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Abstract

Researchers have been unable to draw conclusions about labor market conditions for people who are deaf or hard of hearing because surveys of individuals with disabilities do not sufficiently sample these groups. The authors conducted a national survey of vocational rehabilitation counselors and others who provide services to individuals who are deaf or hard of hearing. Respondents were asked their views about changes in labor market opportunities, job tenure, and the employment effects of Americans With Disabilities Act (ADA) requirements, state antidiscrimination laws, and increased benefits under Social Security Disability Insurance (SSDI) and Supplemental Security Income (SSI). In general, the respondents reported an improvement in labor market opportunities. However, a substantial number agreed that ADA requirements and increased benefits under SSDI and SSI have resulted in a drop in employment, particularly for workers who are deaf and lack postsecondary education.

Keywords

deaf, public policy, employment, ADA, SSDI, SSI

When Congress passed the Americans With Disabilities Act (ADA) in 1990, some observers were concerned that mandates to accommodate workers, along with potential legal costs associated with the ADA's prohibitions against discrimination in hiring, firing, compensation, promotion, and job training, would make firms reluctant to hire workers with a disability (e.g., see Oi, 1991; Rosen, 1991; Weaver, 1991). The passage of the ADA was followed by a recession. After the economy recovered from the 1990–1991 recession, the employment of people of working age without disabilities grew. However, the same cannot be said for people of working age with disabilities (Burkhauser & Stapleton, 2003a). Not all observers believe the ADA is to blame. During the same period, modifications to the Social Security Disability Insurance (SSDI) and Supplemental Security Income (SSI) programs increased eligibility and benefits. Some workers with a disability may have dropped out of the labor market to take advantage of more generous SSDI and SSI benefits (Goodman & Waidmann, 2003).

Our interest is in the labor market conditions for individuals who are deaf or hard of hearing. In a 2005 conversation with one of the authors, the late Dr. Lawrence Fleischer, chair of the Department of Deaf Studies at California State University, Northridge, expressed the view that the ADA hurt workers who are deaf. Fleischer signed, “Workers who are deaf used to be *underemployed*, now they are *unemployed*.” Christopher Wagner, who was president of the

Florida Association of the Deaf at the time, added “employers are afraid of the ADA.”

Because statistics on persons with disabilities do not sufficiently sample the population that is deaf, researchers have been unable to draw statistically significant conclusions about labor market conditions (see Houtenville, 2002). In this article, we present the results of an online survey of individuals familiar with the population that is deaf. We surveyed vocational rehabilitation (VR) counselors and others who serve clients who are deaf or hard of hearing across the United States. The objective was to capture their perceptions of the labor market as workers who are deaf encounter it. In particular, we were interested in getting their view of the impact of public policy changes on employment opportunities for people who are deaf.

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Authors' Note:

This paper is dedicated to Professor Larry Fleischer who died November 1, 2009. Professor Fleischer was a leader in the deaf community and was instrumental in developing the Deaf Studies program at Cal State Northridge.

Employment Issues for People Who Are Deaf or Hard of Hearing

The 1990 ADA required employers to make “reasonable accommodation to the known physical or mental limitations of otherwise qualified individuals with disabilities” (U.S. Department of Justice, 2005). As Peck and Kirkbride (2001) pointed out, many employers worried that they would have to spend “tens of thousands of dollars bringing their business up to ADA standards if they were to hire someone with a disability” (p. 71). They feared “being stuck forever,” believing that people with disabilities were a protected class. Acemoglu and Angrist (2001) and DeLeire (2003) made this point as well. They noted that firms may have feared costly legal battles related to the antidiscrimination provisions of the law.

Workers who are deaf or hard of hearing face serious challenges in the workplace. Workers who are deaf lack the ability to communicate in a world where most communication is based on sound. Possible accommodations for workers who are deaf and, to some extent, workers who are hard of hearing include written communication (via a teletypewriter or memos) or the use of a sign language interpreter (U.S. Equal Employment Opportunity Commission, 2006). Written communication is often not an option for workers who are deaf, as weak English reading and writing skills characterize the population that is deaf (Gallaudet Research Institute, 2003). This limits the use of written communication. The alternative, hiring a sign language interpreter, is an expensive recurring accommodation that makes economic sense only for a company with a highly paid employee (Geyer & Schroedel, 1999). While a worker in a wheelchair might require a ramp and some adaptive equipment that would involve a one-time cost for the company, there may not be a similar one-time fix to accommodate a deaf worker. For this reason, it is reasonable to ask whether the ADA has made labor market conditions less attractive to workers who are deaf or hard of hearing.

Trends in Employment of Persons With a Disability

Employment of workers with disabilities declined during the 1990–1991 recession. This is consistent with evidence presented by Yelin and Katz (1994), who found the employment of workers with disabilities to be significantly affected by business cycle fluctuations. However, as the economy expanded during the remainder of the decade, the employment of workers with disabilities continued to decline. Burkhauser and Stapleton (2003a) reported that between 1992 and 2000, a period when the employment rate of men without disabilities was fairly constant, the employment rate of men with disabilities fell by 23%. For women

without disabilities, the employment rate rose by 4.6% while the employment rate for women with disabilities fell by 5%. The share of respondents who were disabled and who identified themselves as unable to work grew substantially during this period (Burkhauser & Stapleton, 2003a).

Several hypotheses have been tested to explain the overall drop in employment of individuals with a disability in the 1990s. Goodman and Waidmann (2003) examined the influence of the expansion of the SSDI program on employment in the late 1980s and early 1990s. After SSDI eligibility standards were eased in the 1980s, Goodman and Waidmann noted that the recession of the early 1990s coincided with an increase in the value of the SSDI benefit relative to market wages. This, they argued, was enough to motivate individuals with a disability to drop out of the labor market. They presented empirical evidence to support the hypothesis that increases in the number of unemployed workers claiming disabilities can be explained by changes in SSDI eligibility and the recession.

In contrast, researchers looking at the evidence from an alternative point of view have concluded that the ADA is to blame for changes in employment. Acemoglu and Angrist (2001) looked at employment effects by firm size. Because small firms were exempt from the ADA requirements, they hypothesized that effects of the ADA could be isolated by examining differences in employment declines between small and large firms. If the post-ADA employment decline was related to disability insurance rates and SSI participation rates, there should be no difference in the impact across firm size. Because they found greater declines in employment in larger firms, Acemoglu and Angrist rejected the hypothesis that SSI effects accounted for most of the post-ADA employment decline. Evidence that larger firms experience greater declines in employment is consistent with ADA effects. Acemoglu and Angrist also examined ADA-related discrimination charges across states, testing the premise that higher charge rates in some states would influence employer hiring practices and should, therefore, be associated with reduced weeks of employment. The data confirmed this hypothesis. Along the same lines, Beegle and Stock (2003) found lower earnings and labor market participation rates in states with state-level antidiscrimination protection for workers with disabilities.

Several other hypotheses have been tested (Burkhauser & Stapleton, 2003a, 2003b; Hill, Livermore, & Houtenville, 2003; Houtenville & Daly, 2003; Stapleton, Goodman, & Houtenville, 2003). Efforts to explain the decline in employment on the basis of changes in the composition of the population with disabilities (gender, race, age, and education), the nature of work (thereby affecting required skills), and rising health care costs have been unsuccessful. Researchers reported that any such changes could have only a relatively small impact and could not explain the decline in the employment of workers with disabilities.

Survey

To gather specific information on labor market conditions facing individuals who are deaf or hard of hearing, we conducted a national survey of professionals who provide employment-related services to this group. The survey, using a self-administered online questionnaire, was conducted between January and May of 2006.

E-mail requests to complete the survey were sent to 1,030 potential respondents. Of these, 755 were VR specialists whose contact addresses were provided by the various state agencies that comprise the VR system in the United States. These agencies are the largest providers of employment services to people who are deaf or hard of hearing, and their specialists have the most expertise in the field. Some state agencies require prior approval of surveys by the Council of State Administrators of Vocational Rehabilitation (CSAVR). We submitted our survey to the CSAVR, which issued an "Urged to Respond" to its member agencies. We then followed up with the various state agencies.

E-mail solicitations to complete the survey were also sent to contact addresses obtained from the 2005 Reference Issue of the *American Annals of the Deaf* for (a) postsecondary programs in 30 states ($n = 69$), (b) affiliates of the National Association of the Deaf (affiliates in all 50 states and the District of Columbia, $n = 72$), and (c) regional and local organizations offering services to people who are deaf or hard of hearing in 40 states and the District of Columbia, including state commissions and councils for people who are deaf and state agencies ($n = 131$; Moores, 2005). These individuals were selected for their firsthand knowledge of labor market conditions as they apply to persons who are deaf or hard of hearing. Table 1 shows the distribution of the 1,030 potential respondents by state. Of the 1,030 persons contacted, 575 participated in the survey, yielding a 55.8% survey response rate.

The first series of questionnaire items were structured attempts to measure beliefs and perceptions about labor market opportunities and participation. This series included 13 Likert-type items using a 5-point scale (where 5 = *strongly agree*) regarding perceptions about the extent to which labor market opportunities (types of jobs, wages/benefits) and job tenure have improved and the extent to which labor market participation has been affected by such public policy factors as the ADA, state antidiscrimination laws, and the increased benefits of SSDI and SSI.

Respondents completed these survey items for each of four groups: deaf without postsecondary education, deaf with postsecondary education, hard of hearing without postsecondary education, and hard of hearing with postsecondary education. Deafness was defined for respondents as severe to profound hearing loss. Respondents were told to include in this group individuals for whom hearing aids do

not offer much help. Hard of hearing was defined as mild to moderate hearing loss. Respondents were told to include in this group individuals who can hear fairly well to almost normal with a hearing aid. Postsecondary education was defined as education beyond high school, including college and vocational education.

By separating deafness from hard of hearing, we were able to compare people who differ in their ability to hear. Moreover, the two groups are treated differently under the SSDI and SSI assistance programs. The bulk of the subsequent analyses and interpretations focuses on responses to these 13 items.

The Likert items were followed by less structured, open-ended measures of similar beliefs and perceptions that were followed, in turn, by measures of the demographic and background characteristics of the respondent. Like the Likert items, the open-ended questions asked about job opportunities and employment trends for individuals who are deaf or hard of hearing, changes in the composition of the population seeking work, reasons for changes in length of stay, potential effects of rising health care costs, the ADA, and public assistance benefits for the employment of workers who are deaf. Other questions asked the respondents to compare the situation facing their clients who are deaf to those of other clients, if they had them, and to discuss education-related differences in employment trends for individuals who are deaf or hard of hearing.

Of the 290 respondents who answered a question asking about their hearing status (50.4% of the total), the majority (51.7%) were hearing, 33.1% were deaf, 13.4% were hard of hearing, and a small minority were either deaf and blind (0.3%) or late-deafened (1.4%). A total of 302 respondents (52.4%) answered a question regarding their number of years of experience in the deaf and hard-of-hearing field; 28% had more than 20 years of experience, 11.6% had 16–20 years of experience, 12.3% had 11–15 years of experience, 19.9% had 6–10 years of experience, 21.2% had 2–5 years of experience, and 7% had 1 year or less of experience.

Survey Results

Table 2 presents the survey results. Table 2 shows the percentage distribution of responses for each statement, for each of the four groups, allowing easy comparison across demographics. The affirmative responses to Statements 3, 4, and 5 in Table 2 tell us that for workers who are deaf or hard of hearing and have postsecondary education, respondents believe job opportunities have expanded over time. Not only are there more jobs to choose from for individuals who are deaf and hard of hearing, but respondents believe they offer better pay and benefits than in the past.

Workers with postsecondary education are seen as having better labor market outcomes than workers without

Table 1. Survey Recipients by Nature of Contact Information

State	Vocational rehabilitation	Post secondary programs	Regional and local programs	National Association for the Deaf	Other	Total
Alabama	19	1	2	1		23
Alaska	2			1		3
Arizona	26	3	3	1		33
Arkansas	2		3	1		6
California	48	13	15	2	1	79
Colorado	2	3	1	2		8
Connecticut	12		3	2		17
Delaware	5			2		7
District of Columbia	2		1	2		5
Florida	82	1		1		84
Georgia	18	1		1	1	21
Hawaii	2	1		1		4
Idaho	2	1	1	1		5
Illinois	28	2	12	2		44
Indiana	2	1	5	2		10
Iowa	2	1	3	1		7
Kansas	3	1	1	1		6
Kentucky	17	1	1	1		20
Louisiana	2		1	2		5
Maine	6			1		7
Maryland	15			1		16
Massachusetts	15	2	5	1		23
Michigan	22	2	3	1		28
Minnesota	2	2	12	2		18
Mississippi	3		1	2		6
Missouri	2	1	1	1		5
Montana	3			2		5
Nebraska	9		1	2		12
Nevada	3			1		4
New Hampshire	1		1	1		3
New Jersey	26	1	2	2		31
New Mexico	5			2		7
New York	29	5	7	1		42
North Carolina	30	4	7	1		42
North Dakota	2			2		4
Ohio	38	5	8	1		52
Oklahoma	17	3	1	2		23
Oregon	10	2	1	2	1	16
Pennsylvania	21		9	1		31
Rhode Island	8	1	1	2		12
South Carolina	19	1		1		21
South Dakota	2			1		3
Tennessee	16	3	6	1		26
Texas	69	3	4	1		77
Utah	12	1		2		15
Vermont	2			1		3
Virginia	12	1	4	2		19
Washington	26		2	1		29
West Virginia	9		1	2		12
Wisconsin	14	2	1	1		18
Wyoming	31		1	1		33
Totals	755	69	131	72	3	1,030

Table 2. Survey Results

Item	Without postsecondary education		With postsecondary education	
	Deaf (n = 390) %	HH (n = 345) %	Deaf (n = 344) %	HH (n = 312) %
Statement 1: The number of clients seeking your help to find a job has increased.				
NA	3.30	3.80	0.90	2.20
Strongly disagree	2.30	0.90	2.60	1.90
Disagree	21.00	15.70	17.70	14.40
Neutral	15.10	14.80	15.10	16.30
Agree	38.70	50.40	54.10	55.10
Strongly agree	19.50	14.50	9.60	9.90
Agree or strongly agree	58.20	64.90	63.70	65.10
Disagree or strongly disagree	23.30	16.50	20.30	16.30
Statement 2: Of those clients looking for jobs, you feel they are more seriously impaired than in the past.				
NA	3.30	2.30	1.50	1.60
Strongly disagree	3.30	1.70	2.60	2.20
Disagree	29.00	34.80	36.90	38.10
Neutral	22.80	29.00	27.30	28.80
Agree	27.20	26.70	27.60	25.30
Strongly agree	14.40	5.50	4.10	3.80
Agree or strongly agree	41.50	32.20	31.70	29.20
Disagree or strongly disagree	32.30	36.50	39.50	40.40
Statement 3: Job opportunities for workers have expanded over time.				
NA	2.10	2.00	1.20	0.60
Strongly disagree	9.20	1.40	3.80	1.30
Disagree	26.40	21.20	22.10	15.40
Neutral	19.20	20.30	16.30	16.30
Agree	36.20	48.70	48.30	60.30
Strongly agree	6.90	6.40	8.40	6.10
Agree or strongly agree	43.10	55.10	56.70	66.30
Disagree or strongly disagree	35.60	22.60	25.90	16.70
Statement 4: Individuals have more types of jobs to choose from than in the past.				
NA	1.30	0.60	0.90	0.30
Strongly disagree	8.20	2.90	3.50	1.00
Disagree	21.80	19.10	16.90	13.80
Neutral	13.10	14.20	9.60	13.50
Agree	44.40	53.90	56.10	61.90
Strongly agree	11.30	9.30	13.10	9.60
Agree or strongly agree	55.60	63.20	69.20	71.50
Disagree or strongly disagree	30.00	22.00	20.30	14.70
Statement 5: Jobs available to workers are better (pay and benefits) than in the past.				
NA	2.60	1.20	0.90	0.60
Strongly disagree	7.40	1.70	3.50	1.60
Disagree	26.90	22.00	19.20	16.30
Neutral	24.10	28.40	18.90	24.00
Agree	33.10	42.00	49.40	50.30
Strongly agree	5.90	4.60	8.10	7.10
Agree or strongly agree	39.00	46.70	57.60	57.40
Disagree or strongly disagree	34.40	23.80	22.70	17.90
Statement 6: Workers do not stay with one job as long as they used to.				
NA	2.60	1.70	2.30	1.90
Strongly disagree	2.10	2.30	2.00	2.90
Disagree	15.10	35.40	26.70	33.30

(continued)

Table 2. (continued)

Item	Without postsecondary education		With postsecondary education	
	Deaf (n = 390) %	HH (n = 345) %	Deaf (n = 344) %	HH (n = 312) %
Neutral	26.40	32.80	26.50	34.30
Agree	42.60	26.10	36.00	24.00
Strongly agree	11.30	1.70	6.40	3.50
Agree or strongly agree	53.80	27.80	42.40	27.60
Disagree or strongly disagree	17.20	37.70	28.80	36.20
Statement 7: The Americans With Disabilities Act (ADA, took effect in 1992) has improved working conditions for workers who already have jobs.				
NA	1.50	2.90	1.20	1.90
Strongly disagree	4.40	2.30	3.20	2.20
Disagree	17.90	17.10	20.10	15.70
Neutral	23.60	23.20	19.20	24.70
Agree	43.60	49.60	50.60	50.30
Strongly agree	9.00	4.90	5.80	5.10
Agree or strongly agree	52.60	54.50	56.40	55.40
Disagree or strongly disagree	22.30	19.40	23.30	17.90
Statement 8: In my state, state laws have improved working conditions for workers who already have jobs.				
NA	4.40	3.50	2.90	3.20
Strongly disagree	5.40	3.50	4.70	3.20
Disagree	20.80	21.40	23.50	22.10
Neutral	32.60	35.40	32.60	33.70
Agree	32.60	33.00	32.60	35.30
Strongly agree	4.40	3.20	3.80	2.60
Agree or strongly agree	36.90	36.20	36.30	37.80
Disagree or strongly disagree	26.20	24.90	28.20	25.30
Statement 9: The Americans With Disabilities Act (ADA, took effect in 1992) has made it easier for unemployed workers to find jobs.				
NA	2.30	2.30	1.20	1.30
Strongly disagree	9.20	3.20	5.50	3.20
Disagree	40.30	30.40	34.00	28.80
Neutral	21.50	25.80	22.10	26.30
Agree	23.60	34.80	33.70	36.20
Strongly agree	3.10	3.50	3.50	4.20
Agree or strongly agree	26.70	38.30	37.20	40.40
Disagree or strongly disagree	49.50	33.60	39.50	32.10
Statement 10: In my state, state laws have made it easier for unemployed workers to find jobs.				
NA	3.80	3.80	3.20	3.20
Strongly disagree	11.30	4.90	9.30	4.80
Disagree	36.70	29.90	30.20	29.20
Neutral	28.70	35.40	31.40	34.60
Agree	16.70	23.80	24.40	26.60
Strongly agree	2.80	2.30	1.50	1.60
Agree or strongly agree	19.50	26.10	25.90	28.20
Disagree or strongly disagree	47.90	34.80	39.50	34.00
Statement 11: Lower wages are encouraging many workers to leave the labor force and rely on SSDI or SSI.				
NA	3.10	4.30	2.00	3.50
Strongly disagree	2.10	5.80	4.40	7.10
Disagree	20.80	41.70	34.00	43.90

(continued)

Table 2. (continued)

Item	Without postsecondary education		With postsecondary education	
	Deaf (n = 390) %	HH (n = 345) %	Deaf (n = 344) %	HH (n = 312) %
Neutral	20.50	19.40	18.60	24.00
Agree	37.20	23.50	31.70	19.20
Strongly agree	16.40	5.20	9.30	2.20
Agree or strongly agree	53.60	28.70	41.00	21.50
Disagree or strongly disagree	22.80	47.50	38.40	51.00
Statement 12: More generous SSDI and SSI benefits have reduced the number of individuals who seek employment.				
NA	3.60	4.60	2.00	4.20
Strongly disagree	1.80	5.50	2.90	6.40
Disagree	24.90	41.70	33.40	42.00
Neutral	22.30	22.60	21.50	23.40
Agree	34.40	19.70	31.70	20.80
Strongly agree	13.10	5.80	8.40	3.20
Agree or strongly agree	47.40	25.50	40.10	24.00
Disagree or strongly disagree	26.70	47.20	36.30	48.40
Statement 13: Because employers find the ADA requirements costly, fewer workers are hired.				
NA	2.30	2.30	2.00	1.90
Strongly disagree	2.30	3.50	3.80	4.20
Disagree	27.90	43.50	29.10	41.30
Neutral	23.10	24.10	23.50	26.90
Agree	29.70	20.90	32.30	22.10
Strongly agree	14.60	5.80	9.30	3.50
Agree or strongly agree	44.40	26.70	41.60	25.60
Disagree or strongly disagree	30.30	47.00	32.80	45.50

Note: HH = hard of hearing.

postsecondary education, as measured by the responses to Statements 6, 9, 10, 11, and 12. According to those familiar with labor market conditions, workers who are deaf and have a postsecondary education are more likely to stay with one job than workers who are deaf and do not have postsecondary education. They are helped more by the ADA and state antidiscrimination laws and are less likely to be driven out of the labor market by lower wages and higher SSDI and SSI benefits.

Of the four groups identified in the survey, respondents viewed workers who are deaf and without postsecondary education as having inferior labor market options. As viewed by the survey respondents, the options for workers who are deaf and without postsecondary education have expanded, but not to the extent that options have expanded for the remaining three groups. In the free-form segment of the survey, many respondents talked about how “good” jobs for unskilled workers who are deaf—in printing and with the U.S. Postal Service—were no longer available. Respondents report that the post office now requires applicants to pass a written test, which excludes workers who are

deaf and have limited written English skills. Respondents were more likely than not to view the SSDI and SSI as having a negative effect on the labor market participation rates of workers who are deaf and without postsecondary education (Statement 12).

Respondents do not think workers who are deaf and without postsecondary education have been helped by the ADA, as measured by the response to Statement 9. More to the point, when asked directly whether costly ADA requirements have reduced the employment of workers who are deaf and without postsecondary education (Statement 13), 44% of respondents agreed (30% disagreed).

There is a trade-off, however, as more than half of the respondents agree or strongly agree that the ADA has improved working conditions for workers (in each of the four categories) who already have jobs (Statement 7; see Note 1). State laws were not perceived to have nearly the effect of the ADA (Statement 8).

Free-form responses suggested that workers who are deaf and lack language skills were challenged to find gainful employment. In the free-form portion of the survey,

respondents noted that for an individual who is deaf in a hearing workplace, work could be lonely. Without language skills, the day-to-day communication required on most jobs was described as a huge hurdle. Also, change is not well tolerated (as with a new supervisor); adjustments are difficult when communication is compromised. Survey respondents also mentioned that promotions are rare for workers who are deaf, which discourages workers further. Respondents noted that many workers who are deaf qualified only for low-skill jobs that made SSDI and SSI look attractive. It was reported that some individuals chose to work just enough to maintain benefit eligibility.

To get an indication of our respondents' beliefs as to the willingness of businesses to conform readily to ADA requirements, we added a question asking if VR agencies provided interpreters for interviews and on-the-job training or whether they required potential employers to provide interpreting services, as required under the ADA. Of 298 respondents who answered this question, 52% said that they did not require employers to provide interpreting services, providing it themselves. Of 292 respondents, 78% said that they did not require employers to provide interpreting services for the on-the-job training that their clients received.

Factor Analysis of Beliefs

A principal components factor analysis with varimax rotation and Kaiser normalization was conducted on the 13 Likert-type belief statements and yielded four significant factors with eigenvalues greater than 1.0. Table 3 shows the rotated component matrix, the communalities, and the eigenvalues of the four factors. None of the 13 items failed to load significantly on a factor; thus, all 13 items were retained. Subsequent multivariate analyses of variance (MANOVAs) and discussion of the belief statements revolve around these four factors.

Factor 1: Beliefs About the Positive Impact of State Laws and the ADA on Finding and Improving Jobs for Persons Who Are Deaf or Hard of Hearing. Table 3 shows that 4 of the 13 belief statements loaded heavily on Factor 1 (factor loadings $> .70$). These 4 items dealt with beliefs about the positive impact of state laws and the ADA on finding jobs and on improving working conditions for those who already have jobs. This factor accounted for 21% of the explained variance.

Factor 2: Beliefs About Availability, Expansion, and Quality of Job Opportunities. Factor 2 consisted of three items concerning beliefs about the availability, expansion, and quality (in terms of pay and benefits) of job opportunities (factor loadings $> .75$). This factor accounted for 18.5% of the explained variance.

Factor 3: Beliefs About the Negative Impact of SSDI, SSI, and ADA Requirements on Employment and Stay. Factor 3 consisted of three items dealing with beliefs about the

negative impact of SSDI, SSI, and ADA requirements on employment of people who are deaf or hard of hearing and one item concerning the related general belief that workers who are deaf or hard of hearing do not stick with one job as long as they did in the past (factor loadings $> .40$). This factor accounted for 15.5% of the explained variance.

Factor 4: Beliefs About the Numbers of Clients Seeking Help and the Degree of Their Hearing Loss. Two items regarding beliefs about the number of clients who are deaf or hard of hearing seeking help and the degree of their hearing loss loaded on Factor 4 (factor loadings $> .40$). This final factor accounted for 9.8% of the explained variance.

MANOVA Results

To determine the strength of the relationship between clients' degree of hearing loss and education level on respondents' beliefs about labor market opportunities, four separate 2×2 MANOVA tests were performed, one on each factor, with client's degree of hearing loss (deaf vs. hard of hearing) and client's education (postsecondary education vs. no postsecondary education) as the within-subjects independent variables.

As shown in Table 4, the 2×2 MANOVA on the items in each of the four factors yielded significant main effects of client's degree of hearing loss, client's education, and a significant two-way interaction. Statistically significant MANOVAs were followed up by 2×2 univariate analysis of variance tests (ANOVAs). Restricting the univariate tests to those items related to significant MANOVA outcomes attenuates the statistical danger of ballooning alpha.

ANOVA Results

Factor 1: Beliefs About the Positive Impact of State Laws and the ADA on Finding Jobs for Persons Who Are Deaf or Hard of Hearing. Respondents with clients who are deaf and have no postsecondary education were least likely to believe that state laws and the ADA have made it easier to find jobs, $F_{interaction}(1, 259) = 8.73, p = .000$, and $F_{interaction}(1, 259) = 15.65, p = .000$, respectively. The means for these significant interactions are shown in Figure 1, Panels 1 and 2.

Factor 2: Beliefs About Expansion and Availability of Job Opportunities. Respondents with clients who are deaf and have no postsecondary education were least likely to believe that job opportunities have expanded, that there are more jobs to choose from in the past, and that the available jobs are better than in the past, $F_{interaction}(1, 268) = 5.69, p = .018$; $F_{interaction}(1, 268) = 5.73, p = .017$; and $F_{interaction}(1, 268) = 9.42, p = .002$, respectively. The means for these significant interactions are shown in Figure 1, Panels 3, 4, and 5.

Table 3. Rotated Component Matrix and Descriptive Statistics

Factor	Factor loadings				Communality	Descriptive statistics		
	1	2	3	4		M	SD	Obs
<i>Factor 1: Beliefs About the Positive Impact of State Laws and the ADA on Finding Jobs for Persons Who Are Deaf/Hard of Hearing</i>								
Item 8: In my state, state laws have improved working conditions for workers who are deaf/hard of hearing who already have jobs.	.830	.108	.023	.075	.706	3.10	0.94	1,342
Item 10: In my state, state laws have made it easier for unemployed workers who are deaf/hard of hearing to find jobs.	.813	.231	-.104	.001	.725	2.79	0.96	1,342
Item 9: The Americans With Disabilities Act (ADA, took effect in 1992) has made it easier for unemployed workers who are deaf/hard of hearing to find jobs.	.774	.283	-.156	-.049	.706	2.94	1.02	1,366
Item 7: The Americans With Disabilities Act (ADA, took effect in 1992) has improved working conditions for workers who are deaf/hard of hearing who already have jobs.	.752	.190	-.035	-.014	.603	3.38	0.96	1,365
<i>Factor 2: Beliefs About Expansion and Availability of Job Opportunities</i>								
Item 4: Individuals who are deaf/hard of hearing have more types of jobs to choose from than in the past.	.207	.875	-.045	.031	.812	3.49	1.04	1,380
Item 3: Job opportunities for deaf/hard of hearing workers have expanded over time.	.230	.845	-.107	.037	.779	3.32	1.03	1,370
Item 5: Jobs available to workers who are deaf/hard of hearing are better (pay and benefits) than in the past.	.307	.776	-.026	-.003	.697	3.27	1.00	1,372
<i>Factor 3: Beliefs About the Negative Impact of SSDI, SSI, and ADA Requirements on Employment</i>								
Item 12: More generous SSDI and SSI benefits have reduced the number of individuals who are deaf/hard of hearing who seek employment.	.016	.027	.868	-.047	.757	3.00	1.07	1,341
Item 11: Lower wages are encouraging many workers who are deaf/hard of hearing to leave the labor force and rely on SSDI or SSI.	-.070	-.063	.836	-.070	.712	3.02	1.10	1,346
Item 13: Because employers find the ADA requirements costly, fewer workers who are deaf/hard of hearing are hired.	-.089	-.308	.521	.261	.442	3.02	1.06	1,341
Item 6: Workers who are deaf/hard of hearing do not stay with one job as long as they used to.	-.100	-.004	.421	.256	.253	3.13	0.97	1,361
<i>Factor 4: Beliefs About the Numbers of Clients Seeking Help and the Degree of Their Hearing Loss</i>								
Item 1: The number of clients who are deaf/hard of hearing seeking your help to find a job has increased.	.057	.159	-.092	.773	.634	3.57	1.00	1,357
Item 2: Of those clients who are deaf/hard of hearing and looking for jobs, you feel they are more seriously impaired than in the past.	-.005	-.110	.236	.724	.592	3.02	1.01	1,360
Eigenvalue	2.73	2.40	2.02	1.27				
Percentage of explained variance	21.0	18.5	15.5	9.8				

Note: Obs = observations; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income. Bold font factor loadings are statistically significant.

Factor 3: Beliefs About the Negative Impact of SSDI, SSI, and ADA Requirements on Employment. Respondents with clients who are deaf and have no postsecondary education were most likely to believe that SSDI and SSI benefits reduced the number of those seeking employment, that lower wages encouraged many workers to leave the labor market and rely

on SSDI or SSI, and that workers did not stay with one job as long as they used to, $F_{interaction}(1, 246) = 7.93, p = .005$; $F_{interaction}(1, 246) = 15.16, p = .000$; and $F_{interaction}(1, 246) = 28.88, p = .000$, respectively. The means for these three significant interactions are shown in Figure 1, Panels 6, 7, and 8. Only the client's degree of hearing loss was significantly

Table 4. 2 × 2 MANOVA Results

Factor	Main effect of deaf vs. hard of hearing			Main effect of no postsecondary vs. postsecondary education			Interaction effect		
	Wilks's Λ	F^a	p	Wilks's Λ	F	p	Wilks's Λ	F	p
1. Beliefs About the Positive Impact of State Laws and the ADA on Finding Jobs for Persons Who Are Deaf or Hard of Hearing	.881	8.62	.000	.935	4.48	.000	.939	4.19	.003
2. Beliefs About Expansion and Availability of Job Opportunities	.912	8.53	.000	.790	23.64	.000	.955	4.19	.006
3. Beliefs About the Negative Impact of SSDI, SSI, and ADA Requirements on Employment	.615	37.95	.000	.830	12.43	.000	.856	10.20	.000
4. Beliefs About the Numbers of Clients Seeking Help and the Severity of Their Impairment	.962	5.17	.006	.935	9.13	.000	.973	3.67	.027

Note: ADA = Americans With Disabilities Act; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.^a Degrees of freedom for Factor 1 = 4, 256; Factor 2 = 3, 266; Factor 3 = 4, 243; Factor 4 = 2, 263.

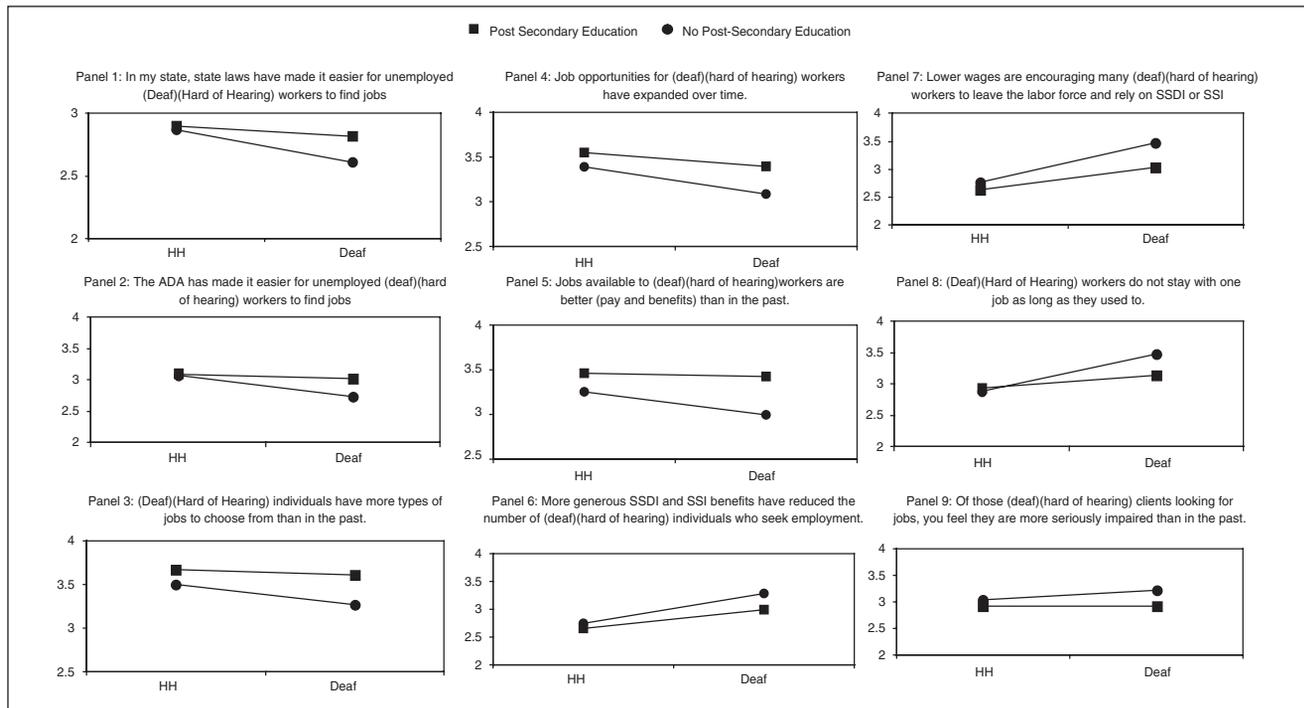


Figure 1. Interaction means (1 to 5; 5 = strongly agree).

related to responses to the item “Because employers find the ADA requirements costly . . . fewer workers are hired.” Respondents with clients who are deaf ($M = 3.12$) agreed more with this item than did respondents with clients who are hard of hearing ($M = 2.91$), $F(1, 246) = 39.10, p = .000$.

Factor 4: Beliefs About the Numbers of Clients Seeking Help and the Severity of Their Impairment. Respondents with clients who are deaf and have no postsecondary education were most likely to believe that those clients looking for jobs are

more seriously impaired than in the past, $F_{interaction}(1, 264) = 6.69, p = .010$. The means for this interaction are shown in Figure 1, Panel 9. Only the client’s degree of hearing loss was significantly related to the responses to the item “The number of clients seeking your help to find a job has increased.” Interestingly, respondents with clients who are hard of hearing ($M = 3.66$) agreed more with this item than did respondents with clients who are deaf ($M = 3.53$), $F(1, 264) = 5.144, p = .024$.

Limitations

The usual caveats regarding the internal and external validity of the study should be noted. For example, we solicited survey responses from VR specialists and others who presumably have firsthand knowledge of the labor market conditions for individuals who are deaf or hard of hearing. Although we believe the sampling frame is reasonably strong, it is always possible that there are other experts who were inadvertently omitted from the sampling frame and that these experts may hold very different opinions. In addition, the response rate to our solicitation was less than perfect at about 56%. And although 56% is arguably a high response rate to an e-mail solicitation, the nagging question of whether the nonresponders would have answered the survey in the same manner as the responders remains. All in all, however, we feel the present study has reasonably strong internal and external validity to warrant serious consideration of the findings and its implications.

Implications for Public Policy

The ADA was passed at a time when policy makers were looking to encourage workers who are disabled to participate fully in the economy. Public opinion had shifted away from the view that individuals with disabilities should be helped with handouts. The emerging view was that individuals with disabilities should be helped by making sure that doors were open to gainful employment. However, our survey results suggest that federal mandates to businesses are perceived by VR professionals and others familiar with labor market conditions for individuals who are deaf or hard of hearing as having made things worse for at least one subset of workers, those workers without postsecondary education.

One public policy option that flows directly from the perceptions of our survey respondents would be the value of augmenting programs aimed at increasing the number of individuals who are deaf or hard of hearing and who obtain postsecondary education. Late exposure to language is responsible for the fact that many individuals who are deaf or hard of hearing have poor English skills (National Institutes of Health [NIH], 2006). Of course, this makes it difficult to take advantage of postsecondary education opportunities. The 1999 Newborn and Infant Hearing Screening and Intervention Act offered federal grants to states to initiate newborn hearing screening programs (NIH, 2006). Some states, including California, have begun to identify babies who are deaf at birth and to offer educational materials to their parents, stressing the importance of developing language skills (American Speech-Language-Hearing Association, 2009). Additional resources dedicated to these programs might positively effect labor market participation of individuals who are deaf or hard of hearing.

Increasing efforts to group together workers who are deaf would reduce the communication problems that these workers sometimes experience in firms where most of the employees are hearing. There are two relatively large, successful companies (one profit and one nonprofit) established by people who are deaf that employ people who are deaf almost exclusively—Communication Services for the Deaf in South Dakota and Dawn Sign Press in San Diego. Due in large part to substantial federal subsidies for services for people who are deaf or hard of hearing in the telecommunications industry, including support for communication via TDD, Telecommunications Relay Services (TRS), Internet Relay Services, and Video Relay Services (VRS), a substantial number of people who are deaf or hard of hearing are employed in that industry. Efforts to coordinate employment placement of workers who are deaf might increase the number of opportunities for others to participate in the labor market.

Video remote interpreting (VRI) offers promise to improve workplace communication. VRI is the same as having a live interpreter, except the interpreter is at a different location and is being broadcast via video over the Internet. Unlike a live interpreter, this would be instantly accessible. A further advantage is that it does not require English language skills on the part of the worker who is deaf, as do other communication devices. If the federal government were to subsidize the hardware and software costs of VRI for businesses that hire workers who are deaf and run the service 24/7, it could affect the productivity of workers who are deaf on jobs and resolve a problem pointed out by some of our respondents, which is dealing with changes in the work environment where workers and managers cannot easily communicate.

Conclusion

When surveyed in 2006, the perception of VR counselors and other professionals familiar with employment conditions facing individuals who are deaf or hard of hearing was that public policy in the United States had benefited some groups and created problems for others. On the positive side, survey respondents shared the view that there were more options for workers who are deaf or hard of hearing in the labor market than in the past, with the exception of workers who are deaf and lack postsecondary education. And respondents thought the ADA had improved working conditions for individuals who are deaf or hard of hearing who already had jobs.

On the negative side, the perception of our survey respondents was that workers who are deaf and lack postsecondary education had shorter job tenure than in the past. Many respondents thought that lower wages and more generous SSDI and SSI benefits encouraged workers who are

deaf and without postsecondary education to leave the labor market and rely on SSDI or SSI.

Neither the ADA nor similar state laws appear to have made it easier for unemployed workers who are deaf and without postsecondary education to find jobs. The actions of agency officials in providing interpreting services for job placement and training, rather than requiring it of employers as is stipulated by law, suggests a concern that ADA-related costs limit opportunities for their clients. Most notable is the perception among many of those who work with individuals who are deaf that the passage of the ADA made it harder for workers who are deaf to find employment. More than 40% of the survey respondents agreed that costly ADA requirements have discouraged employers from hiring workers who are deaf. Labor market conditions have worsened for all workers who lack postsecondary education (although this may be a consequence of the changing nature of the pool of individuals who lack postsecondary education). Clearly, some survey respondents think that a component of this change for workers who are deaf is due to the ADA.

These findings open the door to further research on the impact of public policy on the employment of individuals who are deaf or hard of hearing. Although the nature of our survey makes definitive conclusions about the impact of public policy impossible, our findings suggest the importance of additional research to be sure public policy initiatives help the groups they are intended to help.

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Note

1. The idea to include the statement about working conditions came from a 2005 conversation with G. Wayne Miller (professor of deaf studies at Mt. San Antonio College). Professor Miller told one of the authors that his own working conditions had improved since the passage of the ADA (greater access to interpreters).

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