{i3} = \alpha_E + \mathbf{A}_{i2}\boldsymbol{\beta}_{\mathbf{E}} + \mathbf{X}_{i1}\boldsymbol{\gamma}_{\mathbf{E}} + \mathbf{T}_{i3}\boldsymbol{\tau}_{\mathbf{E}} + \varepsilon^{E}_{i3} \mid E_{i1} = 1 \text{ and } E_{i2} = 1$$

We also estimate a corresponding linear regression model for the weekly hours worked (H_{i3}) at the nine-month interview

$$(2) \qquad H_{i3} = \alpha_H + \mathbf{A}_{i2}\boldsymbol{\beta}_{\mathbf{H}} + \mathbf{X}_{i1}\boldsymbol{\gamma}_{\mathbf{H}} + \mathbf{T}_{i3}\boldsymbol{\tau}_{\mathbf{H}} + \varepsilon^{H}_{i3} \mid E_{i1} = 1 \text{ and } E_{i2} = 1$$

In addition, we report estimates for hours worked at the nine-month interview conditional on employment at that interview ($E_{i3} = 1$). The unconditional models capture the effect of nonemployment for women no longer working as well as changes in the number of hours worked, and the conditional models capture only the latter.

[4]For the specifications in which we include all the accommodations separately, we also estimated separate models, including each of these nine accommodations one at a time; in those we also include a dummy variable for whether any other accommodation was received. Results (not shown) were qualitatively similar to estimates from the models including all the accommodation simultaneously, indicating that enough independent variation among accommodations exists that collinearity among the dummy variables for the different accommodations is not problematic.

We begin with the approach of studying the effects of accommodations reported at the two-month interview on labor supply at the nine-month interview, for those women employed at the two-month interview, to overcome the potential problem with collecting meaningful contemporaneous data on accommodations from women who are no longer working. Women no longer working may not accurately recall prior workplace accommodations, they may perceive that questions regarding workplace accommodations are not relevant to them and leave accommodation questions unanswered, or they may respond that no accommodation was made simply because by leaving employment they gave the employer no opportunity to provide an accommodation. In our study, if the woman was no longer working, interviewers were instructed to ask the question to refer back to the time when the woman worked. Nonetheless, we found that a disproportionate percentage of women who were no longer working responded to at least one of the accommodation questions as "Refused" (12.3% of those not working compared to only 1.3% of those working at the two-month interview, and 16.2% of those not working compared to 0.8% of those working at the nine-month interview); and 3.8% of those not working, compared to none of those working, gave this response for every accommodation question. These refusals may simply reflect an inability to answer the questions meaningfully because the women were not working. But if we treat these women as not having been accommodated, then the estimated effect of accommodation on labor supply is potentially upwardly biased simply because being employed makes the possibility more likely that a woman *could have* answered in the affirmative to the accommodations questions.[5] The way we use the data in Equations (1) and (2) should avoid this bias.

On the other hand, the restricted way in which we use the data in Equations (1) and (2) poses its own limitations. First, it precludes estimating the effects of accommodations on labor supply at the two-month interview, which is the period when treatment is most intense and hence for which such estimates would be of great interest. Second, we lose information on all the women no longer working as of the two-month interview (in this study, just under 20% of the study sample). Third, accommodations provided at the two-month interview may be for conditions that were no longer relevant at the nine-month interview, and hence we may fail to detect the effects of accommodations on labor supply even when such effects exist.

To overcome the third limitation in isolation, we estimate models only for hours worked conditional on employment—estimating the effect of accommodations at the two-month interview on hours worked at the two-month interview for those employed at that interview, and estimating a similar effect at the nine-month interview. In this case as well, we avoid the problem

[5]In principle, instead of relying on individual reports of accommodations, we could imagine trying to characterize employers by whether or not they provide accommodations and estimating the effect of employer accommodation "policies" on labor supply. This approach would require an independent survey of employers. And the approach could still suffer from the same problem if firms where more workers leave employment because of an illness are less likely to report accommodations because of the employment decisions of the workers, rather than the workers' employment decisions reflecting employers' willingness to accommodate.

of unreported potential accommodations because the women stopped working, and we estimate the effect of contemporaneous accommodations, albeit only for hours conditional on employment.

The only way to overcome these limitations in studying the effects on employment and unconditional hours is to estimate employment and hours models at both the two-month and nine-month interviews using the accommodation responses corresponding to those interviews whether or not the women were employed. But that, in turn, necessitates thinking about how to interpret and use the accommodations data, in particular the responses indicating no accommodation or "Refused" among nonemployed women. We report two sets of estimates coding the accommodations data in different ways. First, we report estimates treating nonemployed women who had missing accommodation information or who responded that they were not accommodated as, in fact, not accommodated (had they chosen to work). Second, we assume that these women would have been accommodated had they been employed. Because we expect that in reality some of the nonemployed women were in fact not accommodated and that some would have been, these two ways of treating or coding the accommodations data should give us estimates that bound the true effects. That is, when we code the nonaccommodated, nonemployed women as accommodated, we increase the reported accommodations and overstate the actual accommodations for those not currently employed, hence imparting a negative bias to the estimated effects of accommodations on labor supply. And when we instead code these women as not accommodated, we incorrectly code some women who would have been accommodated as *not* accommodated and understate the accommodations for nonemployed women, hence imparting a positive bias to the estimated effects of accommodations on labor supply. As an intermediate step, prior to reporting these estimates we report estimates of the effects of accommodations measured at the two-month interview on labor supply at the nine-month interview, adding back in the women who were not employed at the two-month interview, while treating the "Refused" responses to the accommodations questions as missing.

To this point, we have focused on problems relating to the measurement of accommodation. The other, more generic problem is that unobserved heterogeneity may be associated with both accommodations and employment. For example, the women who receive accommodations may be those who are most attached to their jobs, which leads them both to seek accommodations (or their employers to offer them) and to continue working or to work more hours. In this case, we would expect the estimated effects of accommodations on labor supply to be upward biased. Alternatively, women who are the most adversely affected by their treatment or disease may be the most likely to require and hence sometimes receive accommodations, in which case the estimated effects of accommodations on labor supply would be downward biased, assuming the treatment or disease reduces labor supply.

To control for covariation between unobserved factors affecting labor supply and accommodation, we explored estimating instrumental variable

(IV) models. We might consider firm size as an instrument because firms with 50 or more workers are covered by the Family and Medical Leave Act and firms with 15 or more workers are covered by the ADA. However, firm size could also directly affect labor supply because larger firms may simply have more inherent flexibility to accommodate the workplace needs of workers with morbidities. Dummy variables for firm-size categories (< 25, 25 to 49, 50 to 99, and 100 or more) were used as instruments. In the first stage the explanatory power of the excluded instruments was low, with *F*-statistics < 1.61. Furthermore, other tests of weak instruments (specifically, Lagrange multiplier and Wald tests) failed minimally acceptable thresholds for statistical significance. (These results are reported in the Appendix and not discussed further.)

Thus, we do not have an instrumental variable that predicts accommodation (even if we assume that it does not directly affect labor supply). We do, however, have a rich set of measures of both health status and job involvement, and by including these as controls, we hope to largely avoid problems from unobserved heterogeneity along these two dimensions. We report estimates of parsimonious baseline models and then models with the addition of health-status variables and models with both health-status and job-involvement variables. The estimates were slightly more sensitive to these variables in the models for weekly hours worked as opposed to employment, but overall the coefficient estimates for accommodations were not very sensitive to the addition of these variables to the models, suggesting that heterogeneity bias is probably not severe.

Another issue to consider is that accommodation may have a differential impact on labor supply, depending on the type of job the woman performs. For example, women employed in physically demanding jobs may have a greater need for accommodation, such as special equipment or rehabilitation services or perhaps job restructuring. Likewise, women in jobs that rely more on mental tasks (e.g., concentration, memory, or data analysis) may require someone to help them during the day or more rest breaks to avoid mistakes in task performance. We have extensive information on job tasks, which we include as controls, but to test for these kinds of differential effects of accommodation depending on job tasks, we estimate models with interactions between types of job tasks and types of accommodation. In particular, we separate job tasks into physical and mental tasks. Physical tasks (PTs) include jobs that require physical effort; lifting heavy loads; stooping, kneeling, or crouching; and keeping pace with others all or almost all the time. Mental tasks (MTs) include jobs that require intense concentration or attention, analysis of data or information, and learning new things all, almost all, or most of the time. Women can perform both PTs and MTs (i.e., the categories are not mutually exclusive).

In this analysis, we look at the interaction between tasks and accommodations for one accommodation at a time while controlling for the other accommodations. For hours, for example, we augment our specification and estimate:

$$(3) \qquad H_{i3} = \alpha_H + \mathbf{A}_{i2}\boldsymbol{\beta}_{\mathbf{H}} + \mathbf{X}_{i1}\boldsymbol{\gamma}_H + \mathbf{T}_{i3}\boldsymbol{\tau}_{\mathbf{H}} + \delta PT_i + \phi MT_i + \lambda_H A'_{i2} \times PT_i + \xi_H A'_{i2} \times MT_i + \varepsilon^H_{i3} \mid E_{i1} = 1 \text{ and } E_{i2} = 1$$

In Equation (3), A'_{i2} is the individual accommodation tested for the interaction with the PTs and MTs, which are included in the vector $\mathbf{A}_{i2}$. We estimate analogous equations for employment and for unconditional weekly hours worked. We report estimates of these interactive specifications only for the analysis corresponding to Equations (1) and (2), that is, conditioning on employment at the two-month interview and estimating the effects of accommodations at the two-month interview on labor supply at the nine-month interview. For the reasons previously described, despite some limitations we regard these as our most reliable estimates.

Health Status

Workplace accommodations may have a positive influence on health status. Women who receive workplace accommodations may recover from treatment faster than women who are not accommodated, although the potential for endogeneity bias is present in the opposite direction if poor health leads to more accommodation. Health status was measured using the physical component summary (PCS) score from the Medical Outcomes Study (MOS) 36-Item Short-Form Health Survey (SF-36) (Ware and Sherbourne 1992). Women were asked in the first interview to answer the SF-36 under the conditions "Please indicate how often you felt this way immediately before your diagnosis" and in subsequent interviews to reflect their current situation. Higher scores for the PCS are indicative of better health outcomes.

We estimate the effect of accommodations on scores on the PCS at the nine-month interview using linear regression models corresponding to Equation (2). We also do this for the same interactive specifications just described for labor supply. Like for the labor supply models, we estimate the model with and without job-involvement dummy variables. In this case, however, we control for the baseline health status scores because health status at the time of the interview is the dependent variable and the contemporaneous health status relative to the earlier health status is of the most interest.

Control Variables

Control variables included breast cancer stage and treatment, firm characteristics, job tasks, job involvement, and subjects' demographic characteristics. Breast cancer stage is measured at diagnosis and categorized as Stage 0, Stage I, Stage II, or Stage III (Stage IV is excluded). Because treatment is likely to affect both the ability to work and the need for accommodation, we add separate indicators for whether chemotherapy and/or radiation were received at the time of the two-month or nine-month interviews (corresponding to the time at which labor supply is measured).

Baseline (or prediagnosis) firm characteristics included firm size (< 25, 25 to 49, 50 to 99, or 100 or more employees), and employer type

(government, private for-profit, or nonprofit). Job-task questions asked if the woman agreed with statements such as "My job involves a lot of physical effort." The response categories were "All/almost all of the time," "Most of the time," "Some of the time," or "None/almost none of the time" for the following tasks: physical effort, lifting heavy loads, stooping/kneeling/crouching tasks, intense concentration/attention, data analysis, keeping up with the pace set by others, learning new things, and whether the job requires good eyesight. We dichotomized responses into "All/almost all of the time/most of the time" and "Some of the time/none/almost none of the time." We also asked subjects to report the number of hours they spent sitting per day and created categorical variables indicating if the respondent spent less than or equal to 2.5 hours, more than 2.5 up to 5 hours, more than 5 up to 7 hours, or more than 7 hours per day sitting. Controls were also included for white-collar and blue-collar jobs.

The baseline demographic controls variables describing the subjects are individual characteristics: age (< 37, 37 to 46, 47 to 56, or 57 and older), race/ethnicity (non-Hispanic white, non-Hispanic African American, or other), education (high school diploma or less, some college or associate's degree, bachelor's degree, or advanced degree), marital status (married or unmarried), whether the subject had children under age 18, and annual household income (< $40,000, between $40,000 and $74,999, between $75,000 and $150,000, or > $150,000). Building on our prior work (Bradley et al. 2013), we also include a variable for whether women had employment-contingent health insurance (i.e., insurance through their own employer). All unmarried women had health insurance through their own employer; married women were insured either by their own employer or by their spouse's employment-based policy. We included a control for weekly hours worked prior to the diagnosis.

We have already discussed the health-status and job-involvement measures that we include as additional controls. These are measured at each interview. We control for health status at the time at which labor supply is measured to capture potential correlations between health status and accommodations. We always use the baseline job-involvement responses because job involvement can be influenced by accommodations, and we are interested in capturing the ex ante variation in women's attachment to their work.

With regard to health status, in addition to the baseline tumor stage and the treatment indicators for the receipt of chemotherapy and radiation therapy at the time of measuring labor supply, we use measures of physical and mental health status as well as a measure of depression. Physical and mental health was measured using the SF-36v2, which was scored using QualityMetric's Health Outcomes Scoring Software (version 4.5.1). The Center for Epidemiological Studies—Depression (CESD-10) scale summary was used as an additional measure of depressive symptoms. The mental component summary (MCS) score, PCS score, and CESD-10 scale summary score measured at the same time as the labor supply measure were included in the estimations for labor supply.

We also included variables for job involvement. We assessed the women's degree of job involvement using Likert-type questions (Lodahl and Kejner 1965). Women were asked if they strongly agreed, agreed, disagreed, or strongly disagreed with five statements regarding their attitudes toward their jobs that reflect both commitment and the quality of the job. The statements were "The major satisfaction in my life comes from my job," "The most important things that happen to me involve my work," "I'm really a perfectionist about my work," "I live, eat, and breathe my job," and "I am very much involved personally in my work." We dichotomized the responses into "Strongly agree/agree" and "Strongly disagree/disagree."

Results

Descriptive Analysis

Table 1 reports the types of accommodations received by the women in the sample. Among those employed (columns 1 to 3), at the two-month interview 92% of the women received some type of workplace accommodation. Most women received at least one accommodation that allowed them to adjust the time they worked; more than half of the women had a shorter workday (54%), 86% were given a schedule change, and 63% were allowed more rest breaks. In addition, 52% got help from someone at work. Smaller percentages of women had a job change (12%), help learning new skills (11%), special transportation (4%), special equipment (7%), or assistance with getting rehabilitative services from an external provider (3%). The pattern of accommodations at the nine-month interview is similar, with time accommodations the predominant form of accommodation—but with two differences. First, in nearly every case the percentage of women who received accommodations is a bit lower. Second, the percentage getting help learning new skills is higher (16.4% compared to 11.1%).

Table 1, columns 4 to 6, reports on the accommodation responses from women not employed. The first finding to note is the one we referenced earlier: the percentages responding "Refused" are sizable for these women. This pattern prompted the concern that missing data on accommodations for nonemployed women might arise even if they would have been accommodated had they remained employed. In addition, as noted earlier, some women who responded that no accommodation had been made might have been accommodated had they remained employed. Thus, the lower share of women reporting any accommodation or specific accommodations (which is the case for many accommodations) may not be accurate, although of course it could reflect, in fact, a causal effect of nonaccommodation leading to nonemployment. For example, Table 1 indicates a much lower percentage of nonemployed women receiving a schedule change, and the lack of such an accommodation may force a woman to leave employment. This may be less important for some accommodations, such as help with learning new skills, for which the reported percentages are similar for employed (11.1%) and nonemployed (12.3%) women.

Table 1. Frequency of Workplace Accommodations (%)

	Employed			*Not employed*		
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
	Accommodated	*Did not receive accommodation*	*Refused*	*Accommodated*	*Did not receive accommodation*	*Refused*
A. Two-month interview						
Any accommodation	413 (91.8)	37 (8.2)	0 (0)	80 (75.5)	22 (20.8)	4 (3.8)
Time accommodations						
Shorter workday	241(53.6)	208 (46.2)	1 (0.2)	48 (45.3)	50 (47.2)	8 (7.6)
Schedule change	388 (86.2)	60 (13.3)	2 (0.4)	60 (56.6)	37 (34.9)	9 (8.5)
More breaks	282 (62.7)	167 (37.1)	1 (0.2)	53 (50.0)	43 (40.6)	10 (9.4)
Other accommodations						
Got helper	235 (52.2)	214 (47.6)	1 (0.2)	51 (48.1)	50 (47.2)	5 (4.7)
Job change	55 (12.2)	392 (87.1)	3 (0.7)	23 (21.7)	76 (71.7)	7 (6.6)
Help with learning new skills	50 (11.1)	399 (88.7)	1 (0.2)	13 (12.3)	86 (81.1)	7 (6.6)
Got special equipment	30 (6.7)	418 (92.9)	2 (0.4)	8 (7.6)	91 (85.9)	7 (6.6)
Got special transportation	16 (3.6)	431 (95.8)	3 (0.7)	7 (6.6)	91 (85.9)	8 (7.6)
Assisted with getting rehabilitative services from external provider	14 (3.1)	434 (96.4)	2 (0.4)	4 (3.8)	93 (87.7)	9 (8.5)
B. Nine-month interview						
Any accommodation	442 (90.6)	45 (9.2)	1 (0.2)	45 (66.2)	20 (29.4)	3 (4.4)
Time accommodations						
Shorter workday	196 (40.2)	291 (59.6)	1 (0.2)	23 (33.8)	37 (54.4)	8 (11.8)
Schedule change	383 (78.5)	104 (21.3)	1 (0.2)	37 (54.4)	23 (33.8)	8 (11.8)
More breaks	254 (52.0)	232 (47.5)	2 (0.4)	27 (39.7)	31 (45.6)	10 (14.7)
Other accommodations						
Got helper	220 (45.1)	266 (54.5)	2 (0.4)	20 (29.4)	42 (61.8)	6 (8.8)
Job change	54 (11.1)	433 (88.7)	1 (0.2)	15 (22.1)	44 (64.7)	9 (13.2)
Help with learning new skills	80 (16.4)	407 (83.4)	1 (0.2)	3 (4.4)	55 (80.9)	10 (14.7)
Got special equipment	26 (5.3)	461 (94.5)	1 (0.2)	7 (10.3)	51 (75.0)	10 (14.7)
Got special transportation	17 (3.5)	470 (96.3)	1 (0.2)	1 (1.5)	57 (83.8)	10 (14.7)
Assisted with getting rehabilitative services from external provider	12 (2.5)	474 (97.1)	2 (0.4)	0 (0)	62 (91.2)	6 (8.8)

Notes: For the coding of "Any accommodation," we assign the value of 1 for an affirmative response to any individual accommodation and 0 for no affirmative response but the woman answered the question for at least one accommodation. Because nonemployed women often answered only some of the accommodation questions, we therefore report a fairly small share as "Refused" for the "Any accommodation" variable. The percentages of women who answered "Refused" to at least one of the accommodation questions at the two-month interview are 1.3% and 12.3% among employed and nonemployed women, respectively. The corresponding percentages for the nine-month interview are 0.8% and 16.2%.

Table 2 reports the characteristics of the sample by those who received accommodations and those who did not receive an accommodation at the two-month interview. We focus first on firm and job characteristics (firm size and type, job tasks, job type, and job involvement) that are likely to be correlated with accommodation and the outcomes of interest (employment, hours worked, and perhaps also physical health status). Among employed women (columns 1 and 2), the only statistically significant differences we observe relating to accommodation are that women who were accommodated were more likely to be employed in jobs that required intense concentration ($p < .10$) and more likely to strongly agree or agree with the statement (paraphrased in the table) that "The most important things that happen to me involve my work" ($p < .05$).

As shown in the next rows of Table 2, labor supply and health status were not statistically significantly different between those accommodated and those not accommodated at the two-month interview. Among nonemployed women, no significant differences can be seen although recall that the interpretation of the Refused column is open to question. The remaining rows of Table 2 report on accommodations disaggregated by demographic characteristics. Significant differences by age are evident; a fairly pronounced indication exists that, for employed women, those who are accommodated are much more likely to be younger than those who are not accommodated.[6] (The same pattern is apparent for the nonemployed women, although the evidence against independence is not statistically significant in that case.) The age differences could reflect variation in how employers accommodate workers based on their ages, differences in the accommodations that workers seek, or differences in health. The age breakdowns, by the way, indicate that our sample consists to a large extent of women over age 40, mostly because screening mammography begins at age 40, leading to the detection of breast cancer in women in this age group. In addition, few breast cancers are detected in younger women. Only 1.8% of all new breast cancer cases are in women under age 35, whereas 57% of all cases occur in women between ages 35 and 65 (National Cancer Institute 2011b).

The final rows of Table 2 report differences in accommodation based on cancer stage and treatment. Among employed women, accommodations are significantly more common among women getting chemotherapy, most likely because chemotherapy is associated with fatigue, nausea, vomiting, hair loss, depression, and difficulties with memory and concentration—all of which may interfere with work performance (Balak et al. 2008; Ahn et al. 2009; Fantoni et al. 2010).

Labor Supply

Table 3 reports the regression estimates for labor supply at the nine-month interview as a function of accommodations at the two-month interview, for

[6]A significant difference by marital status is also evident, which could just reflect age.

Table 2. Descriptive Statistics, Women Newly Diagnosed with Breast Cancer, Two-Month Interview

	Employed			*Not employed*			
		(1)	*(2)*		*(3)*	*(4)*	*(5)*
Variable	*N*	*Any accommodation (%)*	*No accommodation (%)*	*N*	*Any accommodation (%)*	*No accommodation (%)*	*Refused (%)*
	450	*91.8*	*8.2*	*106*	*75.5*	*20.8*	*3.8*
Firm size							
< 25 employees	60	95.0	5.0	10	90.0	10.0	0.0
25–49 employees	24	87.5	12.5	6	66.7	33.3	0.0
50–99 employees	28	96.4	3.6	5	60.0	40.0	0.0
≥ 100 employees	338	91.1	8.9	85	75.3	20.0	4.7
Firm type							
Government	163	89.0	11.0	28	82.1	14.3	3.6
Private, for-profit	225	92.9	7.1	66	69.7	27.3	3.0
Nonprofit	62	95.2	4.8	12	8.3	91.7	0.0
Number of hours sitting per day							
≤ 2.5	91	86.8	13.2	45	62.2	28.9	8.9
> 2.5 and ≤ 5	119	90.8	9.2	28	89.3	10.7	0.0
> 5 and ≤ 7	149	93.3	6.7	20	80.0	20.0	0.0
> 7	91	95.6	4.4	13	84.6	15.4	0.0
Job tasks							
Physical effort							
All/almost all/most of the time	102	90.2	9.8	50	68.0	28.0	4.0
Sometime/never	348	92.2	7.8	56	82.1	14.3	3.6
Intense concentration or attention		*					
All/almost all/most of the time	368	92.9	7.1	93	76.3	20.4	3.2
Sometime/never	82	86.6	13.4	13	69.2	23.1	7.7
Lifting heavy loads							
All/almost all/most of the time	32	90.6	9.4	16	68.8	31.3	0.0

(continued)

Table 2. Continued

	Employed			*Not employed*			
		(1)	*(2)*		*(3)*	*(4)*	*(5)*
Variable	*N*	*Any accommodation (%)*	*No accommodation (%)*	*N*	*Any accommodation (%)*	*No accommodation (%)*	*Refused (%)*
	450	*91.8*	*8.2*	*106*	*75.5*	*20.8*	*3.8*
Sometime/never	418	91.9	8.1	90	76.7	18.9	4.4
Stooping, kneeling, or crouching							
All/almost all/most of the time	74	93.2	6.8	36	69.4	27.8	2.8
Sometime/never	376	91.5	8.5	70	78.6	17.1	4.3
Analysis of data or information							
All/almost all/most of the time	312	92.9	7.1	70	78.6	18.6	2.9
Sometime/never	138	89.1	10.9	36	69.4	25.0	5.6
Learning new things							
All/almost all/most of the time	254	92.5	7.5	65	75.4	20.0	4.6
Sometime/never	196	90.8	9.2	41	75.6	22.0	2.4
Good eyesight							
All/almost all/most of the time	395	91.4	8.6	97	76.3	20.6	3.1
Sometime/never	55	94.6	5.4	9	66.7	22.2	11.1
Keeping up with pace							
All/almost all/most of the time	263	92.8	7.2	71	73.2	22.5	4.2
Sometime/never	187	90.4	9.6	35	80.0	17.1	2.9
Job type							
White collar	419	91.9	8.1	94	75.5	21.3	3.2
Blue collar	31	90.3	9.7	12	75.0	16.7	8.3
Job involvement							
Job is my major satisfaction							
Strongly agree/agree	276	93.1	6.9	61	75.4	18.0	6.6
Strongly disagree/disagree	174	89.7	10.3	45	75.6	24.4	0.0
Most important events involve my work		**					
Strongly agree/agree	164	95.7	4.3	40	75.0	15.0	10.0

(continued)

Table 2. Continued

	Employed			*Not employed*			
		(1)	*(2)*		*(3)*	*(4)*	*(5)*
Variable	*N*	*Any accommodation (%)*	*No accommodation (%)*	*N*	*Any accommodation (%)*	*No accommodation (%)*	*Refused (%)*
	450	*91.8*	*8.2*	*106*	*75.5*	*20.8*	*3.8*
Strongly disagree/disagree	286	89.5	10.5	66	75.8	24.2	0.0
Perfectionistic about my work							
Strongly agree/agree	416	91.8	8.2	97	74.2	21.6	4.1
Strongly disagree/disagree	34	91.2	8.8	9	88.9	11.1	0.0
Live, eat, breathe my job							
Strongly agree/agree	111	91.0	9.0	19	68.4	15.8	15.8
Strongly disagree/disagree	339	92.0	8.0	87	77.0	21.8	1.1
Very personally involved in my work							
Strongly agree/agree	400	92.0	8.0	93	76.3	20.4	3.2
Strongly disagree/disagree	50	90.0	10.0	13	69.2	23.1	7.7
Employed at nine-month interview							
Yes	415	92.1	7.9	73	79.5	19.2	1.4
No	35	88.6	11.4	33	66.7	24.2	9.1
Mean weekly hours worked							
Baseline	450	42.77 (10.12)	43.26 (11.41)	106	40.98 (9.07)	39.36 (12.01)	39.00 (4.55)
Two-month	450	35.25 (11.15)	38.35 (10.20)	106	0	0	0
Nine-month (conditional)	415	39.58 (10.17)	40.32 (9.46)	73	39.06 (10.63)	33.14 (12.95)	40.00 (0.00)
Nine-month (unconditional)	450	36.61 (14.31)	35.96 (15.51)	106	28.32 (19.74)	21.09 (19.20)	10.00 (20.00)
Mean physical health							
PCS, two-month	450	44.46 (8.92)	46.00 (8.45)	106	38.33 (8.34)	37.56 (7.06)	43.15 (12.15)
PCS, nine-month	450	48.66 (9.33)	49.19 (9.16)	106	43.48 (10.40)	42.73 (9.49)	43.66 (11.07)
Demographics							
Age		***					
26–36	31	100.0	0.0	4	50.0	50.0	0.0
37–46	115	99.1	0.9	42	85.7	11.9	2.4

(continued)

Table 2. Continued

	Employed			*Not employed*			
		(1)	*(2)*		*(3)*	*(4)*	*(5)*
Variable	*N*	*Any accommodation (%)*	*No accommodation (%)*	*N*	*Any accommodation (%)*	*No accommodation (%)*	*Refused (%)*
	450	*91.8*	*8.2*	*106*	*75.5*	*20.8*	*3.8*
47–56	220	90.9	9.1	40	67.5	27.5	5.0
> 56	84	81.0	19.0	20	75.0	20.0	5.0
Marital status		**					
Married	349	93.4	6.6	72	76.4	20.8	2.8
Not married	101	86.1	13.9	34	73.5	20.6	5.9
Race							
White	349	91.7	8.3	65	78.5	20.0	1.5
Black, non-Hispanic	85	90.6	9.4	39	71.8	20.5	7.7
Other	16	100.0	0.0	2	50.0	50.0	0.0
Education							
High school diploma or less	58	94.8	5.2	24	54.2	37.5	8.3
Some college	119	91.6	8.4	35	88.6	8.6	2.9
Bachelor degree	152	92.8	7.2	25	80.0	20.0	0.0
Advanced degree	121	89.3	10.7	22	72.7	22.7	4.5
Kids < age 18							
Yes	163	94.5	5.5	44	72.7	25.0	2.3
No	287	90.2	9.7	62	77.4	17.8	4.8
Household income							
< 40,000	41	92.7	7.3	19	73.7	21.1	5.3
40,000–74,999	87	88.5	11.5	31	71.0	25.8	3.2
75,000–150,000	221	92.8	7.2	37	70.3	27.0	2.7
> 150,000	93	93.6	6.5	16	93.8	0.0	6.3
Missing	8	75.0	25.0	3	100.0	0.0	0.0

(continued)

Table 2. Continued

	Employed			*Not employed*			
		(1)	*(2)*		*(3)*	*(4)*	*(5)*
Variable	*N*	*Any accommodation (%)*	*No accommodation (%)*	*N*	*Any accommodation (%)*	*No accommodation (%)*	*Refused (%)*
	450	*91.8*	*8.2*	*106*	*75.5*	*20.8*	*3.8*
Cancer stage					**		
Stage 0	50	90.0	10.0	4	100.0	0.0	0.0
Stage I	164	90.9	9.1	17	76.5	23.5	0.0
Stage II	182	91.2	8.8	65	67.7	27.7	4.6
Stage III	54	98.1	1.9	20	95.0	0.0	5.0
Chemotherapy		**					
Yes	261	94.3	5.7	81	74.1	21.0	4.9
No	180	88.9	11.1	25	80.0	20.0	0.0
Missing	9	77.8	22.2	0			
Radiation							
Yes	80	87.5	12.5	3	100.0	0.0	0.0
No	363	92.6	7.4	101	74.3	21.8	4.0
Missing	7	100.0	0.0	2	100.0	0.0	0.0

Notes: Two-sample two-sided *t*-tests to compare continuous variables and chi-square test for categorical variables; these are computed for the nonmissing cases. Values in parentheses are standard deviations. PCS, physical component summary score from the Medical Outcomes Study 36-Item Short-Form Health Survey.
*Indicates $p < .1$; ** $p < .05$; *** $p < .01$.

women employed at the two-month interview. As explained earlier, this analysis avoids the problem of the potential nonreporting of a failure by employers to provide accommodations, but in so doing, it limits attention to only women employed at the two-month interview and studies the effects of accommodations on labor supply at a later period, when the accommodations may play less of a role.

Looking first at employment (Table 3, columns 1 to 3), we find very few significant differentials. First, the table shows no evidence that the general "Any accommodation" measure is associated with greater employment. Looking at the specific accommodations (column 1), we see that women who got a helper at work at the two-month interview were 5.2 percentage points more likely to be employed at the nine-month interview than women who did not get a helper ($p < .10$). When variables for health status and then job involvement are added to the model, the coefficient becomes only slightly smaller and loses statistical significance. The small change in the estimated coefficient suggests only minor bias, if any, from heterogeneity associated with labor supply and accommodations, including unobservables that we did not capture. The strongest results are for the last accommodation, from which the estimates indicate that women who received assistance getting rehabilitative services from an external provider were 12 to 14 percentage points more likely to be employed at the nine-month interview ($p < .05$); this estimate, too, is robust across the columns. Note, however, that this effect is identified from a relatively small number of women; Table 1 indicates that only 14 women employed at the two-month interview received this type of accommodation.

The remaining columns of Table 3 report estimates for hours worked at the nine-month interview. We report estimates that are unconditional and conditional on employment at the nine-month interview (all the women were employed at the two-month interview). For the unconditional hours regressions, again only very limited evidence exists that accommodations matter. As for employment, strong and robust evidence is present of an effect of assistance in getting rehabilitative services from an external provider, with the estimates indicating a positive differential of about 12 hours per week ($p < .01$), regardless of the controls included.

When we condition hours worked on employment at the nine-month interview, the same relationship for assistance with rehabilitative services persists. In addition, the estimated effect of being accommodated by getting a helper at work is consistently negative and robust to controls, indicating that this is associated with about 2.5 fewer hours worked per week ($p < .01$).

The next analysis, reported in Table 4, is for the conditional hours labor supply measure only but estimates the effect of accommodations reported at the two-month interview on labor supply at the two-month interview, and similarly for accommodations and labor supply at the nine-month interview. This analysis more directly ties accommodations to labor supply by measuring both at the same interview while still (by focusing only on the conditional hours specification) avoiding the problem of how to interpret the "Refused" or no accommodation responses from nonemployed women.

Table 3. Employment and Weekly Hours Worked at Nine-Month Interview as Function of Accommodations at Two-Month Interview, Women Employed at Two-Month Interview

	Employment			*Hours, unconditional*			*Hours, conditional*		
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*
	Base model	*Health status added*	*Health status and job involvement*	*Base model*	*Health status added*	*Health status and job involvement*	*Base model*	*Health status added*	*Health status and job involvement*
Any accommodation, two-month interview									
Any accommodation	0.024	0.020	0.019	1.244	1.135	1.018	–0.125	0.040	–0.139
	(0.057)	(0.049)	(0.050)	(2.704)	(2.364)	(2.400)	(1.413)	(1.420)	(1.447)
N	450	450	450	450	450	450	415	415	415
Specific accommodations, two-month interview									
Helper	0.052*	0.027	0.024	0.075	–1.433	–1.527	–2.205**	–2.637***	–2.524***
	(0.030)	(0.028)	(0.028)	(1.445)	(1.337)	(1.343)	(0.895)	(0.908)	(0.886)
Shorter day	–0.047	–0.030	–0.030	–1.967	–0.784	–0.818	0.004	0.364	0.304
	(0.030)	(0.028)	(0.029)	(1.459)	(1.344)	(1.363)	(0.868)	(0.859)	(0.865)
Allowed schedule change	–0.004	–0.012	–0.008	0.211	–0.194	–0.112	–0.010	0.039	–0.110
	(0.049)	(0.044)	(0.044)	(2.385)	(2.184)	(2.224)	(1.456)	(1.469)	(1.474)
Allowed more breaks	0.033	0.037	0.037	1.965	2.317	2.372	0.751	0.912	0.984
	(0.033)	(0.033)	(0.034)	(1.572)	(1.525)	(1.560)	(0.951)	(0.964)	(0.980)
Special transportation	–0.113	–0.119	–0.126	–3.303	–3.726	–3.982	0.258	–0.027	0.035
	(0.091)	(0.082)	(0.085)	(3.697)	(3.459)	(3.580)	(1.690)	(1.888)	(1.916)
Job change	0.003	0.008	0.008	–0.065	–0.163	–0.143	–0.448	–0.738	–0.760
	(0.041)	(0.039)	(0.039)	(1.808)	(1.742)	(1.758)	(1.228)	(1.252)	(1.253)
Help learning new skills	0.019	0.030	0.026	–0.387	0.134	–0.142	–1.504	–1.327	–1.410
	(0.048)	(0.046)	(0.046)	(2.106)	(2.077)	(2.080)	(1.614)	(1.556)	(1.538)
Special equipment	0.038	0.056	0.062	1.158	1.913	2.287	–0.947	–0.814	–0.691
	(0.043)	(0.044)	(0.044)	(1.975)	(2.197)	(2.220)	(1.424)	(1.462)	(1.497)
Assistance with rehabilitative services	0.136***	0.119**	0.121**	12.233***	11.700***	11.488***	7.715***	8.035***	7.710***
	(0.047)	(0.053)	(0.055)	(2.820)	(3.231)	(3.228)	(2.513)	(2.600)	(2.603)
N	444	444	444	444	444	444	409	409	409

Notes: Coefficients estimated from linear probability models for employment and linear regressions for hours. Controls in base model include age categorized as < 37, 37 to 46, 47 to 56, or 57 and older; health insurance through their own employer; prediagnosis weekly hours worked; sets of dummy indicators for race, education, marital status, having children under age 18, household income, and whether the respondent's job is a blue-collar job; indicator variables if job requires physical effort, concentration, heavy lifting, stooping/kneeling/crouching, analysis, learning new skills, good eyesight, or keeping up with pace; and year of interview (2007 to 2011). Models that include health status controls add variables for indicators of chemotherapy or radiation at nine-month interview; cancer stage; and SF-36 physical and mental summary score and CESD-10 scores at the nine-month interview. Models that include job involvement add indicator variables that the patient agrees that the job is the major satisfaction; most important events involve her work; perfectionistic about work; lives, eats, breathes her job; and very personally involved in her work. Robust standard errors are shown in parentheses. Six women responded "Refused" to at least one of the specific accommodation questions and were excluded from these models.
*Indicates $p < .1$; ** $p < .05$; *** $p < .01$.

Table 4. Conditional Weekly Hours Worked at Two-Month and Nine-Month Interview as Function of Accommodations at Two-Month or Nine-Month Interview, Women Employed at Two-Month or Nine-Month Interview

	Base model	*Health status added*	*Health status and job involvement*
	(1)	*(3)*	*(3)*
A. Two-month interview labor supply and accommodations			
Any accommodation	–2.571*	–2.009	–1.833
	(1.448)	(1.351)	(1.385)
N	450	450	450
Helper	–1.219	–1.016	–1.093
	(1.069)	(1.044)	(1.038)
Shorter day	–3.404***	–3.149***	–3.146***
	(0.987)	(0.957)	(0.968)
Allowed schedule change	0.877	0.644	0.691
	(1.694)	(1.589)	(1.600)
Allowed more breaks	–0.115	0.845	0.855
	(1.133)	(1.136)	(1.157)
Special transportation	–5.213	–4.973	–5.106
	(3.217)	(3.349)	(3.319)
Job change	–5.922***	–5.446***	–5.368***
	(1.610)	(1.617)	(1.640)
Help learning new skills	–0.350	–0.136	–0.207
	(1.553)	(1.539)	(1.553)
Special equipment	2.097	2.693	2.845
	(1.697)	(1.722)	(1.772)
Assistance with rehabilitative services	2.202	1.301	1.174
	(1.939)	(2.172)	(2.146)
N	444	444	444
B. Nine-month interview labor supply and accommodations			
Any	0.073	0.151	0.130
	(1.197)	(1.217)	(1.204)
N	487	487	487
Helper	0.060	0.215	0.295
	(0.803)	(0.822)	(0.819)
Shorter day	–2.063**	–1.792**	–1.761**
	(0.870)	(0.864)	(0.866)
Allowed schedule change	0.098	–0.096	–0.122
	(1.007)	(1.016)	(1.034)
Allowed more breaks	–0.188	–0.259	–0.179
	(0.881)	(0.898)	(0.908)
Special transportation	–0.753	0.018	0.075
	(1.962)	(1.890)	(1.903)
Job change	–2.642**	–2.519**	–2.327**
	(1.171)	(1.138)	(1.161)
Help learning new skills	1.493	1.707*	1.725*
	(1.017)	(1.035)	(1.045)
Special equipment	–0.544	–0.403	–0.526
	(1.909)	(1.899)	(1.881)

(continued)

Table 4. Continued

	Base model	*Health status added*	*Health status and job involvement*
	(1)	*(3)*	*(3)*
Assistance with rehabilitative services	1.312	0.671	0.669
	(2.688)	(2.785)	(2.793)
N	485	485	485

Notes: Controls in base model include age categorized as < 37, 37 to 46, 47 to 56, or 57 and older; health insurance through their own employer; prediagnosis weekly hours worked; sets of dummy indicators for race, education, marital status, having children under age 18, household income, and whether the respondent's job is a blue-collar job; indicator variables if job requires physical effort, concentration, heavy lifting, stooping/kneeling/crouching, analysis, learning new skills, good eyesight, or keeping up with pace of others; and year of interview (2007 to 2011). Models that include health status controls add variables for indicators of chemotherapy or radiation at the corresponding interview (two-month or nine-month); cancer stage; and SF-36 physical and mental summary score and CESD-10 score at the corresponding interview (two-month or nine-month). Models that include job involvement add indicator variables: that the patient agrees that the job is the major satisfaction; most important events involve her work; perfectionistic about work; lives, eats, breathes her job; and very personally involved in her work. Robust standard errors are shown in parentheses. Six women responded "Refused" to at least one of the specific accommodation questions and were excluded from these models.
*Indicates $p < .1$; ** $p < .05$; *** $p < .01$.

At the two-month interview, women who received any accommodation worked 2.6 fewer hours than women who did not receive an accommodation (Table 4, column 1). When the responses to the job-involvement questions (and the health-status variables) are added to the model, the coefficient declines in size (toward 0) and loses statistical significance, suggesting that unobservables may also have an influence on the relationship between accommodations and weekly hours worked for employed women. In none of the specifications for weekly hours worked at the nine-month interview was the coefficient for any accommodation statistically significant; and the estimates are all close to 0.

More evidence of the effects of specific accommodations are evident. At the two-month interview, when morbidity is highest, shorter workdays and a job change are associated with significantly fewer hours worked. The differential is about 3.2 hours for the shorter workday accommodation ($p < .01$), and more than 5 hours for a job change ($p < .01$). These estimates are quite robust to the inclusion of the richer health-status and job-involvement controls. At the nine-month interview, the estimated effects of shorter workdays and job changes persist ($p < .05$), although they are smaller (especially for a job change). Learning new skills now also has a positive impact of about 1.7 hours ($p < .10$).

Thus, these results point to a stronger role for accommodations during the period when morbidity from disease and treatment is highest (at the two-month interview); overall, most of the evidence points to accommodations enabling women who remain at work to work fewer hours, although in one case the effect is in the direction of allowing for more hours. Noteworthy, however, is that none of these accommodations appear to be significant

determinants of employment in Table 3. Because Table 3 relates accommodations at the two-month interview to employment at the nine-month interview, however, the links on which its estimates are based may be considerably weaker, which again emphasizes the challenges of studying the effects of accommodations on labor supply and especially employment, given the nature of reporting on accommodations.

Because obtaining evidence on the contemporaneous effects of accommodations on all of the labor supply measures—and especially employment—is clearly of interest, we turn next to analyses that pursue this goal. We begin in Table 5 by simply redoing the analysis of Table 3 without restricting the sample to women employed at the two-month interview, treating the "Refused" responses among nonemployed women as missing. Table 5 reports the specifications corresponding to columns 3, 6, and 9 of Table 3, including the maximal set of controls. We will subsequently explore how to use the "Refused" cases (as well as the "No accommodation" responses) for the specifications relating accommodations to labor supply *contemporaneously*; but we first want to gauge the sensitivity of the Table 3 results.

A comparison of Tables 3 and 5 indicates, in fact, that the results are not that different. For employment, we again find a sizable positive differential associated with assistance with rehabilitative services from an external provider ($p < .05$). We also find a larger and now statistically significant coefficient estimate indicating that an accommodation regarding transportation is associated with a lower probability of employment ($p < .05$). Why an accommodation can have a negative causal effect on employment is hard to understand (whereas a negative impact on hours is more plausible). For both unconditional and conditional hours, as in Table 3, we find a positive effect only for accommodation through rehabilitative services ($p < .01$) and of similar magnitudes (12.1 hours in the unconditional specification and 7.8 hours in the conditional specification).

We next turn to the specifications relating accommodations to labor supply contemporaneously, without restricting our attention to employed women (as we did in Table 4) but considering alternative interpretations of the "Refused" and "No accommodation" responses for nonemployed women. We first assume that the nonemployed women who refused to respond to the accommodations questions or who responded that they had not been accommodated were in fact not accommodated. We then recode the data for these women to assume that they were accommodated. As explained earlier, we expect the first approach to generate positive bias in the estimated effects of accommodations on labor supply because many nonemployed women are coded as "Not accommodated." We expect the second approach to generate negative bias by assuming that these women were accommodated. We do this only for the employment and unconditional hours specifications, for which the problem of measuring accommodations for the nonemployed women arises.

Looking at Table 6, note first that the differences between the estimates are nearly always consistent with what we expect from this bounding exercise, in

Table 5. Employment and Weekly Hours Worked at Nine-Month Interview as Function of Accommodations at Two-Month Interview, without Restriction to Women Employed at Two-Month Interview

	(1)	*(2)*	*(3)*
	Employment	*Hours, unconditional*	*Hours, conditional*
	Any accommodation, two-month interview		
Any accommodation	0.042	2.690	1.294
	(0.053)	(2.260)	(1.400)
N	552	552	487
	Specific accommodations, two-month interview		
Helper	0.042	0.312	–1.383
	(0.028)	(1.306)	(0.852)
Shorter day	–0.012	–0.601	–0.098
	(0.029)	(1.365)	(0.843)
Allowed schedule change	–0.010	0.048	0.256
	(0.044)	(2.038)	(1.298)
Allowed more breaks	0.035	1.837	0.968
	(0.034)	(1.486)	(0.953)
Special transportation	–0.154**	–4.697	0.734
	(0.076)	(3.257)	(1.598)
Job change	–0.016	–1.946	–1.680
	(0.041)	(1.709)	(1.157)
Help learning new skills	0.029	–0.420	–1.302
	(0.048)	(2.100)	(1.462)
Special equipment	0.018	1.273	0.089
	(0.053)	(2.389)	(1.491)
Assistance with rehabilitative services	0.133**	12.122***	7.783***
	(0.059)	(3.272)	(2.537)
N	537	537	474

Notes: Coefficients estimated from linear probability models for employment and linear regressions for hours. Controls include age categorized as < 37, 37 to 46, 47 to 56, or 57 and older; health insurance through their own employer; prediagnosis weekly hours worked; sets of dummy indicators for race, education, marital status, having children under age 18, household income, and whether the respondent's job is a blue-collar job; indicator variables if job requires physical effort, concentration, heavy lifting, stooping/kneeling/crouching, analysis, learning new skills, good eyesight, or keeping up with pace of others; and year of interview (2007 to 2011). All models include the health status controls: indicators of chemotherapy or radiation at nine-month interview; cancer stage; and SF-36 physical and mental summary score and CESD-10 score at the nine-month interview. All models also include the job involvement indicator variables: that the patient agrees that the job is the major satisfaction; most important events involve her work; perfectionistic about work; lives, eats, breathes her job; and very personally involved in her work. For columns 1 and 2, $N = 556$; 19 observations had at least one response of "Refused" and were dropped. For column 3, $N = 488$; 14 observations had at least one response of "Refused" and were dropped. Robust standard errors are shown in parentheses.
*Indicates $p < .1$, ** $p < .05$, *** $p < .01$.

that in nearly every case (with 3 exceptions out of the 40 comparisons in the table) the estimate in column 1 or 3 is more positive or less negative than the corresponding estimate in column 2 or 4.

The second finding is that in some cases this bounding exercise is not very informative. For example, the estimates for providing a schedule

change at the two-month interview indicate large positive effects on employment and hours ($p < .01$) in Table 6, columns 1 and 3, but no effect in columns 2 and 4. Similar wide bounds are apparent for help learning new skills and special transportation at the nine-month interview, assistance with services at both interviews (but more so at nine months), and, perhaps most strikingly, for the "any accommodations" specifications at the top of each panel. These cases identify accommodations for which we simply have difficulty saying anything definitive about the effects of accommodations on contemporaneous labor supply. Indeed, in most of the cases just mentioned the sign changes depending on how we treat the accommodations data, making drawing firm conclusions of any kind even more difficult.

In contrast, for some accommodations the alternative estimates pin down a narrower range. At both the two-month and nine-month interviews, the estimated effects of a job change are consistently negative across all of the specifications, all but one of the eight estimates are significant at the 10% level or better, and the magnitudes are fairly close regardless of how we treat the "Refused" cases for the nonemployed women. Similarly, the estimates for special equipment always have the same sign, and at the nine-month interview, the magnitudes are fairly close across the alternative treatments of the data. And the same is true for a shorter workday for the unconditional hours specification at both the two- and nine-month interviews.

In each of these cases in which the bounds are tighter and generally the same sign, however, the results point to *negative* effects of accommodations on labor supply. A negative effect makes sense for the effect of a shorter workday on hours (and we find the same thing in Table 4 when looking at hours conditional on employment). Indeed, any negative effect on hours is easily interpretable as the accommodation being associated with an employer letting a worker reduce her hours to remain employed. A negative effect of an accommodation such as job change or special equipment on employment is more difficult to interpret. One interpretation is that unobserved variation in morbidities exists that both led the employer to accommodate and ultimately also led to the woman to stop working. How a causal effect of accommodation could lead to lower employment, however, is hard to see. As a consequence, efforts to bound the effects of accommodations by recoding the "Refused" or "No accommodation" responses to the accommodations questions appear to often be not very successful; therefore, our analyses that are conditioned on employment at the two-month interview and estimate the effects of accommodations at that interview on the labor supply at the nine-month interview are more plausible and informative. That the role of unobserved variation in morbidity plays less of a role in these analyses may make sense because the morbidities that might be correlated with accommodations at the two-month interview are less likely to influence labor supply at the nine-month interview.

Our final labor supply analysis turns to interactions between accommodations and job tasks. Given our findings presented so far, we report these results only for what we regard as the cleanest specifications—those

Table 6. Employment and Weekly Hours Worked as Functions of Contemporaneous Accommodations, Different Treatment/Coding of Accommodations for Nonemployed, without Restriction to Women Employed at Two-Month Interview

	Employment		*Hours, unconditional*	
	(1)	*(2)*	*(3)*	*(4)*
	No accommodation	*Recode to accommodation*	*No accommodation*	*Recode to accommodation*
A. Two-month interview labor supply and accommodations				
Any accommodation	0.205***	–0.165***	4.922**	–7.162***
	(0.057)	(0.043)	(2.194)	(1.949)
N	556	556	556	556
Helper	0.032	0.015	0.020	–0.873
	(0.035)	(0.013)	(1.406)	(1.078)
Shorter day	–0.013	–0.003	–2.897**	–3.244***
	(0.033)	(0.011)	(1.454)	(1.000)
Allowed schedule change	0.243***	0.011	8.586***	1.132
	(0.054)	(0.017)	(2.262)	(1.656)
Allowed more breaks	–0.001	–0.012	0.589	0.545
	(0.038)	(0.012)	(1.608)	(1.138)
Special transportation	–0.134	–0.355***	–7.691**	–14.270***
	(0.092)	(0.082)	(3.568)	(3.134)
Job change	–0.075	–0.078***	–5.786***	–7.380***
	(0.055)	(0.024)	(2.076)	(1.729)
Help learning new skills	0.035	–0.030	1.227	–0.874
	(0.062)	(0.028)	(2.507)	(1.643)
Special equipment	–0.025	–0.108*	1.791	–0.134
	(0.073)	(0.056)	(3.004)	(2.229)
Assistance with rehabilitative services	0.033	–0.396***	1.758	–8.572***
	(0.103)	(0.087)	(4.398)	(3.273)
N	550	550	550	550
B. Nine-month interview labor supply and accommodations				
Any	0.205***	–0.120***	7.611***	–4.429***
	(0.054)	(0.031)	(2.153)	(1.632)
N	555	555	555	555
Helper	0.046	0.0003	1.877	0.214
	(0.030)	(0.010)	(1.321)	(0.884)
Shorter day	0.011	0.010	–1.401	–1.540
	(0.030)	(0.012)	(1.372)	(0.962)
Allowed schedule change	0.053	–0.005	1.948	–0.330
	(0.038)	(0.012)	(1.729)	(1.112)
Allowed more breaks	–0.004	0.006	0.066	0.205
	(0.034)	(0.010)	(1.513)	(0.981)
Special transportation	0.067	–0.308***	2.212	–11.221***
	(0.072)	(0.077)	(2.783)	(3.375)
Job change	–0.070	–0.083***	–4.387**	–5.166***
	(0.045)	(0.025)	(1.730)	(1.480)

(continued)

Table 6. Continued

	Employment		*Hours, unconditional*	
	(1)	*(2)*	*(3)*	*(4)*
	No accommodation	*Recode to accommodation*	*No accommodation*	*Recode to accommodation*
Help learning new skills	0.121***	–0.008	5.945***	1.303
	(0.029)	(0.019)	(1.424)	(1.226)
Special equipment	–0.110*	–0.135***	–4.058	–5.574**
	(0.061)	(0.048)	(2.639)	(2.399)
Assistance with rehabilitative services	0.124**	–0.405***	5.247	–13.034***
	(0.055)	(0.088)	(3.539)	(3.890)
N	546	546	546	546

Notes: Coefficients estimated from linear probability models for employment and linear regressions for hours. Controls include age categorized as < 37, 37 to 46, 47 to 56, or 57 and older; health insurance through their own employer; prediagnosis weekly hours worked; sets of dummy indicators for race, education, marital status, having children under age 18, household income, and whether the respondent's job is a blue-collar job; indicator variables if job requires physical effort, concentration, heavy lifting, stooping/kneeling/crouching, analysis, learning new skills, good eyesight, or keeping up with pace of others; and year of interview (2007 to 2011). Models that include health status controls add variables for indicators of chemotherapy or radiation at the corresponding interview (two-month or nine-month); cancer stage; and SF-36 physical and mental summary score and CESD-10 score at the corresponding interview (two-month or nine-month). All models also include the job involvement indicator variables: that the patient agrees that the job is the major satisfaction; most important events involve her work; perfectionistic about work; lives, eats, breathes her job; and very personally involved in her work. "No accommodation" means that we treat those reporting no accommodation or "Refused" among the nonemployed as, in fact, not accommodated. "Recode to accommodation" means that we recode these cases to accommodated. Robust standard errors are shown in parentheses.
*Indicates $p < .1$; ** $p < .05$; *** $p < .01$.

estimating the effects of accommodations at the two-month interview on labor supply at the nine-month interview for women employed at the two-month interview. The estimates of the interactive specifications are reported in Table 7. Here we find more evidence of accommodations having a role in labor supply. In particular, for employment and hours not conditioned on employment (which can reflect employment effects), a number of accommodations are associated with greater labor supply for those whose jobs require more mental tasks. These accommodations include a shorter day, schedule change (for employment), special transportation, help learning new skills (for employment), and special equipment (for unconditioned hours). Why a transportation accommodation would matter more for those whose jobs entail mental tasks is unclear, but many of the other results seem plausible. When we listened to the recorded interviews, however, we learned that the transportation accommodation was typically associated with coworkers offering to give the women a ride to chemotherapy (hence, in such cases, the question was answered incorrectly because the survey asked about accommodations provided by employers). Therefore, our estimate for jobs requiring mental tasks may reflect not an accommodation offered by employers but rather by supportive coworkers. And such accommodation

Table 7. Employment and Hours at Nine-Month Interview, Including Interactions between Centered Mental and Physical Tasks and Accommodation Type at the Two-Month Interview, Women Employed at Two-Month Interview

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Any accommodation[a]	*Helper*	*Shorter day*	*Schedule change*	*More breaks*	*Special transportation*	*Job change*	*Help learning new skills*	*Special equipment*	*Assistance with rehabilitative services*
A. Employment										
Accommodation	0.026	0.022	–0.024	–0.002	0.031	–0.154*	0.008	0.012	0.052	0.098*
	(0.050)	(0.029)	(0.029)	(0.046)	(0.034)	(0.080)	(0.037)	(0.046)	(0.042)	(0.057)
Physical tasks	–0.038	–0.052	–0.060*	–0.069	–0.070	–0.046**	–0.047*	–0.052**	–0.044*	–0.045*
	(0.101)	(0.038)	(0.033)	(0.073)	(0.046)	(0.023)	(0.025)	(0.025)	(0.026)	(0.025)
Mental tasks	–0.127	0.009	–0.077**	–0.108	–0.011	–0.022	0.008	–0.030	–0.025	0.007
	(0.081)	(0.069)	(0.037)	(0.067)	(0.077)	(0.041)	(0.052)	(0.042)	(0.042)	(0.048)
Accommodation × (physical tasks – $\bar{p}^{PT}$)	–0.001	0.016	0.021	0.028	0.040	0.162	0.030	0.056	0.047	0.039
	(0.104)	(0.050)	(0.047)	(0.078)	(0.054)	(0.237)	(0.082)	(0.114)	(0.077)	(0.126)
Accommodation × (mental tasks – $\bar{p}^{MT}$)	0.132	–0.007	0.175**	0.140*	0.032	1.011***	–0.042	0.431*	0.375	–0.050
	(0.094)	(0.082)	(0.083)	(0.084)	(0.093)	(0.099)	(0.098)	(0.236)	(0.234)	(0.096)
B. Hours, unconditional										
Accommodation	1.231	–1.837	–0.532	–0.091	1.886	–4.626	0.628	–0.660	2.295	11.548***
	(2.320)	(1.375)	(1.376)	(2.279)	(1.570)	(3.717)	(1.704)	(2.125)	(2.076)	(2.989)
Physical tasks	–3.293	–2.976	–3.567**	–4.043	–5.243**	–2.307**	–1.738	–2.281*	–1.946	–1.972
	(4.808)	(1.834)	(1.670)	(3.784)	(2.169)	(1.170)	(1.248)	(1.268)	(1.264)	(1.225)
Mental tasks	–5.453	2.398	–3.315*	–4.810	0.208	0.018	1.260	–0.364	–0.667	0.491
	(4.655)	(3.106)	(1.876)	(3.570)	(3.360)	(1.894)	(2.051)	(1.939)	(1.903)	(1.959)
Accommodation × (physical tasks – $\bar{p}^{PT}$)	1.262	1.817	2.452	2.248	4.799*	9.285	–3.258	2.045	–0.021	–5.098
	(4.937)	(2.476)	(2.290)	(3.967)	(2.552)	(10.240)	(4.088)	(4.946)	(3.917)	(6.248)
Accommodation × (mental tasks – $\bar{p}^{MT}$)	6.418	–3.136	8.157**	6.652	1.234	19.280***	–6.380	10.210	14.270***	–1.857
	(4.979)	(3.556)	(3.288)	(4.045)	(3.938)	(5.671)	(3.992)	(6.581)	(4.459)	(6.037)

(continued)

Table 7. Continued

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Any accommodation[a]	*Helper*	*Shorter day*	*Schedule change*	*More breaks*	*Special transportation*	*Job change*	*Help learning new skills*	*Special equipment*	*Assistance with rehabilitative services*
C. Hours, conditional ($N = 409$)										
Accommodation	0.022	–2.773***	0.390	–0.018	0.557	–0.077	0.258	–1.093	–0.276	8.710***
	(1.434)	(0.894)	(0.861)	(1.521)	(0.965)	(1.680)	(1.254)	(1.568)	(1.413)	(2.879)
Physical tasks	–2.053	–0.963	–1.307	–1.592	–2.578*	–0.472	0.027	–0.237	–0.175	–0.308
	(2.617)	(1.074)	(1.169)	(2.301)	(1.353)	(0.808)	(0.818)	(0.828)	(0.847)	(0.806)
Mental tasks	–0.896	1.923	–0.922	–1.209	–0.146	0.419	1.287	0.385	–0.129	0.368
	(2.962)	(1.465)	(1.491)	(2.140)	(1.495)	(1.183)	(1.239)	(1.181)	(1.180)	(1.222)
Accommodation × (physical tasks – p^{PT})	1.514	1.024	1.489	1.311	3.179*	1.494	–4.951*	–2.796	–3.555	–7.457
	(2.733)	(1.607)	(1.637)	(2.413)	(1.685)	(3.080)	(2.919)	(3.667)	(2.987)	(6.219)
Accommodation × (mental tasks – p^{MT})	1.776	–2.485	3.052	2.119	1.351	0	–5.972*	2.153	9.363***	–0.949
	(3.076)	(1.996)	(1.982)	(2.360)	(2.080)	(.)	(3.343)	(6.233)	(2.449)	(4.519)

Notes: Coefficients estimated from linear probability models for employment and linear regressions for hours. Controls include age categorized as < 37, 37 to 46, 47 to 56, or 57 and older; health insurance through their own employer; prediagnosis weekly hours worked; sets of dummy indicators for race, education, marital status, having children under age 18, household income, and whether the respondent's job is a blue-collar job; indicator variables if job requires physical effort, concentration, heavy lifting, stooping/kneeling/crouching, analysis, learning new skills, good eyesight, or keeping up with pace of others; and year of interview (2007 to 2011). All models include the health status controls: indicators of chemotherapy or radiation at nine-month interview; cancer stage; and SF-36 physical and mental summary score and CESD-10 score at the nine-month interview. All models also include the job involvement indicator variables: that the patient agrees that the job is the major satisfaction; most important events involve her work; perfectionistic about work; lives, eats, breathes her job; and very personally involved in her work. Each column in each panel is from a separate regression. In columns 2 to 10, the regression also includes dummy variables for each of the other accommodations received in addition to the one on which the column focuses and interacts with job tasks. p^{PT} = proportion of patients whose job involved physical tasks; p^{MT} = proportion of patients whose job involved mental tasks. Thus, for example, (physical tasks – p^{PT}) refers to the dummy for the physical task in each column minus its sample proportion. Robust standard errors appear in parentheses. The standard error reported as (.) denotes an empty cell. Six women responded "Refused" to at least one of the specific accommodation questions and were excluded from these models.

[a]Sample size for the "Any accommodation" model (column 1) in panels A and B is 450 and in panel C is 415.

*Indicates $p < .10$; ** $p < .05$; *** $p < .01$.

may appear for jobs requiring mental tasks because these jobs offer greater flexibility whereby a worker (and coworker) can leave work for treatment.

For hours conditioned on employment, two interactions are statistically significant and positive: more breaks for those with physical jobs and special equipment for those with jobs requiring more mental tasks. In addition, for women in both kinds of jobs, accommodations in the form of job changes were associated with reductions in the number of hours. This last result makes sense if the job change that enabled continued employment entailed fewer hours. Regarding work breaks, possibly women who were allowed additional breaks were able to complete their workday, whereas women without such breaks were unable to work as much. We also have some insight into the role played by a special-equipment accommodation for women who perform mental tasks. In recorded interviews, women who performed mental tasks reported most often that special equipment consisted of a laptop computer that allowed them to work at home and, hence, probably enabled them to work more hours (or to remain employed).

Health Status

Table 8 reports the coefficients from models that predicted PCS scores (i.e., physical health status). Again, we restrict our attention to the results for the effects of accommodations at the two-month interview on health status at the nine-month interview. In these specifications, we control for physical and mental health status at baseline and the treatments received at the nine-month interview. Little evidence exists that accommodations matter for health status, as we measure it here. In particular, only for women who got a helper at the two-month interview do we find evidence of better physical health at the nine-month interview. These women scored approximately 1.5 points higher on the PCS scale than women who did not have a helper. Note that we did find some evidence earlier (Table 3) that this specific accommodation enables women to remain employed and to reduce their hours if employed. Moreover, we can imagine that providing a helper would reduce the physical demands of the job and could therefore deliver health benefits. Nevertheless, we did not find evidence in Table 7 that this particular accommodation is more important for women with more physically demanding jobs. We do not find evidence that other accommodations are associated with better health, although having a shorter workday was associated with a slightly lower physical health score (by 2.4 percentage points, $p < .01$); that this reflects a causal effect of a shorter workday is unlikely.

Finally, we investigated the effects of the interactions of the accommodations received at the two-month interview with mental and physical job tasks on physical health status at the nine-month interview. The estimates of the interactive specifications are reported in Table 9. In this case, we have an unexpected finding. First, women who performed mental tasks at work tended to experience declines in physical health. In contrast, for

Table 8. Physical Health Status (Physical Component Score) at Nine-Month Interview, as Function of Accommodations at Two-Month Interview, Women Employed at Two-Month Interview

	(1)	*(2)*	*(3)*
	Base model	*Health status added*	*Health status and job involvement added*
Any accommodation, two-month interview			
Any accommodation	–0.673	–0.496	0.074
	(1.457)	(1.477)	(1.530)
N	450	450	450
Specific accommodations, two-month interview			
Helper	1.640*	1.387*	1.518*
	(0.839)	(0.801)	(0.811)
Shorter day	–2.412***	–2.045**	–1.938**
	(0.917)	(0.877)	(0.883)
Allowed schedule change	1.057	0.883	0.962
	(1.301)	(1.313)	(1.326)
Allowed more breaks	–1.299	–0.931	–0.860
	(0.993)	(0.979)	(0.982)
Special transportation	1.083	0.381	0.238
	(1.925)	(2.058)	(2.090)
Job change	–1.373	–1.217	–1.000
	(1.273)	(1.252)	(1.275)
Help learning new skills	–1.510	–0.926	–1.179
	(1.726)	(1.712)	(1.694)
Special equipment	–1.172	–0.280	0.013
	(1.711)	(1.711)	(1.730)
Assistance with rehabilitative services	0.973	0.445	0.593
	(2.267)	(2.398)	(2.484)
N	444	444	444

Notes: Controls in base model include age categorized as < 37, 37 to 46, 47 to 56, or 57 and older; health insurance through their own employer; prediagnosis weekly hours worked; sets of dummy indicators for race, education, marital status, having children under age 18, household income, and whether the respondent's job is a blue-collar job; indicator variables if job requires physical effort, concentration, heavy lifting, stooping/kneeling/crouching, analysis, learning new skills, good eyesight, or keeping up with pace; and year of interview (2007 to 2011). Models that include health status controls add variables for indicators of chemotherapy or radiation at nine-month interview; cancer stage; and SF-36 physical and mental summary score and CESD-10 score at baseline. Models that include job involvement add indicator variables that the patient agrees that the job is the major satisfaction; most important events involve her work; perfectionistic about work; lives, eats, breathes her job; and very personally involved in her work. Robust standard errors in parentheses.
*Indicates $p < .1$; ** $p < .05$; *** $p < .01$.

many specifications the estimates indicate that, when these women were accommodated, these negative effects are largely offset. This is approximately true for women receiving any accommodation, as well as getting a helper at work, changing work schedule, having more breaks (although this estimate is not statistically significant), and receiving assistance with getting rehabilitative services from an outside provider (in which case, the decline is well more than offset). Possibly, women who perform mental tasks are in

high-stress jobs for which time away from work or altering the way in which a job is performed through accommodation is difficult. However, for those women who received accommodation, perhaps they were in a less stressful environment and were better able to recover, whereas women who continued to work experienced physical consequences. We interpret these results cautiously, however, given that nearly all women who performed mental tasks had a job that offered them accommodations (89%) and that women who did not receive accommodations may have been in exceptionally difficult job environments.

Conclusion and Discussion

In studying whether employed women newly diagnosed with breast cancer are accommodated, and the influence these accommodations have on labor supply and health status, we find that nearly all the women surveyed received accommodations. The most commonly provided accommodations were those related to work schedule flexibility, such as allowing a shorter workday, a schedule change, or additional breaks during the day. In addition, about half the women received help from someone at work.

We find that these accommodations were associated with labor supply and health status. The results are somewhat ambiguous with regard to labor supply, whereas accommodations had a generally positive association with physical health status.

Some of the evidence on the impact of accommodations on labor supply points in a positive direction. In particular, accommodation in the form of assistance with rehabilitative services was positively associated with employment and number of weekly hours worked. When we look at how accommodations influence labor supply among women employed in jobs involving physical or mental tasks, accommodations, including a shorter workday, schedule change, special transportation, help learning new skills, and special equipment, sometimes have positive associations with labor supply.[7] These accommodations may directly allow women to work more hours (e.g., by providing them with a computer and allowing them to work from home when they cannot come into the office) or may do so indirectly by providing them with a supportive work environment that increases their job dedication and attachment while they are undergoing treatment. Moreover, women who perform mental tasks and receive accommodations appear to have better physical health than those who are not accommodated (who, according to our data, experience substantial health declines). Some of these accommodations (such as a helper) may reduce hours and, hence,

[7]In a systematic literature review of 64 studies of cancer survivors, Mehnert (2011) identified a few studies that reported on accommodations that may be associated with a greater likelihood of being employed or returning to work. Consistent in part with our findings, one study identified rehabilitation services and another identified flexible working arrangements. These studies, however, were exclusively cross-sectional.

Table 9. Physical Health Status (Physical Component Summary Score) at Nine-Month Interview, Including Interactions between Centered Mental and Physical Tasks and Accommodation Type at the Two-Month Interview, Women Employed at Two-Month Interview

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Any accommodation[a]	*Helper*	*Shorter day*	*Schedule change*	*More breaks*	*Special transportation*	*Job change*	*Help learning new skills*	*Special equipment*	*Assistance getting services*
Accommodation	0.181	1.201	–1.796**	1.113	–0.781	0.640	–1.349	–1.911	0.145	0.172
	(1.407)	(0.794)	(0.871)	(1.295)	(0.924)	(1.766)	(1.258)	(1.554)	(1.680)	(2.252)
Physical tasks	0.635	–0.080	–0.575	–0.533	–0.743	–1.219	–1.981**	–1.860**	–1.446*	–1.404*
	(2.631)	(1.177)	(1.164)	(2.279)	(1.441)	(0.849)	(0.843)	(0.860)	(0.858)	(0.828)
Mental tasks	–13.175***	–6.395***	–3.634**	–8.737***	–6.008***	–3.549***	–3.467**	–3.143**	–3.616***	–4.140***
	(2.967)	(2.190)	(1.739)	(2.868)	(2.265)	(1.344)	(1.406)	(1.377)	(1.389)	(1.320)
Accommodation × (physical tasks – p^{PT})	–2.455	–2.559	–1.592	–1.030	–0.999	–5.356	6.085**	5.965**	0.664	6.530
	(2.785)	(1.667)	(1.639)	(2.464)	(1.797)	(3.460)	(2.851)	(2.908)	(2.973)	(5.567)
Accommodation × (mental tasks – p^{MT})	11.499***	4.707*	0.261	6.420**	4.205	0.356	–0.546	–5.736	1.656	14.508***
	(3.158)	(2.591)	(2.446)	(2.975)	(2.573)	(4.074)	(3.805)	(4.016)	(2.910)	(3.605)

Notes: Coefficients estimated from linear probability models for employment and linear regressions for hours. Controls include age categorized as < 37, 37 to 46, 47 to 56, or 57 and older; health insurance through their own employer; prediagnosis weekly hours worked; sets of dummy indicators for race, education, marital status, having children under age 18, household income, and whether the respondent's job is a blue-collar job; indicator variables if job requires physical effort, concentration, heavy lifting, stooping/kneeling/crouching, analysis, learning new skills, good eyesight, or keeping up with pace of others; and year of interview (2007 to 2011). All models include the health status controls: indicators of chemotherapy or radiation at nine-month interview; cancer stage; and SF-36 physical and mental summary score and CESD-10 score at baseline. All models also include the job involvement indicator variables: that the patient agrees that the job is the major satisfaction; most important events involve her work; perfectionistic about work; lives, eats, breathes her job; and very personally involved in her work. Each column is from a separate regression. In columns 2 to 10, the regression also includes dummy variables for each of the other accommodations received in addition to the one on which the column focuses and interacts with job tasks. p^{PT} = proportion of patients whose job involved physical tasks; p^{MT} = proportion of patients whose job involved mental tasks. Thus, for example, (physical tasks – p^{PT}) refers to the dummy for the physical task in each column minus its sample proportion. Robust standard errors in parentheses.

[a]Sample size for the "Any accommodation" model (column 1) is 450.

*Indicates $p < .10$; ** $p < .05$; *** $p < .01$.

allow women time to attend to treatment and recovery, whereas others (such as rehabilitative services) may reduce workplace demands, enabling both greater labor supply and better health outcomes.

Making progress on measuring the influence of workplace accommodations on labor supply and employee health status is relevant to understanding how protections for disabled workers, such as the federal ADA Amendments Act of 2008, increase the ability of disabled or ill workers to remain at work. Furthermore, such progress can help us learn about how accommodations impact particular groups of workers with disabilities (e.g., those newly diagnosed with an illness that may have transient or long-term effects, as well as those with permanent physical or mental disabilities) and whether some accommodations have greater positive impacts for particular types of workers (e.g., those engaged in mental tasks as opposed to physical tasks).

One contribution we make to the literature on accommodations is highlighting the difficulties of estimating the effects of accommodations on labor supply and health of workers who become ill or disabled. We have discussed the challenges associated with measuring accommodations and their subsequent impact on labor supply, and we have explored some methods of addressing these problems to learn more about the potential effects of accommodations.

The empirical challenges are difficult. One key problem is that accommodations can really be measured only after a worker becomes ill or disabled, at which point the reporting of accommodations can itself depend on continued employment. Moreover, data collection from workers who are no longer employed can be very difficult. These workers may not recall whether they received a suitable accommodation or may not be able to answer the question meaningfully if they stopped working before determining whether they would receive an accommodation. This problem exists in our research despite our using primary data collected for the purposes of studying labor supply responses to illness. To address it, we engaged in a series of analyses that varied the timing of accommodations with regard to the outcomes studied, as well as the sample, and that attempted to bound the estimates based on whether we assumed observations with missing data on accommodations or that reported no accommodations were in fact accommodated.

A second problem is that workers who receive workplace accommodations and remain working may be systematically different in terms of their need for accommodation and attachment to their job, or may have different types of jobs. We addressed selection issues stemming from who is most likely to be accommodated and jobs that are more likely to offer accommodations using rich data covering health status, job involvement, and firm and job characteristics. Nonetheless, the concern remains that unobserved dimensions of how disabling the illness was, how attached to her job a worker was, or worker quality are correlated with both receiving accommodations and labor supply.

As previously noted, based on our multifaceted analyses we find some evidence that workplace accommodations have a positive effect on labor supply and employee health status, particularly among women who perform

mental tasks as part of their job. Although our evidence in many cases did not indicate that accommodations increase labor supply or improve the physical health of women diagnosed with breast cancer, given the empirical challenges these relationships still may exist. Nonetheless, we point out that, if the principal problem is that ill workers who left the workforce reported that they were not accommodated even though this lack of accommodation was not the reason for stopping work, a bias exists toward finding that accommodations increase labor supply; hence, we have little reason to believe that, if we did not face this measurement problem, we would find stronger positive effects of accommodations on labor supply.

The study has several strengths, including the use of detailed primary data collected at multiple times following diagnosis and treatment, extensive data on personal and job characteristics, and qualitative data from recorded conversations between interviewers and study subjects. These recorded conversations provided insight into the specific accommodations provided (e.g., laptop computers and rides to treatment) and how they might have affected labor supply and employee health. Nonetheless, the study has limitations. First, as we discussed, we had difficulty measuring accommodations—and interpreting the data—for women who had left their job. Once women were no longer working, they were more likely to refuse to answer accommodation questions, and as a result of not working, they might report no accommodation even if they would have received accommodations had they tried to remain at work. Second, nearly all women continued to work during and following treatment, allowing little variation in the outcomes we studied, especially employment. Last, we studied insured women (for other reasons related to the data collection for the larger project of which this study is a part); insured women may be more likely to be employed in firms that offer accommodations than uninsured women.

The evidence suggests that employed (and insured) women with breast cancer are likely to have a supportive work environment during their active treatment phase. Some of the evidence suggests that accommodations have a positive impact on labor supply, and we find that accommodations are particularly important for women who perform mental tasks, for which accommodations appear to offset what would otherwise be declines in physical health status. One area for future research is to better identify the causal effects of accommodations on labor supply and health. A second is to understand the mechanisms through which accommodations influence the labor supply and the physical health and recovery of working women. One potentially important dimension of this issue is the actual nature of the accommodations themselves so that we may better understand how the kinds of accommodations and exactly how they are implemented affect labor supply and health.

A second, broader dimension is the workplace culture in which accommodations are embedded. In particular, evidence from employee surveys at a number of companies with multiple workplaces, reported by Schur, Kruse, Blasi, and Blanck (2009), showed that negative evaluations of company treatment by workers with disabilities (relative to nondisabled workers)—as

reflected in job satisfaction, company loyalty, willingness to work hard, and intention to leave—can be eliminated in workplaces in which workers (disabled or not) report high levels of perceived workplace fairness and responsiveness to all workers' needs.[8] Schur et al. conjectured that this is because in such workplaces accommodations of workers with disabilities or illness are not viewed as "special treatment" by coworkers, a perception that could otherwise interfere with successful accommodation (as theorized by Stone and Colella 1996). Newer research by Schur et al. (2014) reinforces these conclusions. Their evidence from extensive case studies indicated that a positive culture—in this case, one in which coworkers understand and support accommodations—can lead to positive spillovers of accommodations on the attitudes of coworkers and on the attitudes of those directly accommodated. Our survey did not collect data on workplace practices. This research on disability and workplace culture indicates that collecting data on workplace practices and accommodations of women with breast cancer simultaneously would be useful, allowing us to garner evidence on how the effects of accommodations of women with breast cancer on labor supply and health vary with workplace policies and cultures that can influence the success of workplace accommodations, and on how these conclusions might extend to workers with other disabilities or illnesses.[9]

[8]Their research also indicated that lower pay, fewer benefits, less job security, less training, and so on, for the disabled account only partly for the negative evaluations reported by disabled workers.

[9]In related work, Roberts and Young (1997) found that injured workers who perceive greater procedural fairness in Workers Compensation claims (regarding both the employer and other parties to the claim) are more likely to return to their employer after the injury. Since returning to work after an injury can sometimes involve workplace accommodation, the Roberts and Young findings perhaps draw more of a link between workplace culture and accommodations, albeit in a different and potentially narrow context.

Appendix

Table A.1. Instrumental Variable Estimates, Employment and Weekly Hours Worked at Nine-Month Interview as Function of Accommodations at Two-Month Interview, Women Employed at Two-Month Interview

	(1)	*(2)*	*(3)*
	Employment	*Hours, unconditional*	*Hours, conditional*
Any accommodation	0.266	–7.356	–24.340
	(0.632)	(31.325)	(33.599)
Weak identification test:[a] *F*-statistic	0.69	0.69	1.61
p-value	0.561	0.561	0.186
Underidentification test[b]	0.528	0.528	0.142
Weak-instrument robust inference[c]	0.549	0.976	0.051

Notes: The first stage estimates the likelihood of receiving any accommodation, and the second stage estimates labor supply (employment and unconditional and conditional hours worked). The instruments are firm-size category dummy variables (< 25, 25 to 49, 50 to 99, 100 or more). Robust standard error estimates appear in parentheses.

[a]Weak identification test using the Kleibergen-Paap Wald *F*-statistic to test if the equation is weakly identified.

[b]Kleibergen–Paap LM statistic to test underidentification based on whether the matrix of reduced-form coefficients has a rank of $K_i - 1$ (underidentified), where K_i is the number of endogenous regressors and is equal to 1 in this model.

[c]Anderson–Rubin Wald statistic to test whether joint significance of endogenous regressors and orthogonality conditions are valid.

*Indicates $p < .1$; ** $p < .05$, *** $p < .01$.

References

Ahn, Eunmi, Juhee Cho, Dong Wook Shin, Byeong Woo Park, Sei Hyun Ahn, Dong-Young Noh, Seok Jin Nam, Eun Sook Lee, and Young Ho Yun. 2009. Impact of breast cancer diagnosis and treatment on work-related life and factors affecting them. *Breast Cancer Research and Treatment* 116(3): 609–16.

American Cancer Society. 2012. American Cancer Society guidelines for the early detection of cancer. Accessed at http://www.cancer.org/healthy/findcancerearly/cancerscreeningguidelines/american-cancer-society-guidelines-for-the-early-detection-of-cancer (March 16, 2015).

Balak, Fulya, Corne Roelen, Petra Koopmans, Elike E. ten Berge, and Johan W. Groothoff. 2008. Return to work after early-stage breast cancer: A cohort study into the effects of treatment and cancer-related symptoms. *Journal of Occupational Rehabilitation* 18(3): 267–74.

Bouknight, Reynard R., Cathy J. Bradley, and Zhehui Luo. 2006. Correlates of return to work for breast cancer survivors. *Journal of Clinical Oncology* 24(3): 346–53.

Boykoff, Nelli, Mona Moieni, and Saskia K. Subramanian. 2009. Confronting chemobrain: An in-depth look at survivors' reports of impact on work, social networks, and health care response. *Journal of Cancer Survivorship* 3(4): 223–32.

Bradley, Cathy J., David Neumark, and Scott Barkowski. 2013. Does employer-provided health insurance constrain labor supply adjustments to health shocks? New evidence on women diagnosed with breast cancer. *Journal of Health Economics* 32(5): 833–49.

Bradley, Cathy J., David Neumark, Zhehui Luo, and Heather L Bednarek. 2007. Employment-contingent health insurance, illness, and labor supply of women: Evidence from married women with breast cancer. *Health Economics* 16(7): 719–37.

Bradley, Cathy J., Kathleen Oberst, and Maryjean Schenk. 2006. Absenteeism from work: The experience of employed breast and prostate cancer patients in the months following diagnosis. *Psychooncology* 15(8): 739–47.

Burkhauser, Richard V., Maximilian D. Schmeiser, and Robert R. Weathers II. 2012. The importance of anti-discrimination and workers' compensation laws on the provision of workplace accommodations following the onset of a disability. *Industrial and Labor Relations Review* 65(1): 161–80.

Calvio, Lisseth, Michael Feuerstein, Jennifer Hansen, and Gina M. Luff. 2009. Cognitive limitations in occupationally active malignant brain tumor survivors. *Occupational Medicine* 59(6): 406–12.

Calvio, Lisseth, Mark Peugeot, Gina L. Bruns, Griana L. Todd, and Michael Feuerstein. 2010. Measures of cognitive function and work in occupationally active breast cancer survivors. *Journal of Occupational and Environmental Medicine* 52(2): 219–27.

Fantoni, Sophi Q., Charlotte Peugniez, Alain Duhamel, Joanna Skrzypczak, Paul Frimat, and Ariane Leroyer. 2010. Factors related to return to work by women with breast cancer in northern France. *Journal of Occupational Rehabilitation* 20(1): 49–59.

Feuerstein, Michael, Gina M. Luff, Cherise B. Harrington, and Cara H. Olsen. 2007. Pattern of workplace disputes in cancer survivors: A population study of ADA claims. *Journal of Cancer Survivorship* 1(3): 185–92.

Hansen, Jennifer A., Michael Feuerstein, Lisseth Calvio, and Cara H. Olsen. 2008. Breast cancer survivors at work. *Journal of Occupational and Environmental Medicine* 50(7): 777–84.

Høyer, Marie, Karin Nordin, Johan Ahlgren, Leif Bergkvist, Mats Lambe, Birgitta Johansson, and Claudia Lampic. 2012. Change in working time in a population-based cohort of patients with breast cancer. *Journal of Clinical Oncology* 30(23): 2853–60.

Lavigne, Jill E., Jennifer J. Griggs, Xin M. Tu, and Debra J. Lerner. 2008. Hot flashes, fatigue, treatment exposures and work productivity in breast cancer survivors. *Journal of Cancer Survivorship* 2(4): 296–302.

Lodahl, Thomas M., and Mathilde Kejner. 1965. The definition and measurement of job involvement. *Journal of Applied Psychology* 49(1): 24–33.

Mehnert, Anja. 2011. Employment and work-related issues in cancer survivors. *Critical Reviews in Oncology/Hematology* 77(2): 109–30.

National Cancer Institute. 2011a. Estimated U.S. cancer prevalence. Accessed at http://cancercontrol.cancer.gov/ocs/statistics/statistics.html (March 18, 2015).

———. 2011b. SEER stat fact sheets: Breast cancer. Surveillance, Epidemiology, and End Results Program. Accessed at http://seer.cancer.gov/statfacts/html/breast.html (March 16, 2015).

———. 2015. Breast cancer treatment (PDQ®). January 9. Accessed at http://www.cancer.gov/cancertopics/pdq/treatment/breast/healthprofessional/page6 (March 16, 2015).

Oberst, Kathleen, Cathy J. Bradley, Joseph C. Gardiner, Maryjean Schenk, and Charles W. Given. 2010. Work task disability in employed breast and prostate cancer patients. *Journal of Cancer Survivorship* 4(4): 322–30.

Roberts, Karen, and Willard Young. 1997. Procedural fairness, return to work, and the decision to dispute in Workers' Compensation. *Employee Responsibilities and Rights Journal* 10(3): 193–212.

Schur, Lisa, Douglas Kruse, Joseph Blasi, and Peter Blanck. 2009. Is disability disabling in all workplaces? Workplace disparities and corporate culture. *Industrial Relations* 48(3): 381–410.

Schur, Lisa, Lisa Nishii, Meera Adya, Douglas Kruse, Susanne M. Bruyère, and Peter Blanck. 2014. Accommodating employees with and without disabilities. *Human Resources Management* 54(4): 593–621.

Stone, Dianna, and Adrienne Colella. 1996. A model of factors affecting the treatment of disabled individuals in organizations. *Academy of Management Review* 21: 352–401.

U.S. Department of Justice, Civil Rights Division. 2012. Revised ADA regulations implementing Title II and Title III. October 10. Accessed at http://www.ada.gov/regs2010/ADAregs2010.htm (March 16, 2015).

U.S. Employment and Equal Opportunity Commission. 2008. ADA Amendments Act of 2008. September 25. Accessed at http://www.eeoc.gov/laws/statutes/adaaa.cfm (March 16, 2015).

Ware, John E., Jr., and Cathy Donald Sherbourne. 1992. The MOS 36-Item Short-Form Health Survey (SF-36). Conceptual framework and item selection. *Medical Care* 30(6): 473–83.