

Disability and the characteristics of employment

An analysis of the California Work and Health Survey indicates that persons with disabilities have lower employment rates and less secure kinds of employment than those without disabilities; once on the job, however, the two groups do not differ fundamentally in the nature of their working conditions

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This article examines the work situation of persons with disabilities—their employment rates, the strength of their connection to the labor force, the terms with which they are hired, and the specific conditions of their jobs. The article is based on an analysis of the California Work and Health Survey, a telephone survey designed to be representative of the adult population in California. The survey, conducted annually for 3 years beginning in 1998, combines the features of Federal labor market surveys, such as the Current Population Survey and its supplements, with health surveys like the National Health Interview Survey, thereby allowing the two kinds of information to be integrated into a single data source.

The California Work and Health Survey was initiated in June 1998 with 1,771 respondents, interviewed in English or Spanish. Respondents were selected from a random digit dialing sample of Californians aged 18 or older, with oversamples of person with disabilities, African-Americans, and Asians and Pacific Islanders. The 1999 survey included interviews with 2,040 adults in the State, of whom 909 were part of the 1998 survey and another 1,131 were new respondents, including oversamples of African-Americans, Asians and Pacific Islanders, persons with disabilities, and persons aged 45 to 70 years. The 2000 survey included interviews with 2,168 California adults, of whom 627 were part of the 1998 and 1999 surveys, 638 were part of the 1999

survey alone, and another 903 were new respondents. The new respondents included oversamples of African-Americans, Asians and Pacific Islanders, and Hispanics. In what follows, we analyze responses from all participants between the ages of 18 and 64 who were interviewed in 1999, as well as those who were added to the survey in 2000: a total of 2,417 individuals.

To account for the oversampling, and to ensure that the results reported are representative of the California adult population, all estimates presented here make use of proportional sampling weights. The weights are developed in two stages. The first stage adjusts for differences in the probability of selection of different types of individuals—differences that are attributable to the sampling design (that is, the oversampling of certain populations). The second stage adjusts for differences in contact and response rates of different subpopulations defined by age, gender, race or ethnicity, household size, and region of the State. The weighting targets are based on California Department of Finance annual population estimates. The use of proportional weights guarantees that the total sample size is not artificially inflated when the statistical significance of the relationship between disability status and employment outcomes is estimated.

Definitions of variables

Disability. In the results reported in the analysis that follows, a respondent is considered to have a

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disability if he or she answered the following question affirmatively: “Are you limited in any way in any activities because of a long-term physical or mental impairment or medical condition?” If necessary, a long-term condition is defined for the respondent as “[a condition] which has already lasted three months, or if it began less than three months ago, can be expected to last that long.” This measure is based on the National Health Interview Survey activity limitation status variable¹ and is consistent with the definition of disability established by the Americans with Disabilities Act.

In the California survey, 14.9 percent of respondents reported at least one limitation in their activity, based on the National Health Interview Survey measure. For comparison purposes, in 2000, nationwide, 9.6 percent of National Health Interview Survey respondents aged 18 through 64 reported such limitation. The analogous rates may be higher in the California survey because of its sampling universe, in which any adults in the household who were at home at the time of contact or upon up to six followup calls were deemed respondents. Persons with disabilities are more likely to be home than are persons without disabilities, increasing the share of the total sample with disabilities than would be the case if all adults in the household had been interviewed.

Health measures. In addition to being classified by disability status, respondents were disaggregated according to their physical and mental health status and the presence or absence of chronic illness. Respondents’ overall health status was measured by their responses to the question, “In general, would you say your health is excellent, very good, good, fair or poor?” This widely used measure of self perceived health has been shown to be related to functional status, morbidity, and mortality.² Mental health status was measured by the Short Geriatric Depression Scale, a 15-item battery of questions that has been validated for use with general adult populations.³ A score of 7 or higher was the cutoff point; such high levels of depressive symptoms are considered to be indicative of clinical depression.⁴ Respondents were asked whether a doctor had ever diagnosed them with any of a list of 12 major chronic conditions. In the results that follow, this variable has been recoded to indicate the presence of zero, one, or two or more conditions.

Labor market outcomes. The labor market section of the California survey included information on the respondent’s current employment situation, such as his or her employment status, self-employment, number of jobs, hours of work per week, and weeks of work per year. Respondents who were not working were asked about their jobseeking activities, reasons for not working, and work history. Respondents who were working were asked about their job characteristics (for example, occupation, industry, tenure, size of firm, union

status, and benefits) and work arrangements (for instance, work schedule and flexibility, contingent employment, and whether they worked from home), as well as about the physical and psychological demands of their work.

Later in the article, the employment status of persons with disabilities and of those without disabilities is described, with a focus on whether the individual was employed for pay during the week prior to the interview. The analysis is then limited to those with current or recent employment, in order to zero in on a number of labor market outcomes. With regard to those individuals who worked within the past year, the following variables are defined: involuntary job loss in the past year, defined as having been laid off from a job or having left a job because one expected to be laid off; part-time, part-year employment, defined as working fewer than 50 weeks per year and fewer than 35 hours per week; and episodic employment, defined as working fewer than 40 weeks in the past year. For those participants who reported working during the past week, an additional set of labor market outcomes is defined: the terms of employment, including involuntary part-time employment, defined as working fewer than 35 hours per week due to slack business conditions or the inability to find full-time work; part-time employment from all causes; contingent employment, defined as having a job that is not expected to last more than 12 months; receiving a promotion or a better job within the past 12 months; poverty despite employment, defined as being currently employed for pay, but nonetheless having a household income below 125 percent of the Federal poverty level; and job tenure of 1 year or less.

Working conditions. As regards currently employed participants, a number of characteristics of employment were examined, including occupation and industry, self-employment, work shift, supervisory status, union membership, flexibility of work hours, work from home, the psychological demands of the job, whether the job requires more or less education than one has received, and whether the job involves physical labor. In addition, four synthetic measures of working conditions were defined. The first, traditional employment, was designed to capture the characteristics of “old-economy” jobs—what one might call typical “nine-to-five” jobs: simultaneously working full time for the full year; being an employee (that is, not being self-employed or an independent contractor) paid by the firm for which one works; having only one job; working day shifts; having a permanent job (that is, a job which is not contingent); and not working from home.⁵ The second measure is the employment continuum developed by J. Grzywacz and D. Doo-ley,⁶ which arrays employment along a spectrum from employed in poorly remunerated positions, to employed in positions with barely adequate remuneration, to employed in economically adequate jobs, and, finally, to employed in jobs that are optimal in both economic and psychological terms. Exhibit 1

Exhibit 1. Stages-of-Employment Continuum	
Stage of employment	Criteria
Inadequate	Working, but having a total household income below 125 percent of the Federal poverty line.
Barely adequate	Household income above 125 percent of the Federal poverty line and meets only one of the following economic criteria: <ol style="list-style-type: none"> 1. is earning \$20,000 per year or more 2. has stable employment: no job loss in past year, fewer than 15 weeks' unemployment in year, and no contingent employment 3. has employer sponsored health insurance.
Economically good	Household income above 125 percent of the Federal poverty line and meets two or more of the preceding economic criteria, but only one of the following psychological criteria: <ol style="list-style-type: none"> 1. has decision latitude greater than the sample mean 2. has job demands lower than the sample mean 3. has two or more close friends at work.
Optimal	Household income above 125 percent of the Federal poverty line and meets two or more of the preceding economic criteria and two or more of the preceding psychological criteria.

SOURCE: Adapted from J. Grzywacz and D. Dooley, "'GoodJobs' to 'Bad Jobs': Replicated Evidence of an Employment Continuum from Two Large Surveys," *Social Science and Medicine*, April 2003, pp. 1749–60.

lists the specific criteria for each stage of the continuum. The third measure is a combination of the first two: jobs that meet the criteria for traditional and optimal employment simultaneously. Finally, the fourth measure is based on the job-scoring system developed by R. Karasek and colleagues,⁷ which classifies jobs according to the conjoint presence of psychological demands and autonomy; jobs with high levels of demands and low levels of autonomy are said to exact a toll on one's health status as a result of stress.

Demographic and socioeconomic variables. In addition to the foregoing employment and health measures, the California survey includes basic demographic and socioeconomic characteristics. Many of the results presented are stratified or adjusted by the following variables: age (18–24, 25–44, 45–54, and 55–64), gender, country of birth, race or ethnicity (non-Hispanic white, non-Hispanic African-American, Asian-American, and Hispanic), education (some high school or less, high school graduate, some college or vocational education, college graduate, and graduate degree), marital status (married or living with a partner; widowed, separated, or divorced; and never married), urban or rural residence, and region of the State (Los Angeles, other Southern California, San Francisco Bay area, and other).

Analysis

The following analysis examines the relationship of a person's disability status to the labor market outcomes defined in the previous section: current employment status, job loss, part-time or part-year employment, involuntary part-time employment and part-time employment from all causes, more than full-time employment, episodic employment, contingent employment, remaining in poverty despite employment, having a short job tenure, and receiving a promotion within a job or receiving a better job. The proportion of persons with and without disabilities who have each outcome is tallied, with and without adjustment for demographic variables. In addition, the relative frequency of individual working conditions and the synthetic employment measures among persons with and without disabilities are examined. The unadjusted results give the proportion of persons with and without disabilities who experience each outcome, along with 95-percent confidence intervals to indicate the reliability of the estimates. A ratio of those proportions for persons with disabilities compared with those without is calculated.

In order to adjust for the different characteristics of persons with and without disabilities, multivariate logistic regression models are developed in which each outcome is a function of

disability status and a set of independent variables, including the entire set of demographic and socioeconomic characteristics described earlier, as well as the number of chronic conditions the individual reports and his or her overall health status. Because of the multiple categories of employment, a multinomial logistic regression was used to estimate the impact of disability status and the other independent variables on the employment continuum.

To provide comparable presentations for both the unadjusted and adjusted results, the adjusted proportions and 95-percent confidence intervals from the logistic regression results were calculated, along with the ratio of these proportions for persons with and without disabilities. For each cell in the tables that follow, the adjusted proportion was developed by calculating the predicted probability of the outcome for all observations, but setting the covariates that defined a given cell to the value corresponding to that cell, as if, for example, all participants were nondisabled men.⁸ The variance associated with the adjusted proportion was calculated with a Taylor series approximation.⁹

In the analysis that follows, the sample size varies from 2,417 when the universe includes all persons aged 18 to 64, to 1,987 when the dependent variable refers only to those working at any point during the year prior to the interview, and to 1,599 when the dependent variable concerns just the currently employed population. In addition, for some of the measures, the sample size was further decreased from these values by 1 to 5 percent because of missing data.

Limitations

One potential limitation—perhaps the principal one—of the California survey is that its health and disability measures are based on self-reports. Accordingly, those reporting disability or poor health may have done so to legitimize their withdrawal from employment. Moreover, the health of such persons may not meet the definition of disability necessary to qualify for Social Security Disability Insurance or Supplemental Security Income, both of which require diagnostic certainty and proof of an inability to engage in substantial gainful activity. Still, the disability measures used in this article are those used in most research having to do with employment among persons with disabilities.

Another limitation of the California Survey is that it was conducted only in that State and therefore may not be representative of the situation elsewhere in the United States. There is evidence that many emerging labor market practices—particularly contingent forms of employment and short job tenures in fast-growth, high-wage industries—may be used more frequently in California than in the remainder of the country.¹⁰ Nevertheless, there is also evidence that these practices are becoming more widespread throughout the Nation.¹¹

Results

Table 1 summarizes the differences in health and demographic characteristics and in socioeconomic status between persons with disabilities and those without disabilities. Persons with disabilities were 4 times more likely to report being in only fair or poor health (42.1 percent, compared with 10.1 percent) and to have high levels of depressive symptoms (21.4 percent, as opposed to 4.9 percent) and more than twice as likely to report musculoskeletal (66.3 percent, as against 26.2 percent) and circulatory (35.8 percent, compared with 15.3 percent) conditions as persons without disabilities. Persons with disabilities also were more likely to report having two or more chronic conditions (55.4 percent, compared with 18.7 percent). Almost half of persons with disabilities were 45 to 64 years of age, but only about a quarter of those without disabilities were. Reflecting these age distributions, persons with disabilities were less likely to be foreign born than were persons without disabilities (17.3 percent, as opposed to 30.9 percent), were more likely to be white and not from a Hispanic background (70.3 percent, compared with 54.2 percent), and were almost twice as likely to be widowed, separated, or divorced (27.9 percent, as against 15.6 percent). Such persons also were more likely to reside in rural areas (10.3 percent, compared with 6.8 percent). In contrast to many previous studies, in this one the two groups did not differ in the proportions with various levels of education.

The California Work and Health Survey results reported in this article were from 1999 and 2000, two of the strongest years for the State's economy in the past quarter century. Accordingly, more than two-thirds of the adult population of the State reported being employed in the week prior to the interview. (See table 2.) However, despite the strength of the economy, the results of the survey are consistent with those of other studies in showing substantially lower employment rates among persons with disabilities. On an unadjusted basis, such persons were only 58 percent as likely as those without disabilities to be employed in the week prior to the interview (42.6 percent, compared with 73.2 percent). Even after adjustment for health status, comorbidity, and demographic characteristics, the difference in employment rates between persons with and those without disabilities remained, suggesting that disability itself, rather than the characteristics of persons with disabilities, accounts for the relatively low employment rates of such persons.

Table 2 also provides an indication of how disability status and other characteristics combine to affect the employment status of persons with disabilities. Persons with disabilities who are in excellent, very good, or good health certainly have lower employment rates than their counterparts without disabilities (on an adjusted basis, they were 73 percent as likely to be employed), but the gap was greater for those in

Table 1. Health status and demographic characteristics of persons aged 18–64 years, by disability status, 1999–2000

[In percent]

Health status and demographics	Total (n = 2,417)	Disability (n = 411; 14.9 percent of total)	No disability (n = 2,006; 85.1 percent of total)
All persons	100.0	100.0	100.0
Health status:			
Fair or poor self-assessed health ¹	14.9	42.1	10.1
Depressive symptoms ¹	7.4	21.4	4.9
Musculoskeletal conditions ¹	32.2	66.3	26.2
Circulatory conditions ¹	18.4	35.8	15.3
Chronic conditions: ¹			
No chronic conditions	48.7	17.8	54.4
One chronic condition	26.9	26.8	26.9
Two or more chronic conditions	24.2	55.4	18.7
Age: ¹			
18–24	15.5	7.7	16.8
25–44	53.6	45.8	54.9
45–54	19.2	27.6	17.8
55–64	11.7	19.0	10.5
Male	51.4	50.1	51.6
Foreign born ¹	28.8	17.3	30.9
Race or ethnicity: ¹			
White, non-Hispanic	56.6	70.3	54.2
African-American, non-Hispanic	6.2	8.4	5.8
Asian-American, non-Hispanic	9.7	2.9	10.9
Hispanic	27.5	18.3	29.2
Education:			
Less than high school	13.6	13.1	13.7
High school graduate	18.9	22.0	18.4
Some college	35.1	36.6	34.8
College graduate	21.7	16.7	22.6
Postgraduate	10.7	11.5	10.6
Marital status: ¹			
Married or living with partner	50.4	43.0	51.7
Separated, divorced, or widowed	17.5	27.9	15.6
Never married	32.1	29.2	32.7
Rural residence ²	7.3	10.3	6.8
Region:			
Los Angeles	29.3	24.2	30.2
Other Southern California	29.1	30.5	28.9
San Francisco Bay area	21.0	22.7	20.7
Other California	20.6	22.6	20.2

¹ Distribution of characteristic differs by disability status ($p < .01$).

² Distribution of characteristic differs by disability status ($p < .05$).

SOURCE: California Work and Health Survey, 1999–2000.

fair or poor health (on an adjusted basis, persons with disabilities reported employment rates of 38 percent of those without disabilities). Similarly, persons with disabilities who reported two or more chronic conditions fared more poorly in employment relative to those without disabilities than did those with no chronic conditions or with one.

Among individuals 18 to 24 years, on an unadjusted basis, persons with disabilities and those without disabilities reported essentially the same employment rates. However, with each increment of age, the ratio of the employment rates of the two groups declined, a phenomenon consistent with the hypothesis that persons with disabilities exit the labor market earlier than those without disabilities. After adjustment, the gap between the employment rates of persons 18 to 24 years with and without disabilities widened, an effect not seen in the other age groups.

This widening suggests that persons with disabilities in this age group actually have higher employment rates than would be expected of persons with their health status, level of comorbidity, and demographic characteristics.

Although persons with disabilities at each level of education were less likely to be employed than those without disabilities, the disparity was greater for those with lower levels of education. Thus, although persons with disabilities who had some college or less had about half the employment rate of such persons without disabilities, among those who were college graduates or who had had postgraduate training, persons with disabilities were more than three-quarters as likely to be employed. The paradox is that persons with disabilities experienced greater returns from increased levels of education than did those without disabilities. Accordingly,

Table 2. Employment rates among persons aged 18–64 years, by disability status, with and without adjustment for health status and demographic characteristics, 1999–2000

Health status and demographics	Unadjusted employment rate					Adjusted employment rate ¹					
	All persons	With disability		Without disability		Ratio	With disability		Without disability		Ratio
		Percent	95-percent confidence interval	Percent	95-percent confidence interval		Percent	95-percent confidence interval	Percent	95-percent confidence interval	
Total (n = 2,417) ²	68.6	42.6	37.8–47.4	73.2	71.2–75.1	0.58	43.0	37.2–48.8	73.1	70.9–75.4	0.59
Self-assessed health status: ³											
Excellent, very good, or good	72.7	55.7	49.2–62.3	74.6	72.6–76.6	.75	54.1	46.5–61.7	73.9	71.6–76.3	.73
Fair or poor	45.3	24.6	18.4–30.9	60.3	53.7–66.9	.41	25.8	18.1–33.5	67.7	60.4–74.9	.38
Chronic conditions:											
No conditions	71.8	46.9	32.9–60.9	73.2	70.5–75.9	.64	45.9	30.5–61.2	72.6	69.5–75.7	.63
One condition	71.6	48.6	38.9–58.4	75.6	72.0–79.3	.64	47.5	37.1–57.9	75.7	71.6–79.8	.63
Two or more conditions ..	58.8	38.4	32.4–44.4	69.4	64.9–73.9	.55	38.5	30.9–46.2	71.5	66.6–76.4	.54
Age: ³											
18–24	58.2	57.1	35.2–79.0	58.3	53.1–63.5	.98	57.0	38.9–75.1	65.3	59.0–71.7	.87
25–44	73.6	49.6	41.1–58.2	77.1	74.3–79.9	.64	51.3	42.3–60.2	77.4	74.4–80.3	.66
45–54	72.7	38.7	30.7–46.6	82.0	78.6–85.4	.47	33.9	23.9–43.9	79.4	75.1–83.7	.43
55–64	52.8	25.7	17.3–34.1	61.3	55.7–67.0	.42	23.4	14.9–31.8	56.1	48.7–63.4	.42
Gender: ³											
Male	75.3	42.1	35.0–49.3	81.0	78.5–83.5	.52	43.5	34.9–52.0	81.1	78.3–84.0	.54
Female	61.5	43.1	36.6–49.7	64.8	61.9–67.7	.67	40.9	33.3–48.5	64.7	61.4–68.0	.63
Nativity:											
Foreign born	65.2	29.4	17.6–41.3	68.7	65.1–72.4	.43	31.9	19.0–44.8	69.0	63.9–74.1	.46
U.S. born	70.0	45.4	40.2–50.6	75.1	72.9–77.4	.60	45.6	39.0–52.3	74.9	72.2–77.7	.61
Race or ethnicity:											
White, non-Hispanic	70.2	45.8	39.7–51.8	75.7	73.0–78.5	.61	43.0	35.6–50.4	72.6	68.8–76.3	.59
African-American, non-Hispanic	62.1	31.7	20.7–42.7	69.9	64.2–75.7	.45	32.2	19.9–44.5	68.0	60.8–75.2	.47
Asian-American, non-Hispanic	72.3	27.4	.0–55.5	74.4	69.6–79.2	.37	31.5	4.2–58.9	72.6	66.3–78.9	.43
Hispanic	65.5	38.2	25.5–50.9	68.5	64.4–72.6	.56	46.6	34.2–59.1	75.1	70.7–79.5	.62
Education:											
Less than high school ...	53.5	26.2	12.7–39.8	58.1	52.0–64.2	.45	26.1	12.5–39.7	59.3	52.1–66.4	.44
High school graduate ...	63.4	32.0	22.4–41.6	70.0	65.4–74.6	.46	32.6	21.0–44.2	71.3	65.9–76.6	.46
Some college	67.8	38.8	31.2–46.3	73.1	69.8–76.5	.53	36.2	26.5–45.9	73.3	69.6–77.0	.49
College graduate	76.4	60.4	48.1–72.6	78.5	74.7–82.3	.77	61.7	48.7–74.8	77.8	73.1–82.4	.79
Postgraduate	84.0	68.3	54.2–82.5	87.0	82.7–91.4	.79	67.9	51.1–84.7	86.1	80.5–91.7	.79
Marital status: ³											
Married or living with partner	69.1	50.7	43.8–57.5	71.8	69.1–74.5	.71	52.6	44.8–60.4	71.4	68.3–74.5	.74
Separated, divorced, or widowed	71.2	37.1	28.3–46.0	81.9	77.6–86.2	.45	41.6	30.4–52.7	83.9	79.7–88.2	.50
Never married	66.4	36.1	25.8–46.5	71.1	67.5–74.8	.51	32.6	21.7–43.5	70.0	65.2–74.8	.47
Residence: ³											
Rural	59.1	23.1	9.1–37.2	68.6	60.5–76.8	.34	25.8	9.5–42.1	70.1	60.5–79.6	.37
Urban	69.4	44.9	39.8–50.0	73.5	71.5–75.5	.61	44.1	37.9–50.2	73.5	71.2–75.8	.60
Region: ³											
Los Angeles	67.9	37.6	28.8–46.5	72.2	68.6–75.7	.52	39.2	28.3–50.1	72.8	68.8–76.8	.54
Other Southern California	70.5	52.1	41.9–62.3	73.9	70.0–77.7	.71	49.0	37.7–60.3	73.9	69.5–78.2	.66
San Francisco Bay area	71.9	51.6	41.7–61.6	75.8	71.9–79.7	.68	49.0	36.6–61.3	72.7	67.6–77.8	.67
Other California	63.6	26.3	17.3–35.2	70.9	66.6–75.3	.37	29.7	18.8–40.5	73.3	68.4–78.3	.41

¹All models are adjusted for gender, age, nativity, race or ethnicity, marital status, rural residence, region of the State, and education.

²Ratios of unadjusted and adjusted employment rates are significantly different from 1.0 ($p < .05$).

³Relationship between disability and employment differs significantly ($p < .05$) among the categories of the covariate in both the unadjusted and the adjusted model.

SOURCE: California Work and Health Survey, 1999–2000.

on an unadjusted basis, persons with disabilities who had postgraduate training were more than two-and-a-half times more likely to be employed than such persons with less than a high school education; among persons without disabilities, those with postgraduate training were only one-and-a-half times as likely.

News reports have noted that high rates of job loss no longer are limited to periods of economic contraction.¹² The data from the California survey are consistent with this observation, with about 10 percent of adult Californians who reported some employment in the year prior to the interview indicating that they had lost jobs during that time. (See table 3.) Although certain individuals (namely, those in fair or poor health, younger workers, African-Americans and Hispanics, and those with less than a high school education) reported higher rates of displacement, no group would appear to be immune. Thus, almost 9 percent of persons aged 45 to 54, the peak earning years, reported losing a job in the 12 months prior to the interview, as did about 11 percent of college graduates and even 6 percent of those with postgraduate training.

Persons with disabilities were almost twice as likely as those without disabilities to report having experienced a job loss in the year prior to the interview (17.5 percent, compared with 9.1 percent); adjustment had little effect on the gap in the rates of job loss (19.0 percent and 9.0 percent, respectively), indicating that disability itself, rather than the characteristics of persons with disabilities, accounted for the higher rates of displacement.

The results presented in tables 2 and 3 indicate that persons with disabilities have lower employment rates and higher rates of job loss than those without disabilities. The results in table 4 suggest that, when employed, persons in the one group have terms of employment that are substantially different from those in the other group. Among all persons who reported any employment in the year prior to the interview, those with disabilities were much more likely than those without disabilities to report part-time, part-year employment: on an unadjusted basis, 11.6 percent of the former, but only 6.9 percent of the latter, reported such employment. Similarly, greater proportions of persons with disabilities reported episodic employment: on an unadjusted basis, 29.4 percent of the former, but only 19.6 percent of the latter, reported that kind of employment. Disparities between persons with and without disabilities in rates of part-time, part-year employment and episodic employment did not change substantially after adjustment for health and demographic characteristics, suggesting that disability, rather than the kinds of persons who report disability, accounts for the association with those forms of employment.

Among persons who had been employed when interviewed, on both an unadjusted and an adjusted basis, those with disabilities experienced higher rates of involuntary part-time employment than did those without disabilities, although the difference between the two groups did not meet the traditional

criterion for statistical significance. The groups did differ significantly in the rates of part-time employment for any reason. (Persons with disabilities were about 50 percent more likely to work part time.) Interestingly, the two groups did not differ significantly in the proportion working more than full time (about 30 percent of each group reported working in excess of 45 hours per week), in the proportion with contingent employment (slightly more than a tenth of each group had contingent jobs), or in the proportion with job tenures of a year or less (roughly, a fifth of each group.)

Persons with disabilities were more likely to have household incomes below 125 percent of the Federal poverty levels than were persons without disabilities, a difference that did meet the traditional criterion for statistical significance after adjustment. They were also much less likely to report a promotion within a job or a better job in the 12 months prior to the interview. Thus, persons with disabilities did not appear to benefit from the strong labor market of the time in terms of job mobility.

Table 5 reports the frequency with which employed Californians experienced specific working conditions and then compares the frequency of the conditions experienced by persons with and without disabilities. The results are consistent with the model outlined by P. Osterman in which employers are granting increasing levels of autonomy, but also imposing increasing levels of demands.¹³ That is to say, relatively large proportions of California's workers indicated that they had flexible working conditions, worked at home some or all of the time, and worked nonstandard shifts. Also, large proportions reported having the freedom to decide how to do their own work (74.6 percent), having learning opportunities on the job (89.6 percent), being able to make their own decisions (82.5 percent), and having enough time to get their job done (78.0 percent), while a smaller proportion indicated that its jobs did not require working fast without taking breaks (57.8 percent). When queried about the cognitive demands of their jobs, relatively large proportions indicated that the jobs required them to concentrate for long periods of time (83.7 percent), interact with other people (97.1 percent), or use computers (74.3 percent). By contrast, almost 3 times as many workers indicated that their jobs required less education than they had than reported that the job required more (34.7 percent and 12.9 percent, respectively). This gap suggests that, despite relatively high levels of autonomy and demands and high rates of mobility, many workers were not intellectually satisfied with their jobs.

In opposition to the findings with respect to the terms of employment, once employed, with a few exceptions, persons with and without disabilities did not differ in fundamental ways in their working conditions. Thus, the two groups reported relatively similar rates of self-employment, working a regular day shift, having flexible work hours, working at home some or all of the time, supervising others at work, being a member of a union, being required to perform physical labor as part of their jobs,

Table 3. Rates of job loss in the year prior to the interview among persons aged 18–64 years, by disability status, with and without adjustment for health status and demographic characteristics, 1999–2000

Health status and demographics	Unadjusted job loss rate					Adjusted job loss rate ¹					
	All persons	With disability		Without disability		Ratio	With disability		Without disability		Ratio
		Percent	95-percent confidence interval	Percent	95-percent confidence interval		Percent	95-percent confidence interval	Percent	95-percent confidence interval	
Total employed in year prior to interview (n = 1,987) ²	10.1	17.5	12.8–22.2	9.1	7.8–10.5	1.92	19.0	12.9–25.1	9.0	7.4–10.6	2.11
Self-assessed health status:											
Excellent, very good, or good	8.6	11.6	6.6–16.5	8.3	6.9–9.7	1.40	32.0	19.4–44.7	14.4	7.0–21.8	2.22
Fair or poor	21.5	30.1	20.6–39.7	17.6	11.7–23.4	1.71	12.6	6.6–18.6	8.4	6.8–10.0	1.50
Chronic conditions:											
No conditions	9.5	22.3	9.0–35.6	8.8	7.0–10.7	2.53	21.5	9.5–33.6	8.4	6.2–10.5	2.56
One condition	10.0	12.0	4.3–19.8	9.8	7.1–12.4	1.22	13.1	2.5–23.7	10.0	7.1–12.9	1.31
Two or more conditions ..	11.6	18.7	12.3–25.1	9.1	6.1–12.2	2.05	21.8	12.4–31.2	9.6	5.7–13.5	2.27
Age:											
18–24	17.2	22.9	1.4–44.4	16.7	12.4–21.0	1.37	26.4	3.9–49.0	15.4	9.7–21.2	1.71
25–44	9.5	19.1	11.2–27.1	8.3	6.4–10.3	2.30	18.9	10.5–27.1	8.2	6.1–10.4	2.30
45–54	8.6	15.2	7.6–22.8	7.4	5.0–9.9	2.05	15.9	4.8–27.0	7.9	4.9–11.0	2.01
55–64	5.6	11.8	2.8–20.8	4.4	1.7–7.1	2.68	12.0	.0–24.7	4.6	1.2–8.0	2.61
Gender:											
Male	10.2	20.2	13.0–27.3	9.0	7.1–10.8	2.24	20.9	12.0–29.8	8.6	6.6–10.7	2.43
Female	10.0	14.6	8.6–20.7	9.4	7.4–11.4	1.55	16.9	8.7–25.2	9.5	7.1–12.0	1.78
Nativity:											
Foreign born	11.3	28.0	12.1–43.9	10.2	7.6–12.8	2.75	17.3	10.5–24.1	8.8	6.8–10.8	1.97
US born	9.6	15.6	10.8–20.4	8.7	7.1–10.3	1.79	26.3	9.8–42.7	9.5	5.8–13.3	2.77
Race or ethnicity: ³											
White, non-Hispanic	8.9	13.3	8.2–18.3	8.2	6.3–10.1	1.62	15.3	7.8–22.9	9.0	6.5–11.6	1.70
African-American, non-Hispanic	12.5	20.3	6.5–34.1	11.4	7.1–15.7	1.78	21.5	5.2–37.9	10.4	5.4–15.4	2.07
Asian-American, non-Hispanic	6.2	.0	...	6.4	3.5–9.20	...	5.8	1.6–10.0	...
Hispanic	13.6	35.3	19.2–51.5	11.7	8.5–14.9	3.02	33.9	17.3–50.4	10.0	6.7–13.4	3.39
Education:											
Less than high school ...	17.0	34.0	12.5–55.5	14.9	9.8–20.1	2.28	32.8	13.0–52.7	12.4	7.0–17.8	2.65
High school graduate	10.1	18.0	7.1–28.9	9.0	5.9–12.1	2.00	17.2	7.1–27.2	7.5	4.6–10.5	2.29
Some college	8.9	17.7	10.1–25.2	7.7	5.6–9.9	2.30	19.0	8.5–29.6	7.6	5.2–10.0	2.50
College graduate	10.6	11.4	1.8–21.1	10.5	7.5–13.5	1.09	13.8	.0–28.6	12.0	7.7–16.4	1.15
Postgraduate	5.6	11.4	.8–22.0	4.6	1.8–7.4	2.48	12.7	.0–27.1	6.2	2.0–10.4	2.05
Marital status: ³											
Married or living with partner	8.0	9.0	4.1–13.8	7.8	6.1–9.6	1.15	9.9	4.2–15.5	8.2	5.9–10.5	1.21
Separated, divorced, or widowed	11.1	23.5	13.2–33.9	8.4	5.1–11.7	2.80	29.5	14.4–44.6	9.4	5.4–13.4	3.14
Never married	12.8	25.8	13.4–38.2	11.4	8.7–14.2	2.26	25.3	11.6–39.0	9.8	6.4–13.3	2.58
Residence:											
Rural	9.9	25.0	5.8–44.1	7.1	2.1–12.0	3.52	18.4	11.9–24.8	9.1	7.4–14.6	2.02
Urban	10.1	16.7	11.9–21.5	9.3	7.9–10.7	1.80	25.3	6.9–43.7	7.9	1.2–14.6	3.20
Region: ³											
Los Angeles	10.4	17.4	8.2–26.7	9.7	7.1–12.2	1.79	19.2	7.2–31.3	8.5	5.8–11.3	2.26
Other Southern California	8.9	16.7	7.3–26.2	7.7	5.1–10.3	2.17	16.4	4.8–27.9	7.5	4.7–10.4	2.19
San Francisco Bay area	10.4	8.1	1.4–14.7	10.7	7.7–13.7	.76	9.8	1.3–18.4	11.9	7.9–15.8	0.82
Other California	11.2	29.2	17.2–41.1	8.7	5.8–11.7	3.36	32.9	18.2–47.6	9.2	5.5–13.0	3.58

¹All models are adjusted for gender, age, nativity, race or ethnicity, marital status, rural residence, region of the State, and education.

²Ratios of unadjusted and adjusted job loss rates are significantly different from 1.0 ($p < .05$).

³Relationship between disability and job loss differs significantly ($p < .05$) among the categories of the covariate in both the unadjusted and the adjusted model.

SOURCE: California Work and Health Survey, 1999–2000.

Table 4. Terms of employment among persons aged 18–64 years, by disability status, with and without adjustment for demographic characteristics, 1999–2000

Terms of employment	Unadjusted					Adjusted ¹					
	All persons	With disability		Without disability		Ratio	With disability		Without disability		Ratio
		Percent	95-percent confidence interval	Percent	95-percent confidence interval		Percent	95-percent confidence interval	Percent	95-percent confidence interval	
Among all persons employed in past year (n = 1,886):											
Part-time, part-year employment	7.4	11.6	7.4–15.8	6.9	5.7–8.1	² 1.68	11.4	6.1–16.7	6.9	5.6–8.3	1.65
Episodic employment	20.6	29.4	23.4–35.4	19.6	17.7–21.5	³ 1.50	31.0	23.6–38.5	19.4	17.2–21.6	³ 1.60
Among currently employed (n = 1,599)											
Involuntary part-time employment	4.0	6.3	2.6–10.0	3.8	2.8–4.7	1.66	6.0	1.5–10.5	3.8	2.7–4.9	1.58
Part-time employment for any reason	18.4	26.7	19.8–33.6	17.6	15.6–19.6	³ 1.52	25.8	17.8–33.7	17.6	15.3–19.9	² 1.47
Greater than full-time employment	31.9	29.4	22.3–36.5	32.2	29.7–34.6	.91	29.3	20.4–38.2	32.2	29.2–35.1	.91
Contingent employment	10.9	11.6	6.7–16.5	10.8	9.2–12.4	1.07	12.1	6.2–18.0	10.8	8.8–12.7	1.12
Job tenure 1 year or less	19.4	20.1	14.0–26.3	19.3	17.3–21.4	1.04	21.3	13.0–29.5	19.2	16.8–21.6	1.11
Poverty despite employment	13.7	16.3	10.6–22.0	13.4	11.6–15.3	1.22	22.0	14.3–29.8	13.0	11.0–15.1	² 1.69
Promotion or better job	37.5	24.0	17.5–30.5	38.9	36.3–41.4	³ .62	27.3	18.9–35.7	38.5	35.5–41.5	² .71

¹Adjusted for gender, age, nativity, race or ethnicity, marital status, rural residence, region of the State, and education.
²Employment characteristic differs by disability status ($p < .05$).

³Employment characteristic differs by disability status ($p < .01$).

SOURCE: California Work and Health Survey, 1999–2000.

and having specific psychological and cognitive job demands. Most importantly, persons with disabilities were about as likely as those without disabilities to report having wide latitude to make decisions and sufficient time to get their jobs done, as well as being required to concentrate for long periods, having the opportunity to interact with others, and being required to use computers on the job. The results with respect to the proportion working a regular day shift are consistent with a recent study using a national data source.¹⁴

Among the exceptions to the finding of relatively similar working conditions, a greater proportion of persons with disabilities reported working entirely from home, while a smaller proportion indicated that their jobs required more education than they had. (Neither of these findings, however, reached the traditional criterion for statistical significance.) Nevertheless, on the preponderance of the measures of working conditions, persons with and without disabilities did not report differences.

Labor market analysts have been developing synthetic measures of employment to assess access to employment, terms of employment, and specific working conditions simultaneously. In 1999–2000, only a third of California’s adults had jobs that fulfilled the criteria for “traditional employment” (see table 6), defined as working full time, full year, in a permanent position for a single employer on a day shift, and not being hired as a

consultant. Similarly, only about a third were in jobs that met the criteria for “optimal employment,” defined as working in a psychologically and economically rewarding job, and only about 1 in 6 had jobs that simultaneously met the criteria for both traditional and optimal employment. In contrast, relatively few workers (14.5 percent) experienced job strain as a result of having jobs with high levels of demands and low levels of control.

Although table 4 indicates that persons with and without disabilities differed in many of their terms of employment and in mobility, table 5 shows that they did not differ in most specific working conditions. Table 6 reveals that when the two sets of measures are integrated, persons with disabilities were less likely than those without disabilities to be in jobs that met the criteria for traditional or optimal employment or for the combination of the two. (Differences in the first and third measures reached statistical significance.) Indeed, fewer than 1 in 10 persons with disabilities had jobs that met the criteria for “traditional employment” and were economically and psychologically rewarding; on an unadjusted and an adjusted basis, they were, respectively, only 57 percent and 50 percent as likely to hold such jobs as were persons without disabilities.

WRITING ALMOST THREE DECADES AGO, Harry Braverman predicted that the continued mechanization of industry would

Table 5. Working conditions among persons aged 18–64 years, by disability status, with and without adjustment for demographic characteristics, 1999–2000

Working conditions among currently employed (n = 1,599)	Unadjusted						Adjusted ¹					
	All persons	With disability		Without disability		Ratio	With disability		Without disability		Ratio	
		Percent	95-percent confidence interval	Percent	95-percent confidence interval		Percent	95-percent confidence interval	Percent	95-percent confidence interval		
Size of firm:												
Small firm (fewer than 50 people)	38.9	34.7	27.0–42.4	39.3	36.6–42.0	0.88	35.2	25.9–44.6	39.3	36.1–42.5	0.90	
Large firm (500 or more people) ..	61.1	65.3	57.6–73.0	60.7	58.0–63.4	1.08	64.8	55.4–74.1	60.7	57.5–63.9	1.07	
Self-employed	12.2	14.4	9.0–19.8	12.0	10.3–13.7	1.20	12.4	7.3–17.5	12.2	10.2–14.1	1.02	
Work regular day shift	78.1	74.4	67.7–81.1	78.5	76.3–80.6	.95	71.8	63.3–80.2	78.7	76.1–81.3	.91	
Have flexible work hours ..	56.0	55.3	47.6–62.9	56.1	53.5–58.7	.99	54.0	44.7–63.2	56.2	53.1–59.3	.96	
Work at home all the time	5.8	8.6	4.3–12.9	5.5	4.3–6.7	1.57	8.5	3.5–13.4	5.5	4.2–6.9	1.55	
Work at home some of the time	32.1	33.5	26.2–40.8	31.9	29.5–35.4	1.05	29.4	21.9–37.0	32.3	29.4–35.3	.91	
Supervise others at work ...	51.4	47.7	40.0–55.4	51.7	49.1–54.3	.92	46.3	36.9–55.6	51.9	48.8–55.0	.89	
Member of a union	24.8	26.5	19.7–33.3	24.7	22.4–26.9	1.07	24.5	17.1–31.8	24.9	22.2–27.6	.98	
Physical labor is part of work	48.4	50.6	42.9–58.3	48.1	45.5–50.7	1.05	52.6	42.6–62.5	47.9	44.8–51.0	1.10	
Psychological demands:												
Have the freedom to decide how to do own work	74.6	75.0	68.3–81.7	74.5	72.2–76.8	1.01	70.9	62.0–79.8	74.9	72.2–77.6	.95	
Job does not require working fast without taking breaks	57.8	58.6	51.0–66.3	57.7	55.1–60.3	1.02	57.9	48.5–67.3	57.8	54.7–60.9	1.00	
Job requires learning new things	89.6	94.5	91.0–98.0	89.1	87.5–90.7	² 1.06	93.9	89.2–98.5	89.2	87.4–91.1	1.05	
Job allows own decision making	82.5	83.9	78.2–89.6	82.4	80.4–84.4	1.02	79.4	71.8–87.1	82.8	80.5–85.1	.96	
Have enough time to get the job done	78.0	76.3	69.7–82.9	78.1	76.0–80.3	.98	77.2	70.0–84.4	78.1	75.4–80.7	.99	
Cognitive job demands ³												
Concentrate for long periods of time	83.7	82.6	76.0–89.2	83.9	81.7–86.1	.98	80.8	73.0–88.5	84.1	81.5–86.6	.96	
Interact with other people	97.1	98.8	96.9–100.0	96.9	95.8–97.9	1.02	98.1	95.3–100.0	97.0	95.8–98.1	1.01	
Use computers	74.3	76.8	69.5–84.1	74.0	71.4–76.7	1.04	71.1	63.2–79.1	74.7	71.7–77.7	.95	
All of the preceding	64.9	70.9	63.0–78.8	64.2	61.3–67.1	1.10	64.8	56.3–73.3	64.9	61.6–68.2	1.00	
Job requires more education ³	12.8	10.2	5.0–15.5	13.2	11.1–15.2	.77	10.4	5.1–15.6	13.1	10.9–15.4	.79	
Job requires less education ³	34.7	37.1	28.7–45.5	34.4	31.5–37.3	1.08	36.7	25.9–47.5	34.5	31.1–37.8	1.06	

¹Adjusted for gender, age, nativity, race or ethnicity, marital status, rural residence, region of the State, and education.

³Data for these characteristics collected in 2000 only.

²Employment characteristic differs by disability status (p < .05).

SOURCE: California Work and Health Survey, 1999–2000.

necessarily result in a reduction in the range of tasks and skill levels required to perform jobs as firms sought to reduce labor costs.¹⁵ Although, certainly, the number of low-skilled jobs has risen, there is more evidence in support of an increase, rather than a reduction, in the skill demands of the majority of jobs.¹⁶ Braverman wrote principally about manufacturing and was criticized for ignoring the growth in services. Paradoxically, the increase in the skill demands of jobs is perhaps most pronounced in the manufacturing sector. If workers two generations ago did most of the manufacturing by hand or nearly so, a generation ago machines provided most of the force to make things. Today, in much of manufacturing, workers monitor production that is run by computers, rather than either supplying power themselves or operating machines that do the physical work.¹⁷

There is also much evidence that the range of tasks in individual jobs has increased over time as firms have moved to flatten hierarchies and deploy workers more flexibly in response to international competition.¹⁸ Fewer workers do the exact same tasks day in and day out, even on so-called assembly lines. Finally, there is much evidence that jobs requiring high levels of cognitive and communicative skills have expanded faster than jobs not requiring those kinds of skills,¹⁹ at the same time that many workers are provided relatively high levels of flexibility to do their jobs when, and even where, they please and are also provided autonomy in how they perform their jobs.

The results presented here from the California survey indicate that solid majorities of the State's workers have jobs requiring

high levels of cognitive skills and are provided flexible conditions and high levels of autonomy to carry out their work tasks, although roughly 1 in 3 indicated that he or she had more education than was required to do the job.

These generally salutary changes in working conditions, however, have been accompanied by a loss of job security. Even during the boom period of 1999–2000, roughly 1 in 10 workers in the California survey reported either losing a job in the year prior to the survey or currently being on contingent employment, roughly 1 in 5 either had been in his or her main job for a year or less or had episodic employment (or both), and roughly 1 in 6 did not earn enough to lift his or her household above 125 percent of the Federal poverty line.

Certainly, some individuals profited from the rapid turnover in jobs that have become the norm: more than a third of California's workers reported receiving a promotion within a job or a better job in the year prior to the interview. Thus, for many, working conditions are satisfactory and there are ample opportunities for upward mobility. Nevertheless, for others, employment and its terms are less than optimal, and for still others, work remains poorly remunerated and working conditions are stressful. Only about 1 in 3 of California's workers has a job that meets the criteria for being a "traditional" job or that is both psychologically and economically rewarding; only 1 in 6 has a job that meets the criteria for being both "traditional" and "optimal" simultaneously.

To sum up the findings presented in this article, persons with disabilities would appear to experience different rates and terms

Table 6. Synthetic measures of employment among currently employed persons aged 18–64 years, by disability status, with and without adjustment for demographic characteristics, 1999–2000

Employment measure applied to those currently employed (n = 1,599)	Unadjusted						Adjusted ¹				
	All persons	With disability		Without disability		Ratio	With disability		Without disability		Ratio
		Percent	95-percent confidence interval	Percent	95-percent confidence interval		Percent	95-percent confidence interval	Percent	95-percent confidence interval	
Traditional employment	33.5	29.2	22.3–36.2	34.0	31.5–36.4	0.86	28.0	18.2–37.8	34.0	32.0–36.0	² .82
Employment continuum: job is—											
Optimal	33.6	30.	23.7–37.8	33.9	31.5–36.4	.91	28.0	20.2–35.8	34.0	32.0–36.0	.82
Economically adequate	29.6	28.4	21.5–35.3	29.7	27.3–32.1	.96	27.0	19.2–34.8	30.0	28.0–32.0	.90
Psychologically adequate	11.1	15.3	9.8–20.8	10.6	9.0–12.2	1.44	13.0	7.1–18.9	11.0	9.0–13.0	1.18
Barely adequate	12.6	9.7	5.2–14.2	12.9	11.2–14.7	.75	10.0	4.1–15.9	13.0	11.0–15.0	.77
Inadequate	13.1	15.9	10.3–21.5	12.8	11.1–14.5	1.24	22.0	14.2–29.8	12.0	10.0–14.0	1.83
Traditional and optimal employment	16.6	9.9	5.3–14.4	17.3	15.3–19.2	³ .57	8.8	4.3–13.2	17.5	15.1–19.8	² .50
Job strain (high demands and low control)	14.5	13.4	8.1–18.6	14.6	12.8–16.5	.92	15.9	8.9–22.9	14.4	12.3–16.5	1.10

¹ Adjusted for gender, age, nativity, race or ethnicity, marital status, rural residence, region of the State, and education.

³ Employment characteristic differs by disability status ($p < .05$).

² Employment characteristic differs by disability status ($p < .01$).

SOURCE: California Work and Health Survey, 1999–2000.

of employment than those without disabilities. However, once employed, those with disabilities do not differ in systematic ways in specific working conditions from those without disabilities. Accordingly, persons with disabilities were about twice as likely to report losing a job in the year prior to the interview, 50 percent more likely to report part-time part-year, involuntary part-time, or episodic employment, and 70 percent more likely to earn too little to lift their households above 125 percent of the Federal poverty line. They were much less likely to report promotions within jobs or receiving better jobs. Once employed, however, they differed from persons without disabilities in only two specific working conditions: they were less likely to hold jobs

requiring more education than they had, and they were more likely to work at home exclusively (perhaps as an accommodation to the disability). Of note, persons with disabilities were equally as likely as persons without disabilities to report wide latitude in making decisions, high levels of cognitive demands, and flexible work hours. Finally, after integration of the measures of the terms of employment and specific working conditions, persons with disabilities were shown to be in jobs that were less likely to meet the criteria for “traditional” or “optimal” employment, or for both simultaneously, but they did not differ in the proportion reporting job stress—the combination of high levels of demands and low levels of control. □

Notes

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¹⁹ Hecker, “Occupational employment projections.”