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University of Arkansas
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JOURNAL OF DISABILITY POLICY STUDIES

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Volume 5 Number 1

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WINNER OF THE SECOND ANNUAL BATAVIA WRITING COMPETITION ON DISABILITY POLICY

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Applying Theory to Practice

A Prospective and Prescriptive Analysis of the Implementation of the Americans With Disabilities Act

Sara D. Watson
Center for the Study of Social Policy

JOURNAL OF DISABILITY POLICY STUDIES
Volume 5 Number 1 1994

EDITOR'S NOTE

Sara D. Watson is the winner of the second annual Batavia Writing Competition on Disability Policy. The *Journal of Disability Policy Studies* is pleased to publish her prize-winning article, "Applying theory to practice: A prospective and prescriptive analysis of the implementation of the Americans With Disabilities Act."

ABSTRACT

Current implementation research, including that on disability policy, is largely retrospective and descriptive, examining experiences after implementation is largely complete in order to identify relevant variables that help explain implementation outcomes. This article seeks to use theoretical implementation research in a different way, one that is prospective and prescriptive, that will improve its usefulness for public administrators. It seeks to use this method of analysis to examine the prospects for implementation of the Americans With Disabilities Act (ADA). Based on theoretical implementation research and on comparisons with the implementation of other pieces of legislation, this article makes predictions about the future implementation of the ADA and develops recommendations to prevent potential problems. It then discusses the need to refocus implementation research to improve its relevance to practitioners.

Over the past 20 years, a wealth of theoretical models has evolved to analyze and explain the difficulty or ease of implementing public policies. Early articles in this genre used single case studies to argue that implementation was indeed a worthy area of study, distinct from policy formulation (Derthick, 1972; Pressman & Wildavsky, 1973). Subsequent models proceeded from this basis to identify specific variables that would affect or predict successful implementation (Van Meter & Van Horn, 1975; Montjoy & O'Toole, 1979; Mazmanian & Sabatier, 1983). The latest generation of implementation research seeks not to add more variables, but to begin to synthesize them and determine which ones are important in different circumstances (Matland, 1991).

The vast majority of the hundreds of implementation studies that have been conducted and published, including those on disability policy, share a common perspective and purpose. The studies are largely retrospective, rather than prospective, examining well-established implementation programs from a distance of several years or even decades. They are also descriptive, rather than prescriptive, explaining why outcomes occurred but rarely making recommendations for specific programs.

One of the most recent and creative books on implementation research introduces a "third generation" of research that tests, rather than only generates, hypotheses (Goggin, Bowman, Lester, & O'Toole, 1990). However, while the research is prescriptive rather than descriptive, it is still retrospective rather than prospective—the works the authors cite were published as much as 13 years after the project being examined began (pp. 171–191). Kelman (1984) uses implementation research both prospectively and prescriptively, but he designs a plan for a hypothetical program which has never been enacted.

Partly because of this descriptive and retrospective nature of traditional implementation research, there is little evidence that policymakers use any of the published research to influence their decisions and improve actual implementation (O'Toole, 1986, pp. 190–205). Kelman (1984, p. 77) notes,

> Much of the dissatisfaction with the contribution of implementation research, in my view, arises from the fact that the results of that research have been insufficiently used to address specific implementation problems. Most existing research involves retrospective case studies that seek to explain why something has not worked. Research of that sort does not meet the original promise to help policy analysts or public managers with particular situations. The literature is virtually devoid of cases in which existing generalizations have been used, prospectively and prescriptively, to develop an implementation plan.

Finally, O'Toole's most sweeping comment is: "There is no reason to assume that policy actors do, can or should make decisions about public policy primarily on the basis of research findings" (1986, p. 203). Rather than use this comment to call for change, he goes on to explain why this situation is acceptable (e.g., policymakers have other resources at their disposal and so do not need to use research).

Consistent with Goggin and Kelman, this paper supports efforts to contribute to raising the level of respect for published research whose purpose is not only to create this body of knowledge but also to apply it to emerging programs and thereby test and refine it. This means research that is prospective, rather than retrospective, as well as prescriptive, rather than descriptive. This is not to say that such research should dominate the literature; only that it should have a place of respect in the published literature alongside theoretical work. Publishing such research provides much wider dissemination of information to policymakers, is more accessible to future researchers, and gives policymakers access to assistance when they may not have the time or resources to hire consultants.[1]

Within this context, this article seeks not to create a new model of implementation theory, or to add more items to the 300 variables that O'Toole (1986) listed as already having been identified by researchers as affecting implementation. Rather, it seeks to use existing research to analyze the expected implementation problems of a new law and to recommend actions to preempt them.

While there have been few studies explicitly examining the implementation of federal disability policy (e.g., Berkowitz, 1984; Percy, 1989), mainstream research on public policy implementation has largely ignored lessons from disability legislation. Even a 1984 book on implementation of civil rights policy did not mention disability rights legislation such as the Education for All Handicapped Children Act of 1975 or the Rehabilitation Act of 1973 (Bullock & Lamb, 1984). However, the enactment of the Americans With Disabilities Act (ADA) of 1990 (P.L. 101–336; 104 § 327) provides an opportunity to use implementation research to examine a complex and wide-ranging implementation challenge in the disability field and to use early experiences in a major area of disability policy to contribute to this aspired change in the literature on implementation.

The ADA prohibits discrimination on the basis of disability in the areas of employment, public services, public accommodations, transportation, and public communications. To narrow the scope of my argument, this article will focus on the successful implementation of Title I (employment), with occasional references to the other sections. However, the same method could, of course, be used on any section. To vastly oversimplify the bill's requirements, Title I of the bill now prohibits discrimination on the basis of disability in all facets of employment for firms of 15 or more employees. Employers are required to make "reasonable accommodations" for employees or prospective employees unless to do so would be an "undue hardship" (Burgdorf, 1991b).

The ADA has been hailed as the most significant civil rights bill ever conceived for people with disabilities and as the broadest civil rights bill in the United States for the past 25 years (Burgdorf, 1991a). However, it is such a broad bill that its implementation issues are similar to those in a variety of laws, including civil rights and also consumer and environmental legislation. For example, the level of change in behavior required of employers is similar to that required by the Civil Rights Act of 1964. Both require employers to disregard what in some cases was (and is) deeply ingrained behavior and to behave differently toward a group against whom they had discriminated with impunity. The ADA shares with both civil rights and consumer legislation the need to inform millions of people of their newly established rights and to secure those rights against generally better-funded opponents. Because the bill requires reasonable accommodation for people with disabilities in employment settings, developments in technology and their impacts on the bill's implementation are reminiscent of environmental legislation rather than traditional civil rights legislation. The implementation of nondisability civil rights legislation does not depend upon, and will not change significantly even with, massive advances in technology. However, standards for complying with both the ADA and environmental legislation will change based on the level of technology available. In both cases, new technology can make requirements that had seemed infeasible now eminently reasonable. For example, cheaper pollution screening devices can make a lower emissions level easier to achieve. Cheaper computer devices can make some accommodations "reasonable" that would previously have been too expensive.

This early point in ADA's implementation history is the ideal time to apply existing scholarship to make predictions regarding areas of relative difficulty and to prescribe the actions that policymakers can take to improve implementation and to decrease the chances that the bill would be ignored (e.g., acts of discrimination are not prosecuted or otherwise stopped) or that the perceived costs of prohibiting discrimination become so high that the public demand that the bill be weakened. This cost could take many forms; for example, accommodations that are claimed to be so expensive that they threaten a firm's viability, or restrictions on medical exams that are perceived to interfere with public safety.

I first explore features of the bill and its environment that existing research predicts will affect implementation. Within this discussion, I describe innovative initiatives already being taken at the federal level to promote successful implementation and point out areas of potential implementation problems. I make recommendations to preempt some of these problems and finally discuss how a new format for implementation research, building on the themes here, could encourage policymakers to use the literature in their work.

Variables Affecting Implementation

One of the models for assessing implementation that fits ADA well is that of Mazmanian and Sabatier (1983). To organize this section, I will use their three major categories: "Tractability of the Problem," "Ability of Statute to Structure Implementation," and "Nonstatutory Variables Affecting Implementation." However, the discussion within each section will vary somewhat; in particular, it will incorporate some of the refinements Mazmanian and Sabatier have made on their pioneering model (Sabatier, 1986). The ADA is strongly affected by both top-down and bottom-up factors, both of which will be discussed in this context.

Tractability of the Problem

Sabatier and Mazmanian start their assessment of implementation by examining the nature and scope of the problem the legislation was designed to address. To organize this discussion, I first establish the problem the ADA was designed to address. Second, I examine the actions necessary to accomplish this goal.

Determining the problem ADA implementation is designed to address. If the ADA's only goal were to prohibit discrimination, implementation would be easier to achieve and to evaluate. However, even though advocates now emphasize that the ADA is not a panacea, and must be accompanied by other supports, such as health care reform, more is expected of it than this single goal. At the 1992 meeting of the Association for Public Policy Analysis and Management, a plenary session on the status of lower-income people in the 1990s featured two eminent scholars, Christopher Jencks and Ronald Mincy, discussing the relative importance of equal economic opportunity and social respect as policy outcomes. While these scholars focused on the status of minorities and women, the same is true of people with disabilities. Their problems encompass not only the well-defined economic issues of equal employment opportunities and equal access to transportation, housing, and public facilities, but also the more amorphous issues of societal integration and respect.

Ultimately, proponents of ADA hope it will not only end discrimination but also promote parity with nondisabled persons in terms of employment wages and rates, and access and integration into mainstream society (Worklife, 1990). As the experience with laws prohibiting discrimination against minorities and women shows, these ends are far more difficult to measure and to accomplish. Several economists have noted that if the only goal were improved employment rates, for example, perhaps a better alternative would be to provide tax incentives to encourage employers to hire people with disabilities, or to help people with disabilities overcome the hurdle of leaving public benefit programs (Burkhauser, 1990). However, disability advocates chose to design a civil rights bill, rather than an entitlement or public benefits bill, for specific reasons. Inevitably, the ADA will be evaluated not only on the more limited goal of prohibiting discrimination but also on how it contributed to the broader goal of achieving economic parity with nondisabled persons and complete integration into the community.

Alleviating the problem. Eliminating discrimination on the basis of disability involves two steps: People must change their behavior so that they no longer take discriminatory actions, and they must make reasonable accommodations. The level of behavior change required has both depth and breadth. On the face of it, one would expect this aspect of the law to be ADA's greatest challenge. However, closer inspection suggests that this part will become easier over time.

Ending discrimination against people with disabilities means proscribing deeply rooted and long-held fears about people with disabilities. Even without these fears, unthinking discrimination is ubiquitous, from too-tall deli counters to public address systems with no visual alternative. However, as the population continues to age and as medical science advances, more people will know someone with a disability or become a member of that group themselves. Furthermore, as professional schools (of architecture, public policy, etc.) and organizations educate their students and members, more people will be aware of their obligation to consider the needs of people with disabilities. We can therefore expect that this familiarity will help in inducing people to be aware of the need for, and make, these accommodations. For this reason, this part of the implementation process will become easier.

Regarding the size of the target group, according to Sabatier and Mazmanian's earlier research, "In general, the smaller and more definable (capable of being isolated) the target group whose behavior needs to be changed, the more likely the mobilization of political support in favor of the program and thus the more probable the achievement of statutory objectives." However, Sabatier (1986) later revised this statement to acknowledge that this effect often has a curvilinear shape: Efforts that are too small often go unnoticed. The ADA may well fit this second model. The ADA is one of the few laws that requires an active behavior change of a significant percentage of the American population. The sheer size of this effort, coupled with other implementation activities, may actually promote implementation. It is so big it cannot be ignored. ADA's wide sweep has spawned thousands of seminars, training manuals, speeches, articles, and sources of technical assistance. Furthermore, the author's interviews with numerous businesses suggest that it creates significant peer pressure as employers discuss compliance among themselves. Therefore, we can expect that the size of behavior change required will actually promote not only widespread implementation but also more successful implementation.

However, there is another side to this large effect. The definition of disability in the ADA includes a potentially vast number of people. Many of those people do not fit the traditional image of disabled persons—people who are wheelchair users, visually impaired, or hearing impaired. In fact, under both the Rehabilitation Act of 1973 and the ADA, the largest category of impairment by far was back impairment (usually not spinal cord injury) (Mastroianni, 1993). This wide scope inevitably means that people will use the ADA to make claims that the public and the media may judge as frivolous or "undeserving." For example, the Equal Employment Opportunity Commission (EEOC) recently found in favor of a hospital worker who claimed discrimination after the hospital in which he worked forced him to cover up a tattoo that said "HIV positive" (LRP Publications, 1993). While the hospital's act clearly was discriminatory, one could imagine conservative critics deriding this application of the law. Thus, one danger for the ADA is that the public will perceive the law as protecting people with tenuous claims, rather than as protecting those who seem to be true victims of damaging discrimination.

Implementation of the ADA's reasonable accommodations requirements will be affected by technological advances in ways that parallel those in environmental legislation. For example, while most people with disabilities require only inexpensive accommodations (Collignon, 1986), some people do require, and some companies will be required to provide, expensive accommodations. But, because the technology of accommodations is not static, what was unreasonable this year may be much cheaper (e.g., voice synthesizers) and or prevalent (e.g., working from home), and therefore reasonable, in the future. Companies requesting more specific answers as to what accommodations can be expected of them must rely on cases that are either negotiated or tried in court. A company may be able to examine previous cases and determine what level of expenditure was considered reasonable for a firm with comparable characteristics and then to apply that level to its own situation. However, review of settled cases cannot indicate what specific intervention will be considered reasonable. This situation is not meant as a criticism of the bill but simply to point out that it is an aspect that will require ongoing attention. In sum, the tractability of the problem is a significant but not insurmountable challenge for ADA implementation.

Ability of Statute to Structure Implementation

The Rehabilitation Act of 1973, which prohibited discrimination by the federal government and federal contractors and grantees on the basis of disability, was the closest predecessor to the ADA. Partly because lawmakers did not recognize the significance of the language, the relevant sections of the bill violated virtually every implementation recommendation in the literature. The sections included very terse language, had no explanations of what constituted discrimination, were buried among other provisions, and included no technical assistance provisions. As a result, development of regulations and implementation of the law were protracted and only partly successful. Learning from that experience, disability advocates were well aware of the need to incorporate implementation measures into the ADA.

The ADA specifically creates an implementation plan that responds to the factors raised in the section above. To clarify the problems ADA was designed to address, the bill spells out objectives in detail. To effect behavioral change, it directs comprehensive technical assistance. These factors are explored below.

Objectives. In contrast to the Rehabilitation Act, the ADA, through legislative language, regulation, and technical assistance manuals, spells out its objectives in great detail. There are long lists to define discrimination (Sec. 102), disability (Sec. 3), reasonable accommodations (Sec. 109), etc. There are specific timetables for publication of regulations and compliance (e.g., Sec. 106, 108). The terms which are not strictly defined—there is no single criterion to define "reasonable"—were deliberately left flexible to allow employers and employees to work out solutions together.

One part of the ADA language may indeed impede implementation, however. The ADA prohibits pre-offer medical exams and disability-related inquiries. In cases where the public would perceive that these medical exams protect the public safety, there may be a clash between public perception of reasonable precautions and the requirements of the ADA. For example, the EEOC is now wrestling with the law's implications for the ability to ask police officers, physicians receiving recertification, and other professionals if they have a history of drug abuse or mental illness (Mastroianni, 1993). If the public perceives that EEOC's ultimate guidance on this issue ignores public safety concerns, it may undermine support for the vigorous enforcement of at least this portion of the ADA.

The carrot: Technical assistance. The ADA specifically directs relevant agencies to undertake technical assistance efforts (Sec. 504, 506). As mentioned earlier, many implementation efforts are already underway; for example, the relevant agencies have already published and distributed regulations and their own technical assistance materials. Early in 1992, the EEOC, which is responsible for Title I, sent out mailings to several million small business owners using lists from the IRS; in one month (April 1992) EEOC distributed 144,000 technical assistance materials (National Council on Disability, 1992).

These and other agencies distributed grants to various organizations to undertake technical assistance. The National Institute on Disability and Rehabilitation Research (NIDRR) has funded 10 regional disability and business accommodation centers whose job is to help businesses and individuals understand and comply with the law. Many of these grants went to coalitions that included business organizations opposed to the ADA. While some disability groups bitterly opposed awarding grants to businesses that had actively opposed the ADA, including them in outreach efforts to their peers did (and does) help ensure the relevance of the materials and effective distribution.[2]

EEOC and the Department of Justice have also funded an innovative program to train disability activists around the country to serve as mediators and community education specialists in their areas. The trainees are obligated to conduct ADA training for 50 persons with disabilities or parents of children with disabilities and for 30 businesspeople. They must also approach businesses that are not in compliance with Title III and help those businesses become accessible. The innovation and significance of this program (as yet unchronicled by implementation researchers) can be illustrated by comparing it to the Environmental Protection Agency hiring Greenpeace activists to serve as mediators for citizen groups petitioning companies to comply with the Clean Air Act. These mediators do not have an official role in the dispute resolution process, but it is significant that disability activists—not local officials, professional consultants, or business people—are the only ones who can claim any even semisanctioned training in ADA dispute resolution. This indicates a government commitment to street-level implementation guided by program beneficiaries.

These programs are funded for a limited time, and a key measure in determining the ultimate success in ADA implementation will be the performance of these organizations in addition to that of government officials.

The stick: Enforcement. The ADA clearly spells out enforcement procedures (Sec. 107 for Title I, etc.), but a key element of implementation will be the degree to which enforcement agencies have the funding to investigate claims against target groups. In a recent speech, two key ADA officials, the director of the Office on the ADA at the Department of Justice and the director of the Office of ADA Policy for the EEOC, predicted that, while it was unlikely that the ADA would be repealed, a greater danger was that it would not be effectively enforced. EEOC's budget did increase 6% between 1992 and 1993, but it did not gain additional staff, even though the first 13 months of the ADA (July 26, 1992 to August 31, 1993) brought 14,334 charges, or an increase of 16.5% in their caseload (Mastroianni, 1993).[3] The former chairperson of the EEOC argued that workload is increasing faster than funding (National Council on Disability, 1992; Spayd, 1992). When it passed the 1993 EEOC budget, the House Appropriations Committee commented, "The Committee recognizes that this amount may not be sufficient to allow the EEOC to carry out the provisions of the ADA . . . adequately and continue its ongoing workload under existing statutes" (U.S. EEOC, 1992). A plaintiff's lawyer commented, "In terms of doing anything meaningful for my clients, they can't because they simply don't have the staff" (Spayd, 1992).

While the claims of insufficient funding are a standard budgeting maneuver, this situation may indicate that an initial enthusiasm for supporting ADA enforcement may wane in the face of ever-tighter budget situations, especially President Bill Clinton's new budget initiatives. Numerous businesses will comply with the ADA simply because the law exists or because they come to believe that it is good business for them to do so. In addition, since successful plaintiffs can recover damages, there is an incentive for private attorneys to take ADA cases. However, there will always be people who cannot obtain a private attorney and situations for which the EEOC needs to develop regulations or guidance. If the EEOC does not receive the funds to investigate claims and develop guidance for emerging situations, it will impede implementation.

Nonstatutory Variables Affecting Implementation

The main nonstatutory variables that will affect the implementation of the ADA are the actions and reactions of several distinct groups of people: members of the general public who are not direct beneficiaries of ADA and whose ongoing reactions to the ADA will have a substantial impact on policymakers; the public officials who will implement the law; the beneficiaries of the law who are active in street-level implementation; and the outside media who usually serve as watchdogs over public activities. These groups form the bulk of the bottom-up implementation efforts that can have as great an impact on ADA implementation as those from the top-down. I will examine each of these in turn, focusing greatest attention on the first group.

The public. One of the greatest factors affecting the success of ADA's implementation will be the degree to which the general public supports implementation activities—whether public sentiment leans more toward a sense that the ADA has prohibited egregious discrimination at a reasonable societal and personal cost or more toward the notion that it has accomplished some desirable goals but allowed unreasonable demands by extremists to use up meager public and private resources to the detriment of the overwhelming majority. If the prevailing public sentiment leans toward the former scenario, both employers and employees will be encouraged to participate in vigorous enforcement. If the public leans toward the latter scenario, officials will be less eager to vigorously enforce the ADA, and there may even be support for proposals to weaken it.

To discuss the likelihood that public opinion will grow in one direction or the other (and what can be done to promote the former scenario), it is helpful to consider the recent experiences of the African-American civil rights movement. (While this discussion would apply to women as well, the most prominent new scholarship has focused on racial minorities.) Analysts and advocates in the disability field have constantly compared their movement to the older civil rights movement. There are enough parallels between the two movements to consider whether the current debate over affirmative action and race-specific policies for racial minorities foretells a similar future for policies toward people with disabilities and what that evolution might mean for the implementation of the ADA.

Policies for both groups evolved out of a sense that members experienced the principled, myopic, statistical, consumer-driven, and worker-driven discrimination that Jencks (1991, pp. 40–43) describes.[4] People with disabilities could add a sixth form of discrimination: what I will call "apprehensive discrimination," or one based on a dislike of being reminded of the possibility of acquiring a disability. Members of both groups have experienced a long history of oppression, and lessened economic and social opportunities, as well as outright hostility, because of this discrimination. Both have worked to dispel harmful societal stereotypes and demanded the use of public acts and funds to compensate for this discrimination. Policies to redress these circumstances were somewhat similar, the prime example being the widely publicized fact that the ADA was explicitly modeled after the Civil Rights Act. (Obviously, there are not complete parallels between the two situations or the two sets of policies. For example, the ADA does not have an affirmative action component.)

Recently, a significant body of literature has formed questioning the wisdom of characteristic-specific policies and affirmative action for racial minorities. While these policies were highly popular when they were first initiated (corresponding to the first scenario outlined in the paragraph above), the 1980s saw a backlash against them (closer to the second scenario). These policies have recently prompted a reexamination by scholars who assert that they do not fall neatly into either the liberal or conservative orthodoxies. The work of these scholars represents a major reexamination of social policy by some of the most influential scholars of our time.

For example, *Reflections of an Affirmative Action Baby* acknowledges discrimination against African-Americans, along with the "stigma" associated with affirmative action policies and the backlash when whites perceived that these policies allowed less-qualified blacks to usurp their job opportunities (Carter, 1991). In *The Content of Our Character,* Shelby Steele (1990, pp. 34–35) talks about the failure of social policies to improve the status of black Americans and asserts "the reactive stance we adopted to defend ourselves against oppression binds us to the same racial views that oppressed us in the first place." In *Rethinking Social Policy* (1991, p. 68), Christopher Jencks states that "statistical, consumer-driven and worker-driven discrimination are wrong even when they are efficient . . . [but] . . . [t]his said, I think the time has come to declare that reverse discrimination is also bad social policy." In *The Truly Disadvantaged,* William Julius Wilson (1987, pp. ix, 109–124) questions the wisdom of race-specific policies.

This trend leads to the question, Is disability policy likely to experience a similar shift, and will that evolution support or hinder vigorous implementation of the ADA?

Part of the reason for this backlash against characteristic-specific policies has been the feeling that anti-discrimination laws and social benefit programs should have "worked" by now—that these policies should have given African-Americans the equal opportunity they needed to achieve parity with whites in indicators of social well-being. (Of course, people disagree on whether these policies have been sufficiently funded and enforced. My point here is the public's *perception.*) However, disability is different from race, in the eyes of most people, in that eliminating prejudicial attitudes and providing general services, such as education, while essential, are not always sufficient. One cannot compensate for the effects of some disabilities in some jobs without reasonable accommodations. Hence, the dynamic of this reaction against race-specific policies should not be as potent toward disability-specific policies, thereby supporting vigorous implementation.

Furthermore, one train of thought by these scholars may help the implementation of the ADA. The ADA is limited in scope: It cannot make up for lack of services in other areas, such as education and vocational training. A major theme of this new scholarship is the creative use of supplemental services (such as job training) to decrease dependence on public programs. If such thinking extends to disability programs, we may see a renewed acceptance of services that supplement the ADA and allow people to become the "qualified" candidates who are eligible for the ADA's protections.

Regarding affirmative action, while the Rehabilitation Act of 1973 required affirmative action toward people with disabilities by federal agencies and contractors, the ADA does not mandate affirmative action. Nevertheless, the Technical Assistance Manual for Title I does encourage employers to "expand their 'outreach' to sources of qualified candidates with disabilities" (EEOC, 1992, p. v–3), and hiring people with disabilities would likely be a positive factor in a firm's attempts to document willingness to comply with the ADA. As described by Carter (1991), the problem with affirmative action for African-Americans has been the implication that beneficiaries are promoted or selected ahead of whites, not based on merit but because of their skin color. However, it is unlikely that the same sentiment will evolve toward people with disabilities. Simply encouraging affirmative action, as opposed to requiring it, will probably not create such an impetus for hiring people with disabilities that it results in the same perception that these jobs are being taken away from better-qualified members of nonprotected classes. Furthermore, given the more obvious obstacles that often impede people with disabilities, it may be that colleagues recognize that such a person who was promoted probably had to work *more* rather than *less* to achieve his or her accomplishments. And, it is evident that any nondisabled person can become disabled, while whites cannot become black. A survey conducted by Louis Harris and Associates in 1991 found that 81% of Americans responded that people with disabilities should have affirmative action programs similar to those for women and minorities (National Organization on Disability, 1991, p. 53). Hence, I do not expect the same backlash will hurt implementation of the ADA.

However, there is another facet to the ADA that indicates that the sentiment affecting the policies toward minorities could affect the ADA. One of the reasons the affirmative action backlash is so prevalent is the perception that policies designed to help minorities end up hurting the nonprotected classes. While the affirmative action element may not have this effect, the reasonable accommodation element might. In the National Organization of Disability (1991, p. 65) survey, 89% of Americans responded "yes" to the question, "While [the ADA] will open up new paths of participation for disabled people, it will also in some cases be expensive to implement. Do you feel the cost will be worth it, or not?" However, only 18% of the people in the survey already knew about the ADA, and there was no indication in the survey question of who would pay the expense, and programs for other groups have followed distinct cycles of popularity.

Disability activists have pointed out, and rightly so, that most accommodations made in the workplace and in public facilities can be quite inexpensive. Nevertheless, some people do require, and some companies and facilities will be obligated to provide, expensive accommodations. The law gives specific criteria to ensure that an accommodation does not pose an "undue hardship" (Sec. 101 (10)). However, it is not beyond the realm of plausibility that a firm could promote the idea that the funds spent on the accommodation, or on defending itself against seemingly unreasonable (from the defendant's point of view) lawsuits, will be translated into smaller raises or fewer services. Public grumbling over accessible parking spaces and accessible public toilets in New York illustrates how ready the public is to complain about accommodations that seem to impact on the benefits available to nondisabled persons (Shapiro, 1994; *The Disability Rag,* 1993). Advocates cannot always count on the media to present their side of all situations, so a few well-publicized cases could do much to harm public support for ADA.

Public officials. Another major factor that is not controlled by the statute is the leadership in the agencies charged with ADA implementation. One of the most innovative steps taken in ADA implementation so far has been the degree of cooperation among the different organizations responsible for various pieces of this task. While the ADA directed which agencies would be involved, agency leaders have taken the initiative to establish extraordinary degrees of collaboration, such as establishing an informal inter-agency coordinating group on disability policy.

According to Mazmanian and Sabatier (1983), "there are a number of ways in which the framers of statutes can reasonably assure that implementing officials have the requisite commitment to statutory objectives. The responsibility for implementation can be assigned to agencies whose policy orientation is consistent with the statute and which will accord the new program high priority." While such has so far been the case with the agency leading the implementation of Title I, the future is less certain. President Clinton has expressed his support for full enforcement of the ADA (President's Committee, 1992, cover), and implementation offices are peppered with civil servants well known to each other through their roles in the disability movement, such as John Wodatch, director of the OADA, who was heavily involved in implementing the Rehabilitation Act of 1973. It is also likely that political appointees in key disability slots will be activists who lobbied for the ADA. However, it is less certain that new appointees in more general slots will be disability advocates. While President Clinton has been more supportive generally of civil rights issues than was President George Bush, key figures in the Clinton administration have less of a specific interest in disability than did their counterparts in the Bush administration (certainly Attorney General Janet Reno is less identified with disability issues than was Attorney General Richard Thornburgh, and it is highly unlikely that the next EEOC chairperson will be as closely identified with the disability movement as Evan Kemp was). That leaves the potential for somewhat weakened implementation efforts, depending on the interests of the new leaders.

Other agencies whose mission relates to disability have changed their activities to support ADA implementation by including ADA considerations in their regular grant-making activities and through their regular service delivery programs. For example, 1992 saw a sometimes acrimonious debate over the re-authorization of the Rehabilitation Act, which governs the federal-state vocational rehabilitation program. However, one change that both the Rehabilitation Services Administration and disability activists agreed upon was that the preamble should be changed to reflect support for the ADA. In various fora, the former director of the National Institute on Disability and Rehabilitation Research (NIDRR) has stressed the importance of involving people with disabilities in proposed projects and providing all materials in accessible formats. NIDRR has awarded funds through its regular grant-making process to Suffolk University to evaluate the implementation of the ADA, and to staff at the *Disability Rag* to train advocates in using the media to promote the messages of the disability movement. Given the problems with accurate media portrayals discussed below, this latter project will be essential to help improve the public image of the ADA.

Program beneficiaries. The Education for All Handicapped Children Act of 1975 transformed the education system for children with disabilities. Probably the single greatest asset pushing for constant implementation was the millions of parents of children with disabilities who were angry at watching their children rejected and wasted by the school system. The ADA has not only parents, but more important, people with disabilities themselves pushing for implementation, also. Implementation of the ADA will probably depend more on these potential beneficiaries than on the government agencies themselves. The disability movement has succeeded in educating millions of people about their rights and empowering them to fight for them. With the ADA, they have fairly clear-cut ammunition to use in arguing with employers or business owners about accommodations. They will still need backup from enforcement agencies for those businesses that will not comply unless coerced. However, for those that will voluntarily comply, it is this educated, empowered populace that will oversee implementation. The great advantage of the ADA over, for example, environmental legislation, for street-level implementation, is that, for the most part, evidence of a facility's or employer's compliance is readily available to an individual observer. Environmental legislation requires sophisticated tests to determine if a facility is in compliance. Even school desegregation laws required coordinated population assessments. By contrast, no outside intervention is needed to determine if a facility is not accessible, and a broad range of accommodations are so inexpensive that it is reasonable to expect the two parties would agree that costs are less than the law's reasonable accommodation or undue hardship standard.

The media. In his book, *Making Public Policy: A Hopeful View of American Government,* Kelman relies heavily on the media to keep different parties in public policy debates honest. Unfortunately, with few exceptions, this effect is little felt in disability politics. Therefore, one aspect of public support that is unlikely to support widespread implementation is media attention. Even during the debate and passage of the ADA, media attention was scanty compared to that of other civil rights legislation. Joseph Shapiro (1994) has documented the disability movement's deliberate strategy of ignoring the media and cautions that

> The Americans with Disabilities Act was pushed through Congress with far less attention from the media than has accompanied other major civil rights bills. This was part of a deliberate and unconventional strategy by disability rights lobbyists who believed that media portrayals of disability were

> so clichéd that journalists would impede, not further, the public's understanding of disability rights issues. Despite the success of the strategy, there is a price to pay for having been a "stealth" civil rights movement: Now that the law is in place, disabled people face a backlash from Americans who neither understand the ADA nor the need for civil rights protection for disabled people.

Consistent with Shapiro's warning, media reporters continue to miss significant messages of the disability movement. For example, despite disability advocates' continuing admonitions that people with disabilities are not necessarily ill, the *Washington Post* put recent coverage of the Paralympic Games in the Health section rather than the Sports section (Krucoff, 1992). Therefore, it is unlikely that the media will be an effective watchdog (from the advocates' point of view) over implementation efforts.

Recommendations

As described in the introduction, the purpose of the paper is not to describe history but to use existing knowledge about implementation experiences to predict the future and make recommendations to prevent potential problems. As mentioned above, implementation of the ADA is both a top-down and a bottom-up effort; therefore, these recommendations cover strategies from both perspectives.

1. Much of the responsibility for the success of the ADA lies not in public hands but in private organizations and individuals who will carry out technical assistance and educate those in their community. While public officials are important because they direct funding for technical assistance and enforcement, probably a more important variable is the individual actions by both program beneficiaries and target groups. Hence, the first recommendation is to continue the technical assistance effort. Public education is an ongoing need as small businesses are created everyday. Unlike the attitude change required by the Civil Rights Act, the ADA requires specific knowledge to comply. The nation's commercial facilities will not become accessible within the funding cycle of most of the current grants (generally no more than five years). Without ongoing funding for education and technical assistance, the awareness and understanding of ADA requirements could plateau and even decrease.

2. One of the most important factors in how the public supports the ADA will be the degree to which they see it as redressing centuries of

wrongs at a reasonable price, or expending significant public resources to redress frivolous claims. Fortunately, the jury in the first case to be tried under Title I of the ADA (EEOC v. AIC Security C.A. No. 92C7330 (N.D.Ill.)) clearly decided in favor of the plaintiff, and the case was perceived as redressing egregious discrimination. While cases like this one may well buoy public support for the ADA, both advocates and public officials must be prepared in case future stories are less positive. As mentioned above, the ADA has the potential to be applied to numerous cases that could seem meritless. As Prof. Steven Kelman pointed out, the greatest danger to the ADA may not be outright opposition, but the derision that could ensue if it is used to pursue ridiculous claims or ones that seem to countermine public safety (1993).

The second recommendation then applies to both public officials and advocates. They must be vigilant for signs that the message of the ADA is being presented accurately and point out those instances where it is being misrepresented. If the media portray the ADA as protecting a meritless claim, they must be ready with their own examples of how it has redressed obvious wrongs. If the media portray the ADA as excessively burdensome, they must be ready to refute those stories with their own information as to how many people it has protected for a reasonable price. Also, the EEOC must be aware of the perception that could be generated if it is presented with a case that the public would deride. This does not mean adjusting its decisionmaking based on popularity. But if it must make a finding in a case that could be perceived as contrary to public safety or that could be used by opponents to criticize the ADA, it must be prepared for this possibility and have its own message ready.

3. In his testimony before the National Council on Disability (1992), Justin Dart commented, “Friends don’t sue friends.” One of the most potent arguments employer organizations used against the ADA was that it was a “lawyers’ employment bill.” Disability advocates effectively countered those arguments, but they could arise again if lawsuits dominate the implementation landscape. Referring again to the public perception of successful implementation, one of the surest ways for the public to perceive that the costs of implementing the ADA are too high is if it engenders expensive lawsuits. People who have used other civil rights laws to prosecute discrimination cases have learned that doing so is not conducive to a restored relationship with an employer or public facility. While the ADA allows alternative dispute resolution techniques, there is no formal mechanism for this procedure. Furthermore, employers may be wary of allowing the disability advocates who have been trained as ADA

experts to serve as mediators. Therefore, it would be most helpful for public agencies to aggressively investigate this technique to obviate the need for lawsuits.

4. Disability advocates have been fortunate to have aggressive supporters of the bill, such as the chairmanship of the EEOC, in key policymaking positions. However, it is likely that the next chairman will have weaker ties to the disability community, even though the Clinton administration in general should be more supportive. Hearings on EEOC chairs often focus on the nominee's record on minority and women's concerns and rarely on his or her stance on disability. Certainly, the National Organization for Women and the National Association for the Advancement of Colored People, among others, will hold press conferences discussing their perspective. Disability advocates need to monitor the selection of future key officials and achieve media coverage of their opinions to ensure their commitment to ADA implementation.

5. The discussion above on the media highlights the importance of a comprehensive media strategy. The disability community may wish to take a page from the 1992 presidential campaign: If the media ignore or misrepresent the ADA message, the disability community may wish to focus on obtaining time on radio and television talk shows in order to bypass the media. While time on nationally syndicated shows is extremely difficult to obtain, local shows should be somewhat easier. In this way, if the local media present reasons why the ADA has caused undue expense or inconvenience, disability advocates can rebut them with their own message.

Applying Implementation Theory

Most research is conducted long after a program is established in order to evaluate why implementation was successful or not, and to make general predictions about the variables that can predict the success of different legislation. However, the true test of implementation theory is not whether it can analyze what has happened in the past but whether it can guide policymakers to the future. A rigorous test of the scholarship would be to go beyond even the Kelman and Goggin works and use a given model to design an implementation program, work with policymakers to carry out that program, and evaluate the success of the theory to predict reality. In this analysis of the ADA, such a project might confirm that the variables spotlighted by using this model were indeed the appropriate ones, or it might reveal new ideas that previous research did not identify. This would require theorists to work closely with policymakers from a program's inception (preferably from the initial drafting of legislation), rather than the "user simply drawing on published work of faceless social scientists" (Lindblom & Cohen, 1979, p. 2), if indeed the research is used at all. Currently two projects concerned with the ADA are pushing implementation research in this direction, one funded by the Milbank Memorial Fund, the other by a grant from the National Institute on Disability and Rehabilitation Research to Suffolk University. This type of effort mounted in other legislative areas would benefit not only public officials but implementation theorists as well.

NOTES

1. The need for this expansion of the purpose of policy research was explored in both the 1992 and 1993 meetings of the Association for Public Policy Analysis and Management. In 1992 Frederico Pena, now the secretary of transportation, and in 1993 David Ellwood, now the assistant secretary for planning and evaluation at the U.S. Department of Health and Human Services, mentioned in particular the need for researchers to produce works that assisted public officials with public policy implementation.
2. Since the accessibility issues under Title I and III overlap somewhat, it is also useful to note that the Department of Justice has funded 19 organizations to provide $3.4 million in technical assistance to specific populations, such as police forces, racial minorities, and restaurants. These organizations have conducted their own massive mailings and instituted toll-free telephone numbers to provide assistance.
3. For the same reasons described above, it is useful to note that the OADA was created in 1990; by the end of fiscal year 1992, it had 31 staff persons; in the next fiscal year it was slated to acquire 9 more.
4. These catch phrases deserve some description. According to Jencks:
    - Principled discrimination is when an employer (or other person) discriminates against people with a certain characteristic because of a belief that doing so would undermine the supremacy of the people who don't have the characteristic.
    - Myopic discrimination is when the employer underestimates the qualities of the people with a certain characteristic.
    - Statistical discrimination is when an employer applies information (based on actual data or personal stereotypes) on a whole group of people to each individual in the group. For example, an employer imagines or believes because of some experience that people with visual impairments, on average, were less productive than sighted people, and assumes that this finding applied to all people with visual impairments.

- Worker-driven discrimination is when an employer discriminates against people with a certain characteristic because s/he believes that the worker's colleagues will be less accepting of that person.
- Consumer-driven discrimination is when an employer discriminates against a worker because s/he believes that the firm's customers will be less accepting of that person.

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SARA D. WATSON *is a senior associate at the Center for the Study of Social Policy in Washington, DC. She holds MPP and PhD degrees from Harvard University's Kennedy School of Government. Formerly, she was the director of the Washington office for Berkeley Planning Associates and manager of public policy for the Washington Business Group on Health.*

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Reprints of this article may be obtained by contacting Sara D. Watson, Senior Associate, Center for the Study of Social Policy, 1250 Eye St., N.W., Suite 503, Washington, DC 20005-3922.

The Economic Consequences of Disability

A Comparison of German and American People With Disabilities

Richard V. Burkhauser
Mary C. Daly
Syracuse University

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ABSTRACT

Using two longitudinal data sets, the *Panel Study of Income Dynamics* and the *German Socio-Economic Panel,* we compare the relative success of United States and German disability policy in ameliorating the consequences of work-related health impairments. Comparing cross sections, we find Germans with disabilities on average earn only slightly less and enjoy the same household income as those without disabilities, while Americans with disabilities earn substantially less and face an income gap of more than 25% compared to those without disabilities. However, when we use our multiperiod data to follow the transition into disability of previously nondisabled individuals, the associated change in income is smaller than that suggested by our cross-sectional estimates. Our results suggest that even if the Americans With Disabilities Act is successful in increasing the earnings of people with disabilities, it may not close the income gap for those whose disabilities compound more fundamental labor-market disadvantages such as poor education or lack of job skills.

Modern industrial societies attempt to ameliorate the consequences of work-related health impairments on the earning capacity and economic well-being of their citizens through a mix of government programs. Transfer programs are used to replace lost earnings or to provide a means-tested income floor. Employment-centered programs are used to offset the effects of an impairment or to encourage employers to hire people with disabilities.

Historically, United States disability policy has been dominated by transfer programs and, to a much lesser extent, rehabilitation. There has been very little direct intervention in the job market on behalf of people with disabilities. European countries, in general, have been much more willing to make continued employment a major policy goal of their disability programs. Many have been willing to directly intervene in the labor market through quotas or direct job creation in order to achieve this goal.

In Sweden, for instance, only those who are judged unable to be rehabilitated are allowed onto the disability transfer rolls. When necessary, government-provided jobs are made available to people with disabilities who are not employable in the private sector. Germany does not directly create jobs for people with disabilities, but it limits the ability of employers to discharge workers with disabilities and has a mandated quota system that requires both private and public enterprises to employ workers with handicaps.[1]

In 1990 the United States moved closer to this two-pronged European approach of transfers and employment protection by enacting the Americans With Disabilities Act (ADA). The ADA requires private sector employers to make reasonable efforts, through accommodation, to employ persons with disabilities. In this paper, we use both cross-sectional and longitudinal data to compare the economic well-being and wage earnings of people with disabilities in the United States and Germany. Because Germany combines transfers with employment support to mitigate the risk of economic loss following a disabling health impairment, it provides a first glimpse of what such a mixed program might offer to Americans with disabilities.

We first describe the disability systems in the United States and Germany and then compare cross-sectional estimates of the prevalence of disability and its effect on economic well-being in these two countries. We then move beyond this static comparison of people with and without disabilities by tracing changes in economic well-being following the onset of a disability in the two countries. In our analysis we show how the mix of income sources differs between those with and without disabilities at a moment in time. We then use our longitudinal data to show how the mix of income sources changes for people who actually make the transition into disability during the years captured in our data.

United States Disability Policy

Much more than its European counterparts, disability policy in the United States relies on the private sector to provide jobs and insurance against job loss and against sickness. Hence, our social safety net is more narrowly focused than countries like Sweden or Germany. For the nonpoor working age population, health insurance is almost entirely private—while most workers have access to health insurance through their employer, many do not. Workers are not eligible for government-supported health care unless they are poor or become disabled. But, unlike either Sweden or Germany, the definition of eligibility for disability benefits through federal disability transfer programs—Social Security Disability Insurance and Supplemental Security Income—is limited to the fully disabled.[2]

The first half of the 1970s was a period of tremendous growth in the number of persons receiving disability transfer benefits in the United States. The greatest gain came in the income-maintenance programs. Congress dramatically increased the benefit levels for Social Security Disability Insurance benefits. The net replacement rate for a disabled worker with median earnings increased from 35% at the start of the 1970s to 49% at the end, with the great majority of that increase occurring in the early 1970s (Haveman, Halberstadt, & Burkhauser, 1984). In addition, in 1974 the federally run Supplemental Security Income program replaced the Aid to the Aged, Blind, and Disabled programs run by the states. Supplemental Security Income provided a federal minimum income for the disabled regardless of past work histories. In addition, the extremely narrow health criteria used to determine eligibility for both these federal programs was liberalized by increasing the use of an individual's vocational characteristics—age, education, and type of job skills—in such determination.

Income transfer program growth was considerably less in the second half of the 1970s. The combined Disability Insurance and Supplemental Security Income population peaked around 1978 and actually fell over the next 5 years, thanks to the substantial tightening of eligibility standards—especially the reduced use of vocational characteristics—under the Carter administration, and major reevaluations of already eligible recipients in the early years of the Reagan administration. The widespread reevaluation of already eligible beneficiaries ended in 1983 (see Weaver, 1986). The eligible population increased modestly over the rest of the decade, but in the early recessionary years of the 1990s growth accelerated.

Job programs have had an equally stormy 2 decades. In 1970 vocational rehabilitation was the primary mechanism for assisting impaired workers to stay in the labor force. This program also grew substantially in the first half of the 1970s, but since 1980 the population receiving such services has fallen. By 1990 it had stabilized at a level well below its 1970s peak (Burkhauser, 1993).

A major policy initiative of the 1970s was the direct creation of public-sector jobs for targeted groups. The Comprehensive Employment and Training Act of 1973 (CETA) and the subsequent provision of public-service jobs for socially disadvantaged and handicapped workers dramatically increased the importance of job creation as a solution to the problems of those with disabilities. This job-creation program was similar in concept to that in Sweden. And like Sweden, the handicapped were broadly defined to include those with "economic" or "social" handicaps. At the start of the 1970s the United States government provided only

100,000 such jobs. By 1980, over one million existed. During the first 3 years of the Reagan administration all CETA public-service jobs disappeared. The Job Training Partnership Act (JTPA) of 1982 replaced CETA as the principal source of government training funds. But the use of funds for public-sector jobs was forbidden and most of these funds are for direct training or for temporary subsidies to private firms that provide training on the job (Burkhauser, 1993). Anderson, Burkhauser, and Raymond (1993) have shown that people with disabilities are significantly underrepresented in the JTPA trainee population.

Despite the substantial transfer programs that exist in the United States, men with disabilities live in households that are significantly worse off than the households of other men. Burkhauser, Haveman, and Wolfe (1993), using data from the *Current Population Survey,* found that in 1987 men with disabilities lived in households with income equal to about three-quarters that of men without disabilities. They argued that a major reason for this difference in household income is that men with disabilities received less than one-half the wage earnings of men without disabilities. While this gap in wage earnings is offset to some degree by the receipt of government transfer income, these benefits are not sufficient to raise household income to the level of men without disabilities.

The decline in the wage earnings of men with disabilities in the United States is a long-standing phenomenon. By 1988 wage earnings of such men were only 60% of their 1972 level. This decline is in part the result of a long-term decline in the labor-force participation of men with disabilities. U.S. Bureau of Census estimates find that the labor-force participation rates of men with disabilities fell by 15% between 1981 and 1988, while the rate for men without disabilities remained constant (Bennefield & McNeil, 1989). This dismal employment trend was in large part responsible for the most recent set of policies aimed at people with disabilities.

The Americans With Disabilities Act of 1990 (ADA) attempts to extend to people with disabilities the protection women and minorities received in earlier civil rights legislation. It expands the scope of another piece of disability rights legislation, the Rehabilitation Act of 1973, which applied only to the federal government, its contractors, and those who receive federal funds. The new law incorporates the standards against discrimination in the Rehabilitation Act and extends them to the private sector and to state and local governments. It prohibits discrimination on the basis of disability in employment; public services, including transportation; public accommodations, such as restaurants, hotels, and grocery stores; and telecommunications. Firms are required to make reasonable accommodation for workers with disabilities, unless this would result in an undue hardship on the firm. The employment provision applies to all businesses with 15 or more employees. Unlike the federal government transfer programs discussed above, this new legislation is not funded from general revenues. Instead, firms—and ultimately the consumers of their products—and state and local governments will bear the costs. Compliance will be enforced by the courts.

Since it will be some time before the influence of the ADA on the employment and economic well-being of people with disabilities can be measured, we look to Germany as an example of a nation that pursues a disability policy that includes direct intervention into the labor market on behalf of workers with disabilities.[3]

German Disability Policy

Disability insurance in Germany is provided through different components of the social insurance system. A disabled worker may receive benefits from the statutory pension system, the unemployment insurance system, the workers' accident insurance system, or the universal government-mandated health system. Civil servants, low-income individuals, and those without a work history receive benefits from institutions administering transfer programs. In addition to direct transfers, the German government limits the ability of employers to discharge workers with disabilities, administers a quota system for public and private employers, and engages in job retraining and rehabilitation activities.

The route to disability benefits for German workers begins with the sickness benefit program, which fully replaces wages for up to 6 weeks after the onset of a sickness or following an accident. Benefits are paid by the employer. For workers whose health problems continue beyond the 6-week period, the public health-insurance system replaces approximately 85% of their regular wage. Estimates of the replacement rate are between 80% (Sadowski & Frick, 1992) and 90% (Jacobs, Kohli, & Rein, 1991). These benefits can be paid for up to 18 months per health condition. Once these health-insurance benefits have expired, the condition is assumed to be permanent, and the individual becomes the responsibility of the disability pension system.

The disability pension system is divided into two categories: partial and total disability. Prior to 1969 the distinction between these categories was purely medical. Individuals were considered partially disabled if their health prevented them from working full-time or if their health reduced their current earning capacity below 50% of that of equally skilled persons. Total disability status was reserved for those who were medically determined to be unable to earn a regular income at any job. Two decisions by the Federal Social Court, in 1968 and 1976, blurred the distinction between these two categories. The effect of these decisions was to make individuals who are able to work part-time but unable to find part-time jobs eligible for total disability benefits. The extension of total disability benefits to the unemployed who are partially disabled has led to a substantial reduction in the population receiving partial disability benefits and an equivalent growth in the total disability population. Between 1972 and 1984 the number of new disability pensioners aged 55 to 59 as a percent of all persons aged 55 to 59 grew from 2.3% to 3.4% for men and from 1.3% to 3.3% for women as persons in this age group substituted a disability pension for long-term unemployment (Jacobs, Kohli, & Rein, 1991).

In 1985 the eligibility requirements for a disability pension were tightened. Previous to this ruling all persons who had contributed into the system for 5 years were eligible for a disability pension. This enabled German homemakers who had not worked in the labor market for many years to seek disability benefits as a type of early retirement pension. The 1985 legislation tightened disability eligibility rules by requiring all applicants to have worked at least 3 of the last 5 years. This change in the law was not retroactively applied, however, so homemakers who were awarded disability benefits prior to the 1985 ruling continue to receive them.

The goal of the German system is to provide early detection, rehabilitation, job retraining, and employment whenever possible and to award transfers only when other mechanisms fail. Toward the aim of prolonging employment, the government requires employers to seek permission from the local unemployment office to discharge a worker with disabilities. In addition, the government has a quota system mandating all public and private enterprises to employ a handicapped worker for every 16 employees or about 6% of their work force. A fine of 200 DM per month per unfilled quota position is charged to employers who do not comply. This is a rather small fine (approximately $125) and only 19% of employers fulfilled their quotas in 1990. The average quota in that year was only 4.5%. Although they did not fulfill their quota, 44% of employers employed some officially recognized people with disabilities. The remaining 37% employed no persons with disabilities (see Sadowski & Frick, 1992). (See Burkhauser & Hirvonen, 1989; Jacobs, Kohli, & Rein, 1991;

Frick, 1992; and Sadowski & Frick, 1992, for fuller discussions of the German disability system.)

Data and Methods

The data for our study are taken from two longitudinal surveys, the *Panel Study of Income Dynamics* (PSID) and the *German Socio-Economic Panel* (GSOEP). We use the PSID 1988 family-individual response-nonresponse file for the United States and the Syracuse University Public Use Version of the GSOEP for Germany. The PSID data span 2 decades from 1968 to 1988. The panel began with a sample of 5,000 households representing a disproportionate number of low-income families. The PSID currently contains over 35,000 individuals, approximately 20,000 of whom are current respondents. The remaining 15,000 individuals are currently nonrespondents but participated in the survey at some time. Whenever possible we will include the information of these individuals. For a more complete discussion of these data, see Hill (1992).

The GSOEP began in 1984 with a sample of 6,000 households, representing a disproportionate number of non-German "guest-workers." The GSOEP currently contains data on approximately 6,000 households and nearly 14,500 individuals. Although the GSOEP now includes data on those living in the former East German states, in this study we restrict our analysis to survey data available as of 1989 and thus to the old Federal Republic of Germany (West Germany). For a more complete discussion of these data, see Wagner, Burkhauser, and Behringer (1993).

The PSID and the GSOEP can be weighted to be nationally representative samples of their respective countries. We use the appropriate sample weights for the relevant year in our cross-sectional tabulations of percentages and population values. We leave our multiperiod calculations unweighted since the sample weights are not designed to produce a representative sample within groups such as those with disabilities. For this analysis we restrict our sample to working-age men and women (aged 25 to 59) who are either heads or their partners in a household.[4] Since we are primarily concerned with the effectiveness of disability policies in offsetting the losses from health-related work reduction, we restrict our sample to those individuals over the age of 25 who are most likely to have completed their education and to be living independently. To separate the effects of retirement from labor-force withdrawal due to a disability, we exclude individuals 60 years of age and older.

Measuring Disability

Disability is not a static classification but a dynamic process. It varies with both the health of the individual and the socioeconomic environment in which the person functions. Its dynamic underpinnings confound attempts to objectively and consistently classify individuals as disabled over time. These difficulties are exacerbated when we attempt to create comparable definitions of disability across countries. Since our goal in this analysis is to compare the protection provided in each country to those designated as disabled, we select definitions of disability for the United States and Germany that are broadly comparable but closely related to the definitions commonly applied in each country.

Individuals may be classified as disabled either by having an officially recognized work-limiting health impairment or by reporting that their health is limited and that it affects their work. As our indicator of an officially recognized health limitation, we use the receipt of transfers specifically targeted at people with disabilities. In the United States, this includes benefit programs such as Social Security Disability Insurance Supplemental Security Income, Veterans' Disability Benefits, and Workers' Compensation, among others. In Germany this includes disability benefits through the various mandated health insurance funds, the social insurance fund, or a company pension fund. In Germany we use an additional indicator of official recognition—receipt of a disability certificate—which certifies that an individual has a partial or full disability.

To capture individuals who have not been officially recognized but whose health limits their work, we include as an indicator of disability self-reported health limitations that coincide with reported reductions in work. In the United States this additional criterion incorporates both individuals with partial disabilities who are not eligible for disability transfers and fully disabled individuals who have not yet begun to receive benefits. In Germany this criterion accounts for individuals who may not yet have an official certificate or may be ineligible due to an incomplete work history. To limit this path to those individuals whose health limitation results in reduced work, we require that these individuals report that they are unable to work because of their health or that they have a health problem and work, but work less than 35 hours per week.[5] Thus, we exclude from our sample those individuals who may have work limitations but continue to work full-time and those people who may have a work limitation but are not in the labor force and report their reason for not being so as something other than health (i.e., retired, homemaker, etc.). The exact specifications of these criteria and the proportion of individuals entering under each criteria for both countries are provided in the Appendix.

Measuring Economic Well-Being

In our analysis we make cross-national comparisons of economic well-being. To account for differences in income levels across countries and to eliminate biases that may be introduced when calculating exchange rates, living standards, and other ambiguous measures, we compare the relative position of persons with disabilities to the remaining population in their country.

Since we are interested in examining the relative position of persons with disabilities within the context of public policy we measure economic status both in the absence of government taxes and transfers (Before Government Income) and in their presence (After Government Income).[6] We compute household income by combining all sources of income available to the household. To account for differences in family size, we apply an equivalence-scale weighting factor to each individual household income. There is no universally accepted equivalence scale, so we select the one used to set poverty thresholds in the United States and apply it to both countries.[7] (See the Appendix for a description of these weights.)

Results

The Prevalence of Disability in the United States and Germany

Table 1 provides estimates of the prevalence of disability in 1988 in the United States and Germany for the working-age population, aged 25 to 59. See the Appendix for a detailed description of our definition. In general, we find prevalence rates similar to those found in other studies. Our prevalence rate for the entire working-age population is slightly higher than those found by Burkhauser, Haveman, and Wolfe (1993) or Bennefield and McNeil (1989) using the *Current Population Survey.*[8] But most of this difference is attributable to our higher estimates of the prevalence of disability among women. Our estimates of the percentage of working-age males with a disability are nearly the same as those found in the CPS. We estimate that 9.0% of males aged 25 to 59 had a work-limiting disability in 1988. Burkhauser, Haveman, and Wolfe find a 9.9% prevalence, while Bennefield and McNeil find a prevalence of 8.7%. In

TABLE 1
PREVALENCE OF DISABILITY IN THE WORKING-AGE POPULATION IN THE UNITED STATES AND GERMANY BY AGE AND GENDER[a]

	United States	*Germany*
Total		
Aged 25 to 59		
Percent With Disabilities[b]	10.1	11.0
Men		
Aged 25 to 59		
Percent With Disabilities[b]	9.0	10.9
Aged 25 to 34		
Percent With Disabilities	6.5	3.7
Aged 35 to 49		
Percent With Disabilities	8.5	8.0
Aged 50 to 59		
Percent With Disabilities	15.0	22.2
Women		
Aged 25 to 59		
Percent With Disabilities[b]	11.1	11.2
Aged 25 to 34		
Percent With Disabilities	9.1	3.5
Aged 35 to 49		
Percent With Disabilities	10.8	9.1
Aged 50 to 59		
Percent With Disabilities	15.3	22.0

[a] United States estimates are based on the PSID, sample year 1988. German estimates are based on the GSOEP, sample year 1988.

[b] See the Appendix for a complete description of the criteria used to define disability.

all these studies the prevalence of disability increases with age. Men aged 50 to 59 are almost twice as likely as younger men to be disabled.

We find the prevalence of disability among women to be higher than among men. This finding, which is higher than that reported in the CPS, may be due to a difference in the survey question used in the PSID. Using the CPS, Burkhauser, Haveman, and Wolfe and Bennefield and McNeil restrict their samples to those persons who report that they work part-time and then state the cause as a health condition. In the PSID these two questions are not asked sequentially. Instead, we combine two questions, one which asks about hours worked and another which asks about current health limitations. The difference, although subtle, may affect the prevalence estimates of disability among women because, unlike the CPS studies, we will include people who are working part-time primarily because of other reasons—homemaker, retired—but who also have a health limitation. (See the Appendix for a complete description of the differences in these definitions.) Thus, we estimate the prevalence of disability among women aged 25 to 59 to be 11.1%, compared to estimates from CPS data of 8.0% (Burkhauser, Haveman, & Wolfe, 1993) and 8.4% (Bennefield & McNeil, 1989). As was the case for men, the risk of disability for women increases with age.

Using a similar definition for Germany we find that the German prevalence of disability is close to that of the United States. About 1 person in 10 is disabled in both countries. However, the risk of disability over the age distribution varies between the two countries. In the United States the percentage of younger men with a disability is much higher and the percentage of older men with a disability much lower than is the case in Germany. Thus, the risk of a disability is much steeper across the age distribution in Germany than in the United States. This result is consistent with the German policy of targeting rehabilitation and full-time reemployment at younger workers who develop work limitations and targeting disability transfer benefits at older unemployed workers with health limitations (see Aarts, Burkhauser, & de Jong, 1992).

Our cross-national comparisons are similar for women. The percentage of women with disabilities is about the same in the United States and Germany, although along the age distribution the percentages vary. The relationship between disability and age for women follows that observed for United States and German men.

A Cross-Sectional View of Economic Well-Being

In Table 2 we look at the work experience of people with disabilities. The employment rate of men with disabilities in the United States is 61%. The employment rate of men with disabilities in Germany is also 61%. When these employment rates are compared with those of men without disabilities, the resulting employment ratios in the two countries are nearly the same—0.65 in the United States versus 0.67 in Germany. The same is true with respect to women in the two countries—0.80 in the United States versus 0.81 in Germany. Hence, the employment experience of men and women with disabilities in the United States relative to men and women without disabilities is approximately the same as that experienced by men and women with disabilities in Germany. But the rewards for work

TABLE 2

EMPLOYMENT, EARNINGS, AND TRANSFER RECEIPT AMONG WORKING-AGE MEN AND WOMEN WITH AND WITHOUT DISABILITIES IN THE UNITED STATES AND GERMANY[a]

	United States				*Germany*			
	Employed[c]	*Mean Wage Earnings*[d]	*Receiving Transfers*[e]	*Employed and Receiving Transfers*	*Employed*[c]	*Mean Wage Earnings*[d]	*Receiving Transfers*[e]	*Employed and Receiving Transfers*
Men								
With Disabilities[b]	61.1	25,793	65.4	35.4	61.1	46,088	67.2	33.6
Without Disabilities	94.2	40,948	12.7	10.6	91.7	49,422	59.3	53.7
Ratio	0.65	0.63	5.1	3.3	0.67	0.93	1.1	0.63
Women								
With Disabilities[b]	58.0	13,012	64.0	33.2	43.4	27,322	76.7	27.4
Without Disabilities	72.9	20,675	17.4	10.0	53.6	27,407	62.4	27.4
Ratio	0.80	0.63	3.7	3.3	0.81	1.00	1.2	1.0

[a] United States estimates are based on the PSID, sample year 1988. German estimates are based on the GSOEP, sample year 1988.

[b] See the Appendix for a complete description of the criteria used to define disability.

[c] Employed requires individuals to have worked full- or part-time during the year. Thus, the long-term unemployed are excluded from this category.

[d] Mean wages are calculated over those individuals who are employed. Mean values are reported in 1991 ($) and 1991 (DM) for the United States and Germany, respectively.

[e] Individuals are counted as transfer recipients if they live in a household receiving transfers. Transfers are not necessarily related to the disability.

are greatly different between the two countries. Men and women with disabilities in the United States on average received only 63% of the wage earnings of men and women without disabilities. In Germany men with disabilities on average received 93% of the wage earnings of men without disabilities, and in Germany there is no difference between the average wage earnings of women with and without disabilities.

Table 2 also shows the proportion of men and women who live in families in which government transfers are received. Receipt of transfer income in the United States and in Germany is high for men and women with disabilities. But because of the broad German social welfare system, receipt of transfers is also high among those without disabilities. The likelihood that the families of those without disabilities will receive a government transfer is much smaller in the United States. Therefore, transfer receipt by either men or women with disabilities in the United States relative to men or women without disabilities is substantially higher than in Germany. But as we will see in subsequent tables, a greater likelihood of

TABLE 3
ECONOMIC WELL-BEING OF WORKING-AGE MEN AND WOMEN WITH DISABILITIES IN THE UNITED STATES AND GERMANY[a]

	United States (Median 1991 $)[b]		*Germany* (Median 1991 DM)[b]	
	Before Government Income[c]	*After Government Income*[d]	*Before Government Income*[c]	*After Government Income*[d]
Men				
With Disabilities	18,455	18,635	38,211	31,709
Without Disabilities	30,538	25,967	43,014	32,637
Ratio	0.60	0.72	0.89	0.97
Women				
With Disabilities	16,805	17,311	31,208	30,465
Without Disabilities	28,865	24,611	41,259	31,814
Ratio	0.58	0.70	0.76	0.96

[a] United States estimates are based on the PSID, sample year 1988. German estimates are based on the GSOEP, sample year 1988.

[b] Incomes are adjusted for household size using the equivalence scale implied by the United States poverty-line table. See the Appendix for a complete description.

[c] Before government income excludes government transfers and taxes.

[d] After government income includes government transfers and taxes.

receiving transfer income does not overcome the substantial gap in wage income between those with and those without disabilities.

In Table 3 we focus on the relative economic well-being of persons with disabilities in the United States and Germany using a single year of data. We report median size-adjusted household income before and after government taxes and transfers for persons with and without disabilities.[9] We find that, in the absence of government, household income of both the median man and median woman with disabilities in the United States is less than two-thirds that of their counterparts without disabilities. This gap approximates the difference in privately generated income that government tax and transfer policies must fill to offset losses from disability. In Germany there is a substantially smaller gap in the privately generated income of those with and without a disability. Thus, direct tax and transfer policies are required to do much less in Germany than in the United States to offset the effect of disability on economic well-being.

Government tax and transfer policies clearly reduce the gap in before government income between those with and without disabilities in the United States. The after government median income of those with disabilities in the United States rises, while the median income of those without disabilities falls. But despite this equilibrating change, the gap between those with and without disabilities remains. The median man with disabilities lives in a household with income equal to only 72% of that of the median man without disabilities. For women it is 70%. In Germany the smaller gap in before government income is consistent with German disability policies designed to mitigate the effects of disability by direct intervention in the labor market to ensure continued employment for people with disabilities. Hence, in Germany when tax and transfers are included, median income falls for both men with and without disabilities—tax payments exceed transfers for both. However, the gap in income between men with and without disabilities is virtually eliminated. Before government income for women with disabilities is only 76% of that of women without disabilities. As was the case for men, after including taxes and transfers, income for women with and without disabilities is nearly equal. Hence, in Germany tax and transfer policies equalize the household income between those with and without disabilities regardless of gender.

In Table 4 we look more closely at the sources of income in United States and German households. Our findings confirm that, in large part, differences in wage earnings are responsible for our results in Table 3. Table 4 shows the share of household income contributed by each of four

TABLE 4
SOURCES OF FAMILY INCOME OF MEN AND WOMEN OF WORKING AGE WITH AND WITHOUT DISABILITIES IN THE UNITED STATES AND GERMANY[a]

	United States			*Germany*		
	With Disabilities	*Without Disabilities*	*Relative Shares*[b]	*With Disabilities*	*Without Disabilities*	*Relative Shares*[b]
Men						
Own Wage Earnings	0.43	0.66	0.65	0.52	0.66	0.79
Earnings of Other Household Members	0.30	0.22	1.36	0.27	0.20	1.35
Transfer Income	0.18	0.02	9.00	0.11	0.04	2.75
Other Income	0.09	0.10	0.90	0.10	0.10	1.00
Women						
Own Wage Earnings	0.23	0.28	0.82	0.26	0.23	1.13
Earnings of Other Household Members	0.51	0.58	0.88	0.44	0.62	0.71
Transfer Income	0.16	0.04	4.00	0.19	0.05	3.80
Other Income	0.10	0.10	1.00	0.11	0.11	1.00

[a] United States estimates are based on the PSID, sample year 1988. German estimates are based on the GSOEP, sample year 1988.

[b] Relative Shares equals the shares of people with disabilities divided by the shares of people without disabilities.

income sources and their relative importance in each country. In Germany the wage earnings of men with disabilities account for 52% of household income, a relative share of almost 0.80 when compared to the share men without disabilities contribute to their households through their wage earnings. In contrast, in the United States the wage earnings of men with disabilities are only about two-thirds as important as a share of household income, as are the wage earnings of men without disabilities. As we saw in Table 2, the employment rates of men with and without disabilities in the two countries are approximately the same, so it is differences in wage earnings (wage rates and hours worked), not employment, that is driving this difference. The difference in own wage earnings for men in the United States is partially offset by a substantially higher relative share of transfer income. But as Table 3 shows, these other sources of income fall far short of closing the income gap between those with and without disabilities in the United States.

German and American women with disabilities contribute approximately the same share of total family income through their wage earnings. About one-quarter of the total family budget is earned by these women. But the relative contributions of these women differ. In Germany the share contributed by women with disabilities is slightly greater than the share of women without disabilities. In the United States the share contributed by women with disabilities is 82% of what women without disabilities contribute. In both the United States and Germany the share of household income contributed by other members of the households of women with disabilities falls short of the share contributed by the household members of women without disabilities.

Table 4 shows that Germans with disabilities provide wage earnings to their households in amounts much closer to those without disabilities than do Americans with disabilities. However, this kind of yearly data cannot reveal whether the relationship between low wage earnings and disability that we observe in the United States is the result of a disability or whether the earnings patterns we are observing predate the disability. In the next tables we move beyond cross-sectional analysis. We use longitudinal data to follow individuals who experience a disability during the survey period and trace out changes in their household income and in the share of that income that comes from their wage earnings as they transition into disability.

In the remaining analyses we use a sample of persons for whom we observe two consecutive periods of nondisability followed by two consecutive periods of disability. Table 5 shows the short-run consequences of disability by tracing the path of adjusted after government median

TABLE 5
SHORT-RUN ECONOMIC CONSEQUENCES OF A DISABILITY BY GENDER IN THE UNITED STATES AND GERMANY[a,b]

	United States (Median 1991 $)		*Germany* (Median 1991 DM)	
	Men	*Women*	*Men*	*Women*
Median Income Before and After Disability				
Two Years Prior	17,318	13,346	28,982	25,596
One Year Prior	17,885	13,304	29,091	27,199
One Year After	16,392	14,072	30,665	30,669
Median Percentage Change in Income One Year Prior to One Year After	-3.1	6.3	4.8	9.9
Percentage Experiencing Income Growth or Decline One Year After a Disability				
Percent Grew 50% or More	10.9	16.2	7.5	14.5
Percent Grew between 25 and 50%	10.1	12.8	16.1	17.3
Percent Grew between 11 and 25%	14.3	17.9	16.1	19.1
Percent Grew or Declined Less than 10%	25.2	24.0	33.4	26.4
Percent Declined between 11 and 25%	16.0	13.4	17.2	10.9
Percent Declined 25 and 50%	17.6	11.2	9.7	7.3
Percent Declined More than 50%	5.9	4.5	0.0	4.5
	119	179	93	110

[a] United States estimates are based on tbe PSID, sample year 1988. German estimates are based on the GSOEP, sample year 1988.

[b] Individuals are classified as experiencing a disabling event if we observe two consecutive periods of health followed by two consecutive periods of disability as defined in Table 1.

income before and after the onset of a disability. With the exception of American women, real median income increases between the 2 healthy years that precede the onset of the disability. But surprisingly, for all groups with the exception of United States men, we find real growth continues between the income year before the onset of the disability and the year following it. These findings suggest that the drop in economic well-being that is implied by cross-sectional comparisons may exaggerate the importance of disability as its cause. We find that the median change in household income for men in the United States following the onset of a disability is a decline of 3.1%. For American women the median change is a positive 6.3%. The median change for German men and women is also positive—4.8 and 9.9%, respectively.

This does not suggest that the onset of a disability cannot be followed by a serious drop in household income. Following the onset of a disability, nearly one out of every four men in the United States suffers a drop in household income of 25% or more. For United States women it is about 15%. For German men, drops of this magnitude occur much less frequently; less than 10% of men with disabilities suffered a drop of 25% or more. However, for German women, such drops were almost as frequent as those experienced by United States women.

In Table 6 we see how the income coming from various sources changes following the onset of a disability. Our results confirm the between-country differences found using cross-sectional data in Table 4. In the first column (D-1) we report the share of family income coming from the wage earnings of the person in the year prior to his or her disability. In the next column we show the share coming in the year following a disability (D+1). The third column shows the relative importance of the change by reporting the ratio of D+1 to D-1. In the United States the share of wage earnings in the household income of men following a disability falls by a greater amount than is the case in Germany. This further suggests that an important reason for the gap in after government income of those in the United States who suffer a disability is that the initial gap in lost wage earnings is greater in the United States than it is in Germany.

Discussion

All modern industrial societies maintain social programs to protect and assist workers who develop health impairments that reduce their earning capacity. In addition, many nations have implemented employment support programs to keep such workers in the labor market. In this paper we

TABLE 6

CHANGES IN THE SOURCES OF HOUSEHOLD MEAN INCOME OF MEN AND WOMEN WITH DISABILITIES ONE YEAR BEFORE AND ONE YEAR AFTER A DISABLING EVENT IN THE UNITED STATES AND GERMANY[a,b]

	United States			*Germany*		
	D-1	*D+1*	*Relative Shares*[c]	*D-1*	*D+1*	*Relative Shares*[c]
Men						
Own Wage Earnings	0.63	0.46	0.73	0.59	0.49	0.83
Earnings of Other Household Members	0.27	0.32	1.19	0.30	0.33	1.10
Transfer Income	0.04	0.14	3.50	0.04	0.11	2.75
All Other Income	0.06	0.09	1.50	0.07	0.07	1.00
Women						
Own Wage Earnings	0.26	0.21	0.81	0.25	0.20	0.80
Earnings of Other Household Members	0.54	0.50	0.93	0.49	0.50	1.02
Transfer Income	0.13	0.21	1.62	0.15	0.20	1.33
All Other Income	0.07	0.08	1.14	0.11	0.10	0.91

[a] United States estimates are based on the PSID, sample year 1988. German estimates are based on the GSOEP, sample year 1988.

[b] Individuals are classified as experiencing a disabling event if we observe two consecutive periods of health followed by two consecutive periods of disability as defined in Table 1.

[c] Relative shares equals the shares in D+1 divided by the shares in D-1.

have examined the economic well-being of persons with disabilities in the United States and compared them with their counterparts in Germany. We find, using cross-sectional data, that the median German with a disability lives in a household whose income is virtually the same as that of the median German without a disability. This is not the case in the United States, where the income gap between those with and without disabilities is approximately one-quarter. An even more important finding from a policy perspective is that in Germany the pre-tax and transfer income (composed largely of own wage earnings) of men with disabilities is nearly 90% of that of men without disabilities. In the United States the pre-tax and transfer income gap for men is almost 40%.

However, based on our longitudinal data, we suggest that the large difference in wage earnings and household income found in the cross section may exaggerate the influence of the onset of a disability on the income gap found in the United States. While the median household income of men with disabilities in the United States fell somewhat following a disability, this fall was modest compared to the gap in household income found between those with and without disabilities in the cross section. What then is responsible for this gap in household income found in the cross section? Part of the explanation is likely to be that the prevalence of disability is higher for those in lower income households. But another part of the explanation may be that the government transfers and market work programs that provide transitory support for people in the first period following a disability may not permanently provide such support. Hence, over time such households may fall further and further behind those without disabilities. This puzzle can only be disentangled with data that follow individuals over longer time periods.

What we learn from both our longitudinal and cross-sectional findings is that the relative wage earnings of those with disabilities are a primary determinant of their relative economic well-being. Our results indicate that, while Americans and Germans with disabilities are employed at about the same ratio with respect to those without disabilities, the wage earnings of Germans with disabilities are much closer to those of Germans without disabilities than is the case in the United States. This difference, in large part, explains the disparity in relative economic well-being between people with disabilities in the United States and Germany.

These pieces of information lead us to believe that the German government's commitment to employment for people with disabilities contributes to the relatively solid record of wage earnings by men and women in Germany. Hence, if the Americans with Disabilities Act and other government initiatives to encourage accommodation of people with disabilities in the labor market are successful in increasing the wage earnings of people with disabilities, this will then reduce some of the income gap between those with and without disabilities. However, our longitudinal results suggest that there are limits to what such policies can do. To the degree that the prevalence of disability is higher among those who are already at a disadvantage in the labor market—those with poor education and fewer job skills, the long-term unemployed, and minorities—then a disability may compound but not be the primary cause of their poor earning capacity. In these cases, providing accommodation through the ADA will not overcome these more fundamental impediments to success in the workplace.

NOTES

1. For a fuller discussion of European disability policies, see Haveman, Halberstadt, & Burkhauser (1984), Kohli et al. (1991), and Frick (1992).
2. Workers' Compensation benefits as well as private insurance benefits are available to those with partial disabilities. But the number of people receiving such benefits and the size of their benefits is overshadowed by those receiving full disability benefits.
3. The new *Health and Retirement Survey* began following a cohort of men and women aged 51 to 61 in 1992. The first wave of that data is now available. It will be possible with those data to evaluate the accommodation experience of this group as it ages over the decade.
4. The PSID data provide information about health for heads of households and their partners only. To create an equivalent sample from the GSOEP we exclude adults who are not heads or their partners in a household. Partners are defined as spouses or cohabitors. Sensitivity analysis on this exclusion produced no significant difference in the results. In fact, for the longitudinal sample this exclusion rule resulted in the deletion of only four observations.
5. The self-reported health measures available in the PSID and GSOEP are quite different. The PSID contains the question "Do you have any physical or nervous condition that limits the amount or type of work that you can do?" For its first 4 years (1984–1987) the GSOEP contained a similar question, "Disregarding short periods of illness, does your health constitute an impediment in carrying out day-to-day activities, e.g., job or training?" However, since we want to use GSOEP data through 1989, we must rely on a different measure of health status asked consistently in each year. We use the question "How satisfied are you with your health?" to which respondents reply on a 0–10 scale. Correlation tests suggest that the first 4 points (0–3) are highly correlated with the work-limit question.

Weighted prevalence rates for each measure for 1984–1988 also suggest that the health-status measure is an appropriate proxy.

GSOEP HEALTH MEASURES

	Health Ranked (0-3)	*Health Limits Work, Training*	*Person Correlation Coefficient*
1984	11.5	12.1	.50
1985	9.9	10.9	.50
1986	9.7	11.2	.48
1987	10.0	9.9	.49

6. The tax burden for those families in the GSOEP was computed using tax calculation routines first developed by the Special Collaborative Group 3—project C-8 in Frankfurt Mannheim, FRG. A detailed discussion of the simulations is found in van Essen, Kassella, and Landau (1986). We use updated and modified tax calculation routines developed by Berntsen. These routines are described in Berntsen (1992). For the United States we use the tax routine developed by Greg Duncan for PSID families.
7. See Buhmann, Rainwater, Schmaus, and Smeeding (1988) for a discussion of the sensitivity of different equivalence scales in cross-national comparative research.
8. Bennefield and McNeil (1989) report that estimates from the CPS are lower than estimates from both the *Survey of Income and Program Participation* (SIPP) and the *National Health Interview Survey* (NHIS).
9. After Government Income is based on actual income data from the PSID and the GSOEP adjusted for taxes. Before Government Income is a "counterfactual" which makes the strong assumption that behavior does not change in the absence of government. This is an approximation of what would actually occur, especially for those receiving disability transfer income. Hence, our Before Government Income values are best thought of as a means of showing to whom current benefits go, given current government policy, rather than as a measure of what would actually occur in the absence of government.

APPENDIX

PROGRAM PARTICIPATION AND HEALTH LIMITATION CRITERIA BASED ON THE PANEL STUDY OF INCOME DYNAMICS AND THE GERMAN SOCIO-ECONOMIC PANEL

PSID Criteria for Disability Status (1984–1989)

A person is considered disabled if he or she fulfills one or more of the following criteria:

1. *Health-Constrained Work:* Answers yes to the question, "Do you have any physical or nervous condition that limits the type or amount of work that you can do?" and works, on average, more than zero and fewer than 35 hours per week.
2. *Employment Status:* Employment status equals permanently disabled; temporarily disabled.
3. *Benefit Receipt:* Receives Veterans' Benefits, Supplemental Security Income, Social Security Disability Insurance or Workers' Compensation.

GSOEP Criteria for Disability Status (1984–1989)

A person is considered disabled if he or she fulfills one or more of the following criteria:

1. *Health-Constrained Work:* Ranks health between 0–3 on a scale ranging from 0–10 and works, on average, more than zero and fewer than 35 hours per week. The question which produces this variable asks, "How satisfied are you with the following aspects of your life? (Health) Completely Satisfied = 10. Completely Dissatisfied = 0. If your feelings are mixed, provide a rating somewhere in between."
2. *Employment Status:* Not currently in the labor force and reason terminated last job equals disabled in profession; disabled in market work; other health reasons.
3. *Benefit Receipt:* Receives Social Insurance—Workers' Pension, Miners' Union Pension, Civil Servants' Pension, War Victims' Benefits, or Workers' Accident Benefits—for disability.
4. *Official Disability Assessment:* Officially classified as being of reduced earning capacity or severely disabled.

PERCENTAGE OF THE WORKING-AGE POPULATION (AGED 25 TO 59) IN THE UNITED STATES AND GERMANY CLASSIFIED AS DISABLED BY CRITERIA

A comparison of the criteria by which individuals in the United States and Germany are classified as disabled under our definitions shows that in the United States a majority of the sample meets the health-constrained work criteria, while in Germany a majority holds an official disability certificate. The percentage of individuals receiving disability transfers is similar in both countries. Individuals may be included in more than one category.

	1988	
	United States	*Germany*
Officially Disabled	NA	85.0
Disabled by Benefit Receipt	43.2	45.6
Disabled by Health-Constrained Work	78.5	5.7

CRITERIA FOR CLASSIFICATION AS DISABLED USING *CURRENT POPULATION SURVEY* DATA

Bennefield & McNeil Criteria:[a]

Bennefield and McNeil classify a person as disabled if one or more of the following conditions are met:

1. Identified by a question that asks "Does anyone in this household have a health problem or disability which prevents them from working or which limits the kind or amount of work they can do?"
2. Identified by a question that asks "Is there anyone in this household who ever retired or left a job for health reasons?"
3. Did not work in the survey week because of a long-term physical or mental illness or disability which prevents the performance of any kind of work (based on the "main activity last week" question on the basic CPS questionnaire).
4. Did not work at all in previous year because ill or disabled (based on the "reason did not work last year" question on March CPS supplement).
5. Under 65 years of age and covered by Medicare.
6. Under 65 years of age and a recipient of Supplemental Security Income.

Burkhauser, Haveman, & Wolfe Criteria:[b]

Burkhauser, Haveman, and Wolfe classify a person as disabled if one or more of the following conditions are met:

1. Employment status or major activity last year equals unable to work.
2. Usually works less than 35 hours per week and reason for part-time work equals own illness, or reason worked part year last year equals own illness.

3. Have job, but not working, and reason not working is own illness.
4. Receives social security, railroad retirement benefits, is not a student or a widow with a dependent child, and is between 19 and 59. Those aged 23 to 59 may be in school.
5. Receives Supplemental Security Income or workers' compensation.
6. Receives veterans' benefits, is a veteran, and is not in school.

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[a]Reproduced from Bennefield & McNeil (1989).

[b]Reproduced from Burkhauser, Haveman, & Wolfe (1993), and Wolfe & Haveman (1990).

UNITED STATES EQUIVALENCE WEIGHTS FOR ADJUSTING HOUSEHOLD INCOME

Household Size[a,b]	*Weight*
Single person	1
Couple	1.29
Couple plus child	1.55
Couple plus 2 children	1.95
Couple plus 3 children	2.29
Couple plus 4 children	2.57
Couple plus 5 children	2.88
Couple plus 6 children	3.16
Couple plus 7 children	3.87

[a]The equivalence weights for the United States are derived from the Census poverty thresholds. U.S. Department of Commerce, 1991.

[b]Equivalence weights for alternative family compositions are not shown here but were included in the calculations of equivalent income.

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RICHARD V. BURKHAUSER *is a professor of economics and director of the All-University Gerontology Center at Syracuse University. He has published widely in the area of United States and European social security retirement and disability policy.*

MARY C. DALY *is a National Institute on Aging Post-Doctoral Fellow and an adjunct professor of economics at Syracuse University. Her research focuses on the effects of public policy on the economic well-being of families in the United States and Germany.*

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Reprints of this article may be obtained by contacting Richard V. Burkhauser, Professor of Economics, 426 Eggers Hall, Syracuse University, Syracuse, NY 13244-1090.

Privatizing Vocational Rehabilitation

Options for Increasing Individual Choice and Enhancing Competition

Carolyn L. Weaver
The American Enterprise Institute

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ABSTRACT

This paper will explore several options for increasing individual choice and expanding competition in the supply of rehabilitation services. Chief among these is a proposal for rehabilitation vouchers. Also considered are proposals for tax credits and federal loans for rehabilitation expenses and direct contracting for privately supplied rehabilitation services. The likely impact of these options on the well-being of people with disabilities as well as on program accountability, performance, and cost-effectiveness will be assessed.

Over the years, serious questions have been raised about the efficacy of the public vocational rehabilitation system in helping people with disabilities return to work. In 1991 just 200,000 people were "successfully rehabilitated," 30% fewer than in 1979, at a cost of $2.1 billion (Rehabilitation Services Administration, 1992).[1] Of the nearly one million people served by VR that year, fewer than 20% entered the work force in jobs paying more than the minimum wage.[2] Little is known about whether these people got work, earned higher wages, or kept their jobs longer as a result of VR.

The efficacy of vocational rehabilitation for workers on social security disability insurance has been of particular concern (Disability Advisory Council, 1988). DI is the federal government's largest cash-benefit program for people with disabilities, spending about $32 billion annually (Board of Trustees, 1993). Fewer than 2% of the 3.5 million workers on the rolls return to work annually—less than the proportion who retire or die—and an estimated two-thirds do so without having received VR (Disability Advisory Council, 1988; Committee on Ways and Means, 1993; and Board of Trustees, 1993). Despite steady improvements in medicine, rehabilitation, and technology, the proportion of beneficiaries leaving the rolls has fallen over time (Weaver, 1992). Work disincentives, while critically important, are part of the problem; the quality and delivery of VR services also play a role.

People with disabilities seeking to move into competitive employment are not well served by the VR system as it is currently structured, nor are employers, who hold the ticket to job market access, or taxpayers, who underwrite the current system and bear the excess costs of dependency on cash-benefit and health care programs.

In the years ahead, as pressure builds to improve the performance of the VR system, serious attention should be given to the organization of supply. Is supply organized to maximize the benefits flowing to "customers"—people with disabilities—in the first analysis, as well as to employers and taxpayers? Is it organized to promote independence and freedom of choice for people with disabilities—the stated goal of most recent reforms in disability policy, including the Americans With Disabilities Act of 1990 and the Rehabilitation Act Amendments of 1992?

A careful look at the VR system today would suggest that the answer to both of these questions is no. There is inadequate competition in supply to ensure high-quality, cost-effective service. Individual choice is severely restricted. The new "client choice" demonstration projects authorized in the Rehabilitation Act Amendments suggest that Congress may well be aware of the kinds of reforms needed to tackle the problems of VR.[3]

How Supply Is Organized

The vocational rehabilitation system is premised on public financing and on public supply of services. The federal government sets the groundrules and provides most (75%) of funding for VR; within the parameters set by the federal government, the states design and run their own programs and provide the balance of funding.[4] VR agencies are authorized to provide services directly on an "in-house" basis, using their own counselors and staff, or to purchase goods and services from other agencies or private firms. Agencies can, if they wish, contract out for the provision of the whole range of services required by an individual or group of individuals (Berkowitz et al., 1988; Berkeley Planning Associates, 1987).

With this authority, VR agencies have typically developed close working relationships with the educational and rehabilitation facilities and other public and private suppliers in their communities. Vouchers are written for literally thousands of individual goods and services—everything from braces, hearing aids, and vehicle repair, to business licenses, college educations, medical treatment, and attendant care (Berkowitz et al., 1988). States routinely purchase psychological testing and other specialized services from other agencies or firms, and a few states have experimented with contracting out the supply of particular services, such as job placement, to private for-profit firms (Berkeley Planning Associates, 1987). In addition, nonprofit organizations are routinely called on to provide training and other services or to employ people with mental retardation or other special needs in a sheltered-workshop or supported-employment setting.

This close working relationship between VR agencies and other public agencies and private firms has contributed to the notion that the system is a "public-private partnership" that draws on the best of both the public and private sectors. Little wonder, then, that the blame for any weaknesses in the current system is laid on the doorstep of Congress. Inadequate federal funding, say proponents, is the culprit. Failing that, it's the mandate that people with severe disabilities be served first. How can the agencies look good, they ask, when starved for federal funds and under an obligation to serve those for whom rehabilitation efforts are most costly?

Without directly challenging these two claims (which I cannot do within the limits of this paper), I will argue that the source of weakness in the VR system is more fundamental. The "public-private partnership" notwithstanding, the government has effectively monopolized the supply of VR services in the United States for low-income people and people who lack workers' compensation or other insurance protection. From an economic perspective, this has predictable, adverse effects on cost and quality.

Public VR agencies are not unlike public schools, purchasing a laundry list of items (scissors, paper, even an occasional therapist) from private suppliers but offering little in the way of meaningful choice for consumers or competition in supply. Vouchers are written to specific vendors for specific items at the discretion of VR counselors; they are not written to people with disabilities to be spent on the range of services they need from the vendors of their choice. VR agencies decide what to purchase, for whom, and from whom.[5]

Under the public VR system, individuals cannot directly gain access to the private system with public support; they cannot choose among competing public and private service providers; and they cannot determine the goal of rehabilitation or the means of pursuing that goal. Individualized written rehabilitation programs (IWRPs) are required by law and must be developed jointly by the VR counselor and the individual, but counselors retain considerable discretion in developing these programs; budgetary pressures in states may limit the availability of needed services (Disability Advisory Council, 1988). The only real choice possessed by a VR client is the choice to refuse services—a choice that imposes little sanction on over-subscribed public agencies.

While there is a large and rapidly growing private, for-profit rehabilitation industry in the United States, it basically operates alongside the government program, serving different clients referred by different third-party payers—typically insurers and self-insured employers (Berkeley Planning Associates, 1987).[6] People who can afford to buy their own VR services or who have workers' compensation or insurance coverage are served by this industry at their own (or their employer's) expense. Others, to the extent they receive services at all, are served by the public system.

This latter group includes an increasing number of young people with developmental disabilities and no work experience—"transitioning youth" who are exiting special education programs and seeking the skills necessary to work or to live independently.

The public VR system is not organized to ensure high-quality service to the nation's disabled at minimum cost. Nor is it organized to solve the complex information problems surrounding rehabilitation. The problem is two-fold: inadequate competition and inadequate incentives for VR agencies and their staff to acquire and utilize scarce information.

Information and Competition

Even under the best of circumstances, the rehabilitation (or habilitation) of people with disabilities poses complex information problems.[7] Who is likely to benefit from VR and to what extent depends on a wide array of individual, sometimes unmeasurable, factors. Two people with identical mental or physical impairments may have widely different vocational outcomes depending, among other things, on age and family circumstances (consider the middle-aged breadwinner with four children vs. the nonworking spouse or adult child); age at the onset of disability (consider someone blind from birth vs. someone blinded as an adult in an auto accident); individual and family income (some of which, like social security disability insurance and supplemental security income, may be conditional on *not* returning to work); the time elapsed between injury or illness and the initiation of medical and vocational services; the quality of medical care (if needed); work experience; transferability of job skills; and local labor market conditions. The nature and severity of impairment are also important factors.

The relationship between any of these factors and vocational outcomes is uncertain at best, and so is the appropriate service regimen. One menu of services may be highly effective with one individual and have no effect on another. One individual may proceed quickly through a training program and locate a position at a competitive wage with apparent ease, while another becomes involved in a protracted training program only to assume the responsibilities of a homemaker.

It is hardly an exaggeration to say that we lack both the knowledge and the technology necessary to make quick, cheap, and correct decisions about who will benefit from VR and to what extent, or what package of goods and services is the "right one." This information problem plagues both the public and the private sectors. What mix of educational, medical, and vocational services is appropriate? How far along should medical rehabilitation be before vocational rehabilitation begins? When is additional education and skill upgrading appropriate? Who are the best candidates for what kinds of rehabilitation? The answers to these questions change just as rapidly as our knowledge and technology.

The economic problem is deciding how to allocate our limited resources across people and services when information is costly, imperfect, and dispersed widely among individuals and firms rather than possessed in its entirety by any single individual or firm (Hayek, 1945).

The VR program, organized as it is around public supply through monopoly bureaus, is at a distinct disadvantage at both identifying and responding to changes in knowledge and to new opportunities—whether in the area of diagnosis, evaluation, treatment, training, or placement, or even organization and administration. Cost and quality are both likely to suffer. It is a problem of incentives and constraints.

Civil service rules, for example, limit, if not prevent, performance-based adjustments in pay and employment. State and federal budget policies and pay freezes cap employment and salaries and narrow the range of services available for reasons unrelated to performance or to the value of those services. Detailed federal and state rules mandate certain activities and preclude others, while attempting to standardize that which inherently cannot be standardized—the means of pursuing quality rehabilitation outcomes.[8] The ability to produce a quality product at minimum cost is thus weakened.

Federal funds are allocated across the states based on a formula in the law that is unrelated to performance, the number of customers served, or the value of the services offered.[9] The incentives to produce a quality product at minimum cost are thus weakened. Dissatisfied customers—not only people with disabilities and their potential employers but also taxpayers willing and able to pay for a different rehabilitation "product"—are just that: dissatisfied.

Of course, the VR program responds to a far more diverse "customer" base than this, which is part of the problem. Customers include current and potential VR counselors and the colleges that train them, providers of medical, educational, and vocational services and their personnel, various constituencies within the disability community (e.g., members of the independent living movement, people who are blind, and parents of transitioning youth) whose interests vary widely, along with taxpayers, governors, and federal and state legislators, to name a few. The allocation of VR resources across people and services tends to reflect the distribution of political interests and power, which has little direct relationship to how society values alternative VR outcomes.

None of this is intended to suggest that the VR agencies or their staff are not committed to helping the nation's disabled or that they are not "results oriented." Surely, they care deeply about people with disabilities, and their focus on such things as the number of "26 closures" and the proportion of clients with severe disabilities is well known.[10] The question is whether the results that are obtained are valued at the price society must pay.

The answer is very likely no. Public supply through monopoly bureaus inhibits the production and use of relevant information and eliminates the market test as a way of measuring performance and evaluating alternative programs and policies. "Customers" are denied the opportunity to search among competing public and private suppliers to find (and thus to reveal to other market participants) the one that produces the services they assess to be of maximum value given the price that must be paid.

The public VR system would benefit from a healthy dose of competition. Competition fosters experimentation and innovation, both critical for solving the kinds of information problems that plague rehabilitation. Firms competing to attract new customers would have the incentive to experiment with new diagnostic and evaluation techniques, new methods of case management or training and placement, and new forms of administration and financing as they attempted to supply what customers wanted at a price they were willing to pay. Good ideas would tend to be rewarded and, with easy access by new suppliers, bad ideas would tend to be penalized. Good firms would tend to prosper; poor firms (including otherwise good firms that failed to innovate) would tend to lose market share. As customers moved their business among competing suppliers, valuable information would be gained on how consumers valued different rehabilitation outcomes and programs relative to their cost of production, as well as on how to solve the rehabilitation/habilitation problem in a least cost manner. In a competitive market setting, society's scarce economic resources would tend to be economized and to move toward their highest valued uses.

As noted by health economist Mark Pauly (1988, p. 36):

> Competition . . . does not enshrine any particular way of organizing, producing, or financing medical care as superior in principle; superiority depends on the ability to please consumers (with regard to price and quality). The implicit test of that superiority is the ability to survive in a competitive market in which consumers know what they are buying and where there is no subsidy in favor of one firm over another.

This is not to suggest that an unregulated private market for rehabilitation would comport with idealized notions of a perfectly competitive market. Indeed, the information problems surrounding disability and rehabilitation are not unlike those surrounding health and medical care, raising the possibility of a market problem stemming from asymmetric information between consumers and producers: Suppliers of rehabilitation services may well have more and better information than people with disabilities about the quality of services and the likely consequences of various rehabilitation strategies. To the extent there is such an asymmetry, market outcomes may diverge from a classic competitive equilibrium in which the cost of an additional unit of output equals the value society places on it; providers may have some degree of market power over price and quality (Arrow, 1963).

Having said this, it is important to note that this information problem is most likely to have adverse effects on price and quality when services are nonroutine or emergency in nature and when outcomes are difficult to observe. In medical markets, for example, information problems are more serious in the case of health care for acute and serious illness, such as trauma and heart attack, than in the case of health care for routine, nonemergency situations, such as routine pediatric or dental care and normal obstetric cases (Pauly, 1988). The typical individual served by the VR system (e.g., someone with blindness or paraplegia), the kind of services he or she is likely to receive (e.g., counseling and training), and the consequences of those services (e.g., a job or a job with a higher salary) all suggest that this information problem is unlikely to be severe. However, the potential for such a problem—for certain services provided to people with certain disabilities, perhaps catastrophic disabilities such as brain or spinal cord injuries—must be acknowledged and, to the extent private control arrangements do not exist, the government can play a useful role in providing information to consumers.[11]

Reforming the VR System

In the discussion that follows, four options are considered for reforming the delivery of VR services: contracting out, vouchers, tax credits, and loans. Each of these options is designed to shift from a system of direct control by government, through politics and bureaucracy, to a system of indirect control, through markets.[12]

Enhancing Competition

One way to enhance competition is for the states to contract out the entire case management function (for some or all of the VR caseload) to private for-profit firms, ideally through competitive bidding for the right to supply rehabilitation services within the state.[13] VR agencies would assume responsibility for monitoring the performance of case managers and for guarding clients' interests, but they would be out of the business of direct service delivery and of deciding who gets what services from whom.[14]

The idea behind contracting out is to make public resources available to a wide array of private enterprises competing on the basis of price, service quality, and output. Large insurers or rehabilitation firms already in the business of evaluating rehabilitation potential and arranging for services would be natural candidates for primary contractors, and they would be free to enter into supply agreements with other agencies or firms. Rehabilitation hospitals (well suited to handle people with spinal cord injuries, for example), organizations specializing in research and advocacy for particular groups (such as persons with cerebral palsy, cystic fibrosis, or mental retardation), and firms specializing in some aspect of rehabilitation, such as job placement, may have unique advantages in supplying rehabilitation services to part of the caseload. New firms with new specialties would surely emerge.

With this or any other market-based reform, it would be highly desirable to remove many of the detailed requirements now imposed on state agencies. The VR regulations, like government regulations generally, are focused on *procedure* rather than on results—despite the absence of evidence of a clear link between the two. Allowing firms broad discretion in the way they do business would allow the system to achieve more of the benefits competition has to offer.

Contracting out for services is not a new idea for states and localities. Governments have turned to the private sector to do a wide range of things, including managing public hospitals, museums, and water facilities, and supplying electronic data processing and garbage collection (Reason Foundation, 1993; President's Commission on Privatization, 1988; Kelman, 1990). As these experiences would suggest, contracting out is no panacea; there are a host of problems associated with ensuring competitive bidding and monitoring contract performance. However, where well conceived, contracting out has generally been successful in reducing costs and in improving the quality of services (Reason Foundation, 1993; Mueller, 1989; President's Commission on Privatization, 1988; and *Economic Report of the President,* 1989, pp. 212–213).

Critics of reform will surely argue that the private sector cannot—or will not—serve the type of clients that dominate the VR system with the rules and regulations that now ham-string public agencies. This is largely an untested proposition. To date, there have been only the most limited experiments with allowing the private rehabilitation industry to serve VR clients. One such experiment, in Arizona, suggests that, when VR clients are given access to the private system with public support, private firms can and will meet their needs. Arizona contracted out the supply of referral and placement services for certain clients. The conclusion of a careful evaluation of this program, commissioned by the U.S. Department of Education, was that the private for-profit sector could produce "high-quality outcomes for a severely disabled caseload" and do so "quickly and at reasonable cost" (Berkeley Planning Associates, 1987, p. 111).

The rapid growth of the private rehabilitation sector, which has been spurred by changes in workers' compensation laws and the increased likelihood of surviving once-fatal injuries and illnesses, is testimony to the responsiveness of markets. Firms emerge to meet customers' demands for rehabilitation services and adapt what they offer to the changing demands of their customers.[15]

Partial privatization of supply through contracting out can proceed even if Congress is (politically) unable to remove the costly regulations that now govern the way VR agencies do their jobs. Private firms, by nature, would escape a number of requirements that now burden state agencies (for example, civil service protections and pay freezes). There is no reason at this point to believe that the remaining "red tape" would render private suppliers unwilling or unable to compete. Indeed, the Department of Education study cited above reports that the private firms offering placement services to the Arizona program coped "quite well" with the reporting requirements, clients' rights protections, and other constraints imposed on VR agencies, and "appeared anxious to sustain their public sector business" (Berkeley Planning Associates, 1987, p. 136). Red tape simply increases costs and alters output; the more of it, the more like public provision private provision will be.

Given the current configuration of political incentives, contracting out is not likely to be initiated on a significant scale without an active push from the federal government. The states bear only a small share of the full costs (including the increased cost of social security disability insurance, supplemental security income, medicare, and medicaid) when rehabilitation fails. And, under present arrangements, the federal government makes a substantial contribution to state employment and payrolls, creating obvious political/financial disincentives for the states to initiate efficiency-enhancing reforms.

If Congress hopes to achieve any real measure of competition in supply, it is likely to have to either alter the federal-state financial relationship so as to improve incentives (for example, by introducing a performance-based matching formula) or alter the choices states can make. For example, the federal government might require that services be privately supplied on a competitive basis unless the states can demonstrate that they can provide comparable-quality services at a lower price.

Enhancing Individual Choice

A more promising approach for reform, which escapes a number of the problems of contracting out, is to introduce vouchers into the VR program.[16] Eligible people with disabilities would be given vouchers that could be used to purchase medical, vocational, or educational services from public agencies or private firms. (The range of allowable services could be the same as under present law, which is quite broad.) Voucher amounts could be the same for all eligible individuals within a state, based on average expenditures per client under the program, with supplements for more severe impairments.[17] Individuals would be empowered to decide what services they wished to purchase from whom, and they would be free to supplement their vouchers with other public or private monies to buy more or higher quality services. Public VR agencies would be responsible for making basic eligibility decisions—yes/no decisions regarding who gets served—and for counseling individuals on the options available to them. For any other services, the agencies would have to compete with private suppliers on a fee-for-service basis.[18]

The idea behind vouchers is to give people the purchasing power they need to gain access to private-sector rehabilitation and the freedom to choose among competing suppliers; competition among firms attempting to attract new customers would then create—even among the least innovative of public or private firms—incentives to develop innovative rehabilitation programs at minimum cost. Firms unable to attract customers would have to revise their programs, improve their service, and/or develop more effective management, or be taken over by more effective firms. Real economic competition—and real protection for consumers against quality deterioration and cost increases—are more likely to be achieved with a voucher system than with the contracting option.

Under a voucher system, firms would be free to create their own unique "products" and to target only a portion of the market, specializing to the extent they find profitable. It is unlikely that any particular firm would offer all of the services offered by VR agencies to all of the agencies' customers, and yet, together, the firms that comprise the rehabilitation market would tend to meet the demands of this heterogeneous group of new customers. Diversity would be encouraged in a system built on decentralized decision making, competition, and choice (Chubb & Moe, 1990).

Vouchers, it should be noted, would improve the incentives of people with disabilities to become informed about and actively involved in the VR process. At a minimum, their decisions would impact directly on their own livelihoods and future well-being. In addition, under the assumption that vouchers would not be reissued to people without some material change in their circumstances, vouchers would be a new, scarce resource to be conserved or, stated another way, to be used to obtain maximum value. Vouchers create an opportunity cost of buying a particular service regimen from a particular firm—the (possibly better) opportunity that is foregone.

Vouchers are likely to meet opposition from VR counselors and administrators as well as from facilities that can count on a steady flow of business under present arrangement. Surely it will be argued that the VR counselors are the ones with the qualifications necessary to make complex and important decisions regarding service regimen and suppliers. And surely it will be implied, if not stated outright, that customers of VR services are poorly suited to protect their own interests.

Public VR counselors, however, have no monopoly on expertise. Vouchers would permit individuals and families to draw on the expertise of vocational specialists in both the public and private sectors. The marketplace would offer consumers not just a wide array of suppliers but also a wide array of competing sources of information. Maintaining the VR counselor as "gatekeeper" of public monies (e.g., using vouchers only for services authorized by the counselor) would negate a substantial portion of the benefits to be achieved by privatizing supply.

A basic tenet underlying vouchers is that individual consumers—not every single one of them, but in general and on average—have keen incentives to be careful shoppers. This is as true of people with disabilities as it is of "nondisabled" people. While certain individuals pose special considerations, most (including severely mentally retarded people living in the homes of friends or families) do not. Another basic tenet is that competition and freedom of choice provide a type of protection against poor quality and high costs that does not exist with monopoly supply by public agencies. While some minimal regulation of suppliers may be deemed appropriate, the marketplace is an effective mechanism for culling the good from the bad firms.

A voucher system would require new statutory authority and, to achieve maximum benefits, would likely involve a significant restructuring of federal law.[19] For example, the individualized written rehabilitation programs

(IWRPs) are burdensome for VR agencies and offer limited benefits to people with disabilities. Detailed contracts such as these are unseen in private relationships between, say, doctors and patients or between schools and students. It is a second-best approach for protecting the interests of consumers who cannot just "vote with their feet." IWRPs and other detailed procedural requirements would be unnecessary in a competitive system with freedom of choice for consumers. I would foresee only minimal restrictions on the nature of firms that could provide services in exchange for vouchers.

Under the authority of the Rehabilitation Act Amendments (Sec. 802(g) of P.L. 102–569), several small-scale demonstration projects have been funded to "stimulate creative efforts to increase client choice in the rehabilitation process, including choice in selecting . . . providers of services." VR vouchers are a key aspect of the funded projects. The success of these projects in part will depend on their size and scope. (New firms subject to vigorous competition are unlikely to emerge to meet the demands of only a few clients on a short-term basis.) It will also depend on the extent to which people are given meaningful choices. To achieve their full potential, vouchers must be broadly available, and individuals must have discretion over how they are spent; for example, on additional education or on job placement services, not just on the provider of a predetermined set of services. Individual choices must also be constrained; a program that permits individuals to determine the size of their vouchers (e.g., by giving them unilateral control over their rehabilitation goals) would not be financially viable.

Beyond the VR Agency

The two approaches outlined above, contracting out and vouchers, basically take the VR program and the federal-state relationship as given and operate at the margins to enhance competition and individual choice. An altogether different approach is to move toward a system of tax credits or loans for people with disabilities and eliminate the public-agency apparatus altogether.

Under the tax credit option, for example, people with qualified disabilities could be permitted a refundable income tax credit against a portion of allowable expenses on rehabilitation.[20] The range of allowable expenses and the maximum credit amount could be the same as under the voucher system.

This option carries the same basic advantages as vouchers: it empowers people with disabilities to make the choices about rehabilitation that affect their own livelihoods and well-being, and it allows for the competitive supply of services. In addition, however, it eliminates the need for complex and costly evaluations of rehabilitation potential.

An important question that would have to be resolved with a tax credit is how much financial participation to require of people undergoing rehabilitation. With 100% of services reimbursed through a credit, people would tend to overconsume high-quality services; with substantially less than 100% reimbursed, low-income people with severe disabilities would tend to be "priced out of the market," and, more generally, people with disabilities may receive inadequate protection. There is a trade-off between incentives and adequacy.

The same trade-off is confronted in the design of any program that provides protection against an event (in this case, a disability amenable to rehabilitation) that is costly to verify and results in a loss (in this case, the loss of earnings potential) that is costly to verify. The fuller the protection against losses, the weaker the incentives to engage in activities that reduce the risk of incurring the event or the losses that result. The economic problem is to balance the additional benefits of risk sharing against the loss of incentives for efficient risk prevention and loss reduction (Weaver, 1986). There are no easy or obvious solutions to this problem.

It is worth noting, however, that the current VR system does not guarantee services to everyone who might benefit from them nor does it provide all the services any particular individual might benefit from. States establish their own priorities subject to federal law, which they attempt to meet, subject to limited public funding; VR is not an open-ended entitlement.

A criticism that is likely to be leveled against the tax credit option is that it does not target resources on people who "would benefit from VR." Some people eligible for the credit would have returned to work (or gone to work) without the government subsidy, and some who receive the credit will not return to work.[21] This is a fair criticism, but one that can be leveled against the current system as well. As spelled out in a careful study prepared for the Virginia Department of Rehabilitative Services, it is not now possible, based on the data collected by VR agencies, to evaluate whether an individual or group of individuals has benefited from VR (Berkowitz et al., 1988; Dean & Dolan, 1991).

In the case of an individual who "successfully" returns to work, we know two things: what the worker's earnings were in the week before acceptance for VR (generally zero) and what they are in the 60-day period after services cease. We do not know how the worker's post-rehabilitation earnings compare to his or her wage history or earnings potential; we do not know how long the worker maintains his post-rehabilitation position or how this compares to his job-holding experience before rehabilitation; we do not know what other factors may have contributed to return to work (e.g., changed health, other public or private benefits, family income, or local job market conditions); and more generally we do not know how the worker's experience compares with that of other similarly situated people who did not receive services. We know even less about the quarter of a million or so people who are denied services each year, or, among people who are accepted for services, the roughly 40% who subsequently are deemed not to have been successfully rehabilitated (Rehabilitation Services Administration, 1992, pp. 161, 164).

While it is a requirement of the law that people be evaluated to determine whether they would benefit from services, there is no clear evidence of the return on this effort. We simply do not know the net contribution of VR.[22]

Tax credits for employers who hire people with disabilities are another option, attractive because they can be geared directly toward results—getting people into the work force rather than just "work ready." This is the idea behind the Targeted Jobs Tax Credit, which provides a credit against a portion of first-year wages, and it could be extended to on-the-job training costs or the costs of accommodation under the Americans With Disabilities Act.[23] One of the challenges in designing such a credit, however, is limiting the subsidy for expenses that already have been incurred (or would have been incurred) without encouraging employers to "recycle" employees with disabilities—that is, to lay off those already on the job in order to hire new employees that come with a credit. Such a credit, of course, would not address the needs of people who are too disabled to work.

Finally, there is the possibility of creating a federal loan program for rehabilitation expenses within the social security disability insurance program. The idea would be to overcome a potential market problem for low-income people with severe impairments, many of whom are unemployed—the inability to borrow against future earnings' potential. Workers receiving DI could be permitted to borrow against their own future benefits to finance rehabilitation expenses, with the proviso that loans must be repaid in the event that rehabilitation failed to result in return to work. In such cases, loans would be recovered directly through monthly deductions in the individual's continuing cash benefits.[24] If rehabilitation were successful, and the individual returned to work for a minimum period of time, the loans would be forgiven. The ability to recover loan amounts from future benefits would control the temptation of people to spend too much on rehabilitation, thereby controlling the cost of the program, but only if, and to the extent that, the government enforced the repayment requirements. In the event that it did, the savings to the federal government could be significant.[25]

The advantage of this option is that it gives people who want to return to work immediate access to a substantial amount of wealth that presently can be accessed only very gradually over time. It does so without necessitating any changes in the nature of DI or the VR program and thus can be implemented independently of other major reforms. The major (and obvious) drawback is that the government has demonstrated reluctance to enforce repayment provisions and to control default (President's Commission on Privatization, 1988, pp. 41–47). While this is a serious drawback, the advantage of a loan program through DI over traditional loan programs is that the government would actually possess the resources to be repaid.

A loan program for VR expenses should not be thought of as a substitute for reforming the VR program, but rather as a complement. For one thing, since it would operate through the DI program, it would apply only to a segment of the current VR caseload—generally older people with severe disabilities and considerable work experience. In addition, it would require beneficiaries to bear all of the risk associated with the rehabilitation decision, which may not be compatible with efficient decision making.

Reported Costs in the Public and Private Sector

Critics of market-based reforms frequently cite, as evidence of the superiority of the public VR system, studies showing that the cost of rehabilitation services is higher among private, for-profit firms. There are two critical measurement problems, however, that undermine the value of these estimates and preclude drawing any inferences about the relative performance of the public and private sectors.

First, VR agencies do not account for all of their—or the government's—costs of delivering services, nor do they attribute costs to particular services or service providers (Berkowitz et al., 1988; Berkeley Planning Associates, 1987). Measured costs generally exclude (a) the cost of the rehabilitation counselors' time; (b) the imputed cost of benefits that are arranged by the VR agency but financed by another agency; (c) any imputed costs for space or for administration; and (d) any allowance for interest, foregone taxes, or the opportunity cost of finance for the public sector. These additional costs have been estimated to increase the average cost per rehabilitation by as much as 200% (Berkeley Planning Associates, 1987).

Second, no adjustments are made to standardize output for quality attributes. For example, private rehabilitation counselors typically serve fewer clients, which (apart from contributing to better rehabilitation outcomes) allows for more courteous and responsive service and for speedier intervention. Quality attributes such as these, to the extent they are valued in the market, come at a price. Lower costs in the public program may reflect little more than the absence of quality attributes and thus an inferior quality mix.[26]

Even setting aside these service-quality attributes and focusing instead on more objective measures of output—such as successful rehabilitations—we have only the crudest data for comparing the public and private sectors. The data compiled by the VR agencies reflect a narrow focus on "closures": we know how many people were closed into the various job types and at what initial wage. Using this crude measure of output, there is evidence that private firms tend to have higher (possibly significantly higher) return-to-work rates (Berkeley Planning Associates, 1987). Unfortunately, we do not know anything further about the worker's employment or salary profiles after rehabilitation or what they might have been in the absence of rehabilitation. To make meaningful comparisons with private firms, we need considerably more information about the output of public "firms."

To conclude, there may well be higher costs in the private sector owing to differences in service quality and output. However, no study controls for these differences to arrive at statistically valid measures. What we do know is that with competition, the cost of producing any particular output will tend to be minimized. With individual choice, consumers will tend to seek out firms providing the quality-price mix they desire.

Conclusion

In my view, vouchers are the most promising avenue for bringing about real reform of the VR system—improving the quality of services to the nation's disabled at the least additional cost to society. A voucher program would create access and choice for people with disabilities and would bolster competition for suppliers. And it would do so without raising any of the thorny "big" issues, such as who *should* be eligible for VR or what the proper role of the government *should* be in financing VR. While rethinking these issues is important and long overdue, it is not a necessary prerequisite for introducing vouchers and thus achieving the substantial economic benefits that are likely to result.

NOTES

1. Under the criteria used by the Rehabilitation Services Administration, an individual may be deemed "successfully rehabilitated" as a homemaker, an employee in a sheltered workshop, or an unpaid employee in a family business—referred to as "noncompetitive closures"—or if employed in the competitive labor market for 60 days or longer.

   Budget data (includes federal and state spending) supplied by Budget Office, U.S. Department of Education.
2. Some 149,125 people, or roughly 16% of the 937,971 people served by VR, found jobs paying at least minimum wage (Rehabilitation Services Administration, 1992, pp. 158, 299).
3. Under the Rehabilitation Act Amendments of 1992 (Sec. 721 (a) (27) and Sec. 797 (a) (g), *U.S. Code Annotated Supplementary Pamphlet* (1993), Title 29), each state's plan for VR services must include a statement of how "individuals with disabilities will be given choice and increased control in determining their VR goals and objectives." As discussed below, the amendments also authorize the RSA to fund demonstration projects by public or nonprofit private organizations to "increase client choice in the rehabilitation process, including the selection of providers of VR services."
4. The purpose of the VR program, as spelled out in the law, is to assist people with disabilities "prepare for and engage in gainful employment." VR services are defined as "any goods or services necessary to render the individual with a disability employable." See *U.S. Code Annotated Supplementary Pamphlet* (1993), Title 29, Secs. 720 (a) and 723. Loosely speaking, VR involves a "combination of diagnosis, restorative medical treatment, education, job training, placement and counseling" (Berkowitz et al. 1988, pp. vi–2). On funding, see 34 CFR Sec. 361.86.
5. This is not to suggest that clients should, under present arrangements, be given control over their rehabilitation plans. This would put clients in the position of deciding how much and what kind of rehabilitation they wanted at zero price, giving them strong incentives to demand too much high-quality rehabilitation.
6. The private rehabilitation industry, which was almost nonexistent in 1970, now provides services on a scale comparable to the public system. This growth has been spurred by a number of factors, chief among them the trend in state workers' compensation laws toward mandatory rehabilitation, the increased likelihood, due to improvements in medicine and medical technology, of surviving once-fatal illnesses and injuries, and generally increased life expectancies. (Roughly 80% of the services of private, for-profit rehabilitation firms are provided to industrially injured workers covered by workers' compensation.) For an informative study of the nature and growth of the private rehabilitation industry, see Berkeley Planning Associates (1987). See also Schwartz and Carbine (1987).

   Rehabilitation providers include rehabilitation firms, insurers and self-insured employers (some of whom supply rehabilitation services in-house), and schools and hospitals.

7. For a fuller discussion of the information problems surrounding disability and its implications for public and private supply, see Weaver (1986).
8. For an analysis of the tendency toward, and adverse effects of, standardization and bureaucratization in public supply in the closely related area of education, see Chubb and Moe (1990).
9. VR funds are allocated to the states based on population and per capita income. See *U.S. Code Annotated Supplementary Pamphlet* (1993), Title 29, Secs. 720, 721, and 730.
10. A "26 closure" is a successful rehabilitation, using the criteria of RSA. Under the law, states operate under an "order of selection" in which people with severe disabilities must be given priority.
11. For a careful discussion of the trade-off between imperfect markets and imperfect regulation, and the potential benefits of the government providing information rather than regulation, see Pauly (1988).
12. This is an apt characterization of privatization proposals attributable to Bruce K. Maclaury in his foreword to Chubb and Moe (1990, p. ix).
13. The federal government already contracts with private rehabilitation vendors for services for federal employees who are workers' compensation claimants. See Schwartz and Carbine (1987).

    The Social Security Administration has an ongoing demonstration project, known as Project NetWork, in which it is contracting directly with public and private organizations for rehabilitative services for DI and SSI-disability beneficiaries rather than simply referring these people to state VR agencies. Historically, SSA has made referrals without any follow-up on who received services and to what extent. See Rupp, Bell, and McManus (in press) and Disability Advisory Council (1988).

    On the economic problems with and prospects for contracting out, see Demsetz (1968), Goldberg (1976), Hazlett (1985), Williamson (1976), and Kelman (1990).
14. Ideally, the responsibility for making basic yes-no eligibility decisions would lie with the same organization handling case management, allowing that organization to utilize its expertise regarding the effectiveness of rehabilitation approaches in deciding who is served (subject to federal requirements regarding order of selection). However, there would still be gains to be achieved if the states retained responsibility for eligibility decisions.
15. To date, the private rehabilitation industry has been driven largely by developments in workers' compensation, responding to the demands of insurers and others carrying out the terms of state laws. As a result, the rehabilitation product now observed need not be the same as the one that would emerge from private market demands alone (for example, by individual customers, employers, and providers of temporary or long-term disability insurance) or from a new government-induced demand (resulting, for example, from a privatized VR system).
16. As discussed below, under the Rehabilitation Act Amendments of 1992, several client choice demonstration projects have been funded that include elements of vouchers. It is unclear how voucher amounts will be estab-

lished under these programs or how much freedom individuals will have to spend their vouchers on the services of their choice.

Voucher-type programs are familiar from the area of education. The GI Bill of Rights, for example, provided payments to GIs attending accredited colleges, universities, or vocational schools, and the National Defense Education Fellowships program, enacted in the 1950s, provided support for graduate students interested in teaching careers. Over the years, vouchers have been proposed for a wide range of public activities, including education, medicare, long-term health care, and housing assistance. For an influential statement of the benefits of vouchers in public education, see Friedman and Friedman (1980). See also Reason Foundation (1993) and *Economic Report of the President* (1989, pp. 212–214).

17. Designing a payment schedule that varied with the severity of disability would be an imprecise task. There is little reason to believe that such a payment schedule, however imperfect, would be inferior to the current system in which wealth transfers are effected on a largely ad hoc basis.
18. Several states have experience with fee-for-service units for workers' compensation clients. For an evaluation of one such unit, in Michigan, see Berkeley Planning Associates (1987).
19. The client choice demonstration projects authorized under the Rehabilitation Act Amendments of 1992 escape this problem because they are not under Title I and thus are not subject to all of the detailed requirements that apply to state VR agencies. 34 CFR 377, *Federal Register,* 58, no. 144, July 29, 1993, pp. 40706–712.
20. Such a credit could be structured as part of the earned income tax credit, which provides a refundable tax credit against earnings for low income people with children. Under the EITC, as liberalized in the 1993 budget act, the credit is 30% (rising to 40% in 1996) of the first $8,425 in earnings. For workers with just one child, the credit is 26.3% (rising to 34% in 1995) of the first $7,750 in earnings. Workers without children are eligible for a credit of 7.65% of the first $4,000 of earnings. There is also a tax credit for the cost of health insurance coverage of up to 5.5% of earned income (subject to the maximum creditable earnings limits for the EITC).

    For a summary of these provisions, see Omnibus Budget Reconciliation Act of 1993, *Congressional Record* (August 4, 1993), H5928.
21. The credit could be made available only upon a showing of results (e.g., a job within a certain period of time). This would improve individuals' incentives to make careful assessments of the likelihood that their investments in rehabilitation will pay off, but it could shift too much risk to the individual, resulting in too little investment in rehabilitation.

    Of course, limiting the tax credit to people who actually return to work would significantly narrow the range of people receiving the subsidy, since outcomes other than work (such as homemaking or independent living) would be difficult, if not impossible, to accommodate.

    Likewise, eligibility could be based on criteria more directly linked to work disability, such as degree of wage loss (for people who have work experience), but this would likely increase the complexity and the subjectivity of the program.

22. See Dean and Dolan (1991) for a discussion of how reasonably sophisticated analyses of the effectiveness of VR can be conducted for particular states if those states collect more data than required by the federal government and if this data is cross-matched with data from state employment agencies.

23. Under the TJTC, employers are eligible for a tax credit against a portion of the first-year wages of employees with disabilities (and other targeted groups). The credit is equal to 40% of the first $6,000 in wages. See Omnibus Budget Reconciliation Act of 1990, *Congressional Record* (October 26, 1990), H12732-33 and H12740.

    In addition, there are two other pertinent tax provisions. Under Section 190 of the Internal Revenue Code, firms are allowed to deduct up to $15,000 of the cost of removing certain architectural and transportation barriers. Under Section 44, eligible small businesses are permitted a credit equal to 50% of accommodation costs (up to $10,000) arising from compliance with the ADA. See Internal Revenue Code, 26 *U.S. Code Annotated Supplemental Pamphlet* (1993), Sec. 44, 190.

24. DI benefits are large relative to VR expenses. The average benefit for a worker (and spouse) with average earnings disabled at age 50 in 1993 is on the order of $14,000 anually, an amount that is cost-of-living adjusted and typically paid until death or retirement. The Rehabilitation Services Administration estimates (conservatively) that the cost of VR services per rehabilitated client is about $2,300. (Unfortunately, as discussed further below, this underestimates the real cost of services; a more realistic figure might be two or three times this estimate.) The government would have the discretion to stretch monthly deductions to accommodate the financial situations of needy people.

    For data, see Committee on Ways and Means (1993, p. 50), Rehabilitation Services Administration (1992, p. 38), and Berkeley Planning Associates (1987, p. 136).

25. In fact, the government could not only waive repayment but also provide bonuses for people who successfully return to work. To see this, consider the benefits that an age-35 beneficiary, together with any dependents, is likely to receive from DI before retirement (or death): $80,000, in present value terms, according to Social Security Administration estimates. (The figure rises to $115,000 if medicare is included.) Evidently, fairly significant bonuses could be financed even if the beneficiary's return to work was not permanent. For benefit estimates as of 1986, see Social Security Administration (1986).

26. See Lindsay (1976) for an excellent discussion of this issue with an application to VA hospitals.

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CAROLYN L. WEAVER *is a resident scholar and director of Social Security and Pension Studies at the American Enterprise Institute in Washington, DC. She is the editor of* Disability and Work: Incentives, Rights, and Opportunities *and the author of numerous articles on social security and disability policy. Dr. Weaver has served on several public advisory councils, including the 1987 Disability Advisory Council, and has testified frequently on Capitol Hill on social security and disability policy. She is presently a member of the National Academy of Social Insurance advisory panel on Rethinking Federal Disability Policy.*

Before joining AEI, Dr. Weaver was a Senior Research Fellow at the Hoover Institution. She has also been a member of the economics faculties of Tulane University and Virginia Tech, where she received her PhD and subsequently was a research associate of the Center for Study of Public Choice. From 1981 to 1984, Dr. Weaver served as the chief professional staff member on social security and disability legislation for the U.S. Senate Committee on Finance.

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Reprints of this article may be obtained by contacting Carolyn L. Weaver, Director, Social Security and Pension Studies, American Enterprise Institute for Public Policy Research, 1150 Seventeenth Street, NW, Washington, DC 20036.

Multiattribute Evaluation of Program Alternatives Within Special Education

Darrell R. Lewis
David R. Johnson
Ronald N. Erickson
Robert H. Bruininks
University of Minnesota

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ABSTRACT

This paper reports on the use of multiattribute evaluation techniques for assisting policy and program decision makers in special education in determining program effectiveness and efficiency. Illustrative procedures and techniques are drawn from a case study on the costs, outcomes, and cost-utility of special education programs that serve students with substantial disabilities across three alternative Minnesota administrative structures (i.e., an independent school district, an intermediate school district, and a special education cooperative). Several recommendations are made with regard to the utility of the methodology for both policy and administrative decision makers.

Today the accountability of public education is being challenged by political and business leaders as well as by the general public. The excellence in education movements of the 1980s (e.g., National Commission on Excellence in Education [NCEE], 1983; Carnegie Corporation, 1989) have created increased emphasis within public education on *what* is learned and the resulting *outcomes* for students. Special education is not insulated from these broader policy interests, since it must pursue its own struggle to define *what* it does and the *program outcomes* it achieves for children and youth with disabilities.

The current thrust of research and evaluation studies within special education is to investigate program outcomes from a narrow, often singular perspective such as academic achievement, post-school earnings, or adaptive skills learned in a particular curriculum framework. Rarely, if ever, are these outcomes linked into an integrated, systemic perspective that emphasizes the full range of educational outcomes for students with disabilities. This situation has not only hampered efforts to better understand special education's "effectiveness" in achieving its goals, but also has prevented efforts to link these multiple program outcomes to costs in the efficient use of resources.

The limited focus upon assessing outcomes has paralleled the limited attention directed at evaluating the efficiency of special education programs. This issue is gaining attention in policy and administrative discussions at local, state, and national levels as the costs of special education increase beyond the rate of those in general education. Linking costs to outcomes continues to receive emphasis in discussions on the evaluation and direction of educational policy. As evaluation methodology advances, program alternatives sharing common goals can be compared according to their relative costs and outcomes. Those alternatives with the lowest cost-effectiveness ratios (i.e., cost per unit of effectiveness) would be considered to be the most promising with respect to the use of an agency's or society's resources. Educational programs for students with disabilities, however, can rarely be judged by a single standard. When the evaluation context is one in which multiple goals and outcomes must be considered, the challenge to the evaluator is how to convert these multiple outcomes into a single index that can be compared among alternative strategies. Deriving appropriate indices against which the cost-effectiveness of special education can be evaluated is highly challenging, but feasible with recent advances in evaluation methods.

Evaluating the outcomes of special education is complicated both by changes in philosophy and in practice. The movement toward "inclusive" educational approaches, for example, has resulted in mounting pressures to serve students with disabilities in more normalized educational programs (i.e., neighborhood schools, regular classrooms, and community settings). These major changes in the delivery of special education services include downscaling or eliminating large segregated school facilities, increasing the placement of students with severe disabilities in regular education classrooms, and shifting from serving students with moderate to severe disabilities in large intermediate school districts to serving these students in their home school districts, often through shared multidistrict resources. What remains problematic as these changes in service delivery practices occur is the absence of accurate data on the costs and outcomes from which the effectiveness and efficiency of these organizational changes can be evaluated.

There is a critical need to address these problems and improve the information base on which special education policies and goals are predicated and, ultimately, evaluated. This paper reports on a process by which the multiple outcomes of special education programs can be determined. We argue that any comprehensive evaluation of program effectiveness within special education must be sensitive not only to capture objectively verifiable outcome measures of effectiveness, but also qualitative indicators that professionals, parents, and students themselves value as important outcomes from special education. This necessitates adopting evaluation and measurement methodologies that are sensitive to both objective and subjective dimensions of the effectiveness of special education outcomes. Using *multiattribute utility evaluation* procedures can serve to provide important indices of special education's effectiveness.

Accordingly, this paper focuses upon the methodology and procedures necessary to implement such an evaluation. Context and illustrative data are taken from a recent study by the authors that employed a multiattribute evaluation design (Lewis, Johnson, Erickson, & Bruininks, 1992). In the illustrative case study, the purpose of the evaluation was to compare the program costs and outcomes of providing special education to youth with moderate to severe mental disabilities under three different administrative structures employed in Minnesota. The focus was on estimating the relative effectiveness and efficiency of the three alternative service models.

Multiattribute Evaluation Techniques

Multiattribute utility (MAU) analysis has been employed within the management sciences for a number of years as a means of structuring group decision making (Carroll & Johnson, 1990; Keeney & Raiffa, 1976; Poole & DeSanctis, 1990) and evaluating program alternatives (Edwards & Newman, 1982). It has had extensive use in the private sector, and some recent use in assessing social programs, especially in the fields of public health (Kaplan, Atkins, & Wilson, 1988) and in the criminal justice system (Edwards, 1980). However, only recently has such an evaluation model been proposed for use in making group decisions about program alternatives in the field of education (Levin, 1983; Lewis, 1989).

As an evaluation and group decision-making model, MAU analysis is especially appropriate for assisting decision makers in special education. The multidimensional nature of goals and the multiple number of stakeholders involved in special education require the unique methods and procedures of MAU analysis. Edwards, Guttentag, and Snapper (1975) have noted that MAU evaluation methods and procedures are most appropriately used in settings where (a) the evaluations are comparative; (b) programs normally serve multiple constituencies; (c) programs normally have multiple goals, not all equally important; (d) judgments are a required part of the evaluation; (e) judgments of magnitude can be assisted by numerical measurement; and (f) the evaluation is relevant to decisions. All of these characteristics are commonly found in special education when decision makers need to identify meaningful program outcomes and make choices between alternative programs. At a minimum, it requires a comparison among two or more alternatives against two or more criteria.

MAU methods and procedures structure the decision-making process for a group of stakeholders as they identify attributes and outcomes for measuring program effectiveness, weigh the importance of these indicators, and rank the alternatives. In this model, criteria are defined as those dimensions or objectives of an effective program, with attributes defined as the measurable dimensions of the criteria. After importance weights are attached to each of the criteria and attributes, measured dimensions of each attribute are then assigned utility values for varying degrees of performance. Based on the measured performance of each attribute (either through actual measured performance or judgments about performance) within each alternative, utility scores are then computed and attached to each of the attributes. These attribute values are then multiplied by their importance weights and summed to derive a composite score for each alternative. If cost data are available, and if it was not one of the criteria or attributes in the evaluation model, cost per unit of utility can be estimated for determining the relative cost-effectiveness or cost-utility (i.e., "internal technical efficiency") of each alternative.

The unique quality of the MAU evaluation model is its ability to structure the decisions of multiple stakeholders and derive a weighted "utility" index for comparison purposes. The term "utility" is used to measure the extent to which an alternative satisfies an attribute or criterion. It is simply a way of expressing worth, psychological value, or satisfaction in a common numerical metric. This advantage allows full participation of multiple stakeholders and the use and aggregation of different outcomes, with varying numerical qualities (e.g., nominal, ordinal, or interval) into an overall evaluation framework. The MAU model permits an evaluator to aggregate the utility or satisfaction derived from each of the various attributes into a single measure of the overall utility of each of the alternatives being compared.

MAU procedures may appear complex when viewed simultaneously; however, when broken down into a step-by-step process the task is straightforward. There are eight steps in the process:

(1) Identifying the purpose and objects of evaluation.

(2) Identifying relevant stakeholders to assist in making judgments about the criteria and attributes and their importance.

(3) Identifying and organizing the educational criteria and attributes into a meaningful structure for analysis.

(4) Assigning importance weights to the criteria and attributes through stakeholder judgments.

(5) Assigning utility values to the measurement scales for each attribute.

(6) Collecting measurable performance data on each of the attributes for each of the alternatives being evaluated.

(7) Conducting the MAU technical analysis by aggregating the

attribute performance measures with their measures of utility and importance for each of the alternatives.

(8) Adding costs for estimating cost-utility ratios and relative efficiency.

Each of these steps is described and illustrated in the following sections.

Identifying the Purpose and Objects of the Evaluation

The first step in any evaluation is to identify the objects and purpose of the evaluation. It should be clear that in order to have an evaluation one must have comparisons, and normally there are several alternatives from which to choose. If the purpose of the evaluation is to assist decision makers to make decisions or to select from among alternatives, then the objects of evaluation should be clearly identified.

The use of MAU as an evaluation technique in special education can be applied to many different purposes and objects. One can use MAU evaluation to compare any number of different curriculum emphases or programs in special education if each of the alternatives has similar goals. One can compare, for example, the use of technology or computer-assisted instruction with teacher-based instruction, or the use of segregated course work with more mainstreamed instruction, or the use of vocationally focused curricula with instruction focused on academic skills.

Recent concerns among some school districts and several state education agencies have focused on the effectiveness and costs of alternative service-delivery arrangements in special education. The case study reported in this paper was based on the interest of several districts and the Minnesota Department of Education to evaluate the costs and outcomes of alternative special education service-delivery models for students with moderate to severe disabilities. The policy question of concern was whether constituent districts were "getting their money's worth" from purchasing services from a regional intermediate or cooperative district, or could they do just as well or better by offering all of the needed services from within their own district. Accordingly, the case study selected for illustrating the use of MAU in special education for this paper focuses on the evaluation question: Which of three alternative service-delivery models is most cost-effective in the delivery of special education to students with moderate to severe mental disabilities?

Selection of program alternatives. In Minnesota, there are several administrative structures from which special education services may be obtained. The three administrative structures examined in the case study of this paper were an independent school district (representing school districts of sufficient size to offer special education services to all students residing within their geographic boundries), an intermediate school district (representing consortia of typically suburban districts in jointly offering services for students primarily with low-incidence handicapping conditions), and a joint powers special education cooperative (representing cooperative groups of small- to medium-size independent school districts in the shared delivery of special education). Special education students, especially those with moderate to severe disabilities, many times receive multiple educational and related services through either the intermediate or cooperative district and their home district during the same day or week.

The selection of school districts and units to represent the three service-delivery models in our case study, as in most other MAU studies, was not based on any random sampling procedure. Rather, the intermediate district, multidistrict cooperative unit, and independent school district alternatives were chosen simply because each of these alternative delivery systems was available for use as an alternative by an independent district. A project advisory committee of representatives from several school districts and the state education agency selected the purposive sample of school districts for the case study. School districts were selected to represent the three service-delivery models for the study based on particular organizational, regional, and demographic characteristics. Because both the intermediate district and cooperative unit provided their services conjunctively with their constituent independent districts, it was essential that the programs of the intermediate and cooperative be examined together with the programs of representative constituent independent districts in order to make valid comparisons. Thus, our sample of districts in the present case included (a) one full-service independent district; (b) an intermediate school district plus one of its constituent local districts; and (c) a multidistrict special education cooperative unit plus one of its collaborating school districts. The sample design and the districts selected for comparison are illustrated in Table 1.

TABLE 1
SAMPLE DESIGN OF MODELS AND DISTRICTS
SELECTED FOR COMPARISON

Service Delivery Models:	*Independent*	*Intermediate*	*Cooperative*
Selected Model Districts:	Urban	Intermediate	Cooperative
Selected Constituent Districts:		Suburban	Rural

Selection of program area. For purposes of the study and evaluation procedures, it was necessary to select a representative program area for comparison across the three alternative administrative models from among 15 different site-based and itinerant special education programs currently in place across the sample districts. This decision was made by the project advisory committee. The program area selected provides special education services for secondary-age students with moderate to severe mental retardation. This specific program area was chosen for several reasons. It was a special education program with common objectives in all of the sampled districts; it was a program area with sufficient numbers of students in all districts to permit meaningful analysis; and it was a priority area of concern for the project advisory committee and the state education agency.

Identifying the Stakeholders

The term "stakeholder" in this type of evaluation refers to those individuals or groups who are interested in the results of the evaluation, either because they are directly affected by the results or because they make decisions about the program. In the delivery of special education services for students with disabilities there are many individuals and groups with a stake in the design, operation, and outcomes of existing programs. In this study our task was to identify representative stakeholders from among all those with a stake in the evaluation outcome. The key was to ensure that stakeholders selected were representative and credible.

Several of the most critical decisions faced in using a multiattribute evaluation design involve the role played by stakeholders in making judgments about program criteria and their related attributes, along with their respective importance, in the evaluation. Research has shown that for purposes of facilitating effective group decision making the maximum size of such stakeholder groups should normally not exceed 8 to 12 members (Delbecq, Van De Ven, & Gustafson, 1974). In our illustrative study, a total of 10 stakeholders were selected by the project advisory committee to participate in the evaluation process. The stakeholder group included administrative, teacher, parent, and community adult service-provider representatives from the intermediate, independent, and cooperative school districts. The selection of stakeholders was assisted by the solicitation of nominations from each of the five districts. Because special education continues to merge its identity with that of regular education, both regular and special education administrators, teachers, and parents were involved in the stakeholder group. The composition of the stakeholder group is identified in Table 2.

TABLE 2
SELECTION OF STAKEHOLDERS

	Model Districts		
	Intermediate and Suburban	*Independent Urban*	*Cooperative and Rural*
Participants and Consumers:			
Teachers of students in TMH program		1	1
Teachers of regular education	1		
District/school administrators	1	1	
Parents of student in TMH program	1	1	
Adult service agency	1		1
Parents of student in regular education			1
Total stakeholders selected:	4	3	3

Identifying Appropriate Criteria and Attributes

The third task of the evaluator is to solicit from stakeholders the relevant criteria and attributes for the evaluation and organize them into a hierarchical structure. For our purposes here, criteria refer to the main goals or main dimensions by which the effectiveness of the program is to be judged. An attribute is simply an observable (and measurable) characteristic or property of an alternative that allows one to assess the extent to which the alternative satisfies a criterion. Attributes give measurable scale to criteria. Stakeholders are the primary source of all criteria and attributes.

To undertake this task, the key stakeholders should be brought together and asked to identify the main criteria against which the effectiveness of the program should be judged. Criteria to be selected obviously should be pertinent to the particular program under review. At this stage the evaluator is not worried about the measurable nature of the criteria and is not initially concerned about the number of items on the list; although an attempt should be made to standardize and consolidate the identification of these criteria to eliminate redundancy. The evaluator is also not concerned at this stage as to whether the response is more appropriately an attribute measure rather than a broader criterion.

The identification of criteria should include the examination of any explicitly stated goal or objective of the target program, as well as others assumed to be relevant in the determination of the program's ability to effect quality educational outcomes for the students being served. It is assumed that such solicitation of responses will result in a relatively large list of different attributes that will require careful rephrasing and consolidation into a few broad categories. Each of these broad categories should be developed and identified as main criteria, with accompanying subcategories identified as attributes. When an item appears to be a measurable dimension of a criterion it should be identified as an attribute and placed on a sublist for each of the criteria.

In most MAU evaluations, when attempting to develop at least a two-level set of criteria and attributes, the evaluation model becomes overly burdensome for data processing and analysis if the number of criteria exceed more than four or five dimensions. It has also been found (Keeney, 1977) that the added precision that might result from added criteria almost always makes no difference in the final decision results.

After a master list of criteria has been identified, the further identification of attributes is generally a straightforward task. For some criteria there may be only one attribute that is obvious and encompassing of a single criterion. On the other hand, in those cases where we can identify two or more attributes that relate to a particular criterion, we must determine whether the attributes are related or unrelated. If they are closely related, we should choose only one; that is, the one that best measures the degree to which the criterion is satisfied, or the one about which it is easiest to obtain the data. If the attributes are relatively unrelated, then we should attempt to get the group to choose the two to five most relevant ones. Generally, one should attempt to avoid using more than four or five attributes for each of the criteria because it tends to make the evaluation process more complex than is normally necessary. After the group is satisfied that it has adequately identified all the appropriate criteria and attributes necessary for the evaluation, the evaluator should convert the outline into a taxonomical framework for the future assignment of importance weights. Such an outline displaying a two-level set of criteria and attributes for our case study of programs in special education is illustrated in Table 3.

Our illustration in Table 3, indicates that the stakeholder group has identified four main criteria for assessing the effectiveness of our target program. These four dimensions or criteria are conventionally labeled as A, B, C, and D; while the subcategories or attributes are labeled as AA, AB, AC, and so forth. The illustration in Table 3 is commonly identified as a two-level attribute tree. Although most MAU-type evaluations generally do not require more than two levels, some MAU evaluations may require additional levels of disaggregation (e.g., AAA, AAB, ABA, ABB, etc.). Formally, only the attributes at the bottom of the taxonomy are the

TABLE 3
CRITERIA AND ATTRIBUTES WITH ASSIGNED IMPORTANCE WEIGHTS

		Proportion Weights			*Weighted Importance*
A		0.25		*Student Participation in School Life*	
	AA		0.37	Students have access to educational/social experiences	0.09
	AB		0.27	Students participate in extracurricular/social activities	0.07
	AC		0.36	Students participate in mainstream programming	0.09
B		0.19		*Satisfaction With Program*	
	BA		0.25	Parents express satisfaction	0.05
	BB		0.28	Students express satisfaction	0.05
	BC		0.23	Teachers and administrators express satisfaction	0.04
	BD		0.25	Public expresses satisfaction	0.05
C		0.29		*Accomplishments of Program*	
	CA		0.22	School completers demonstrate appropriate social behaviors	0.06
	CB		0.21	School completers live in independent/semi-independent settings	0.06
	CC		0.19	School completers have social and recreational networks	0.06
	CD		0.22	School completers participate in meaningful vocational settings	0.06
	CE		0.15	Students complete all years of offered schooling	0.04
D		0.27		*Process of Program*	
	DA		0.36	Program provides appropriate curriculum components	0.10
	DB		0.31	Program provides training and support for parents	0.08
	DC		0.32	Program provides appropriate staff supports	0.09
				Total	1.00

essential dimensions for evaluation; although the groupings of categories (e.g., criteria), as we will illustrate later, are important elements in the analysis. Such a structure affords the opportunity to display the attributes in an orderly fashion and serves valuable purposes in organizing data during later stages of the MAU evaluation. It also assists in validating the procedure through the provision of an audit trail on the entire analysis.

Checklist of key elements. It is at this stage that the evaluator and group facilitator must have clearly in mind several important key elements which the evaluation is intended to address. The nature and form of data collection for measuring the attributes is clearly dependent upon the purposes of the evaluation, the resources available, and the timelines for completing the evaluation. As the facilitator and stakeholders are organizing the list of criteria and attributes for assessing the effectiveness of a particular special education program, it is useful to refer to several critical assumptions concerning the use of this evaluation technique in special education.

First, the goals of special education, as expressed in both federal and state legislation and local district policy, must be addressed in the criteria and attributes selected. The criteria and attributes in special education must, for example, address parent participation and the fact that schooling must occur in a least-restrictive environment. Moreover, both criteria and attributes must be unbiased with respect to gender, culture, race, and socioeconomic status.

Second, the criteria must be specific to the evaluation context and question being addressed. Do the criteria, for example, truly answer the question being addressed? As the program under evaluation might change, so also might several of the criteria change. The important point here is that no major dimension of concern specific to the choice decision be left out of the initial list.

Third, the attributes selected for the measurement of criteria should be routinely available or easily retrievable in the schools under study. The usefulness and replication of this evaluation technique in other school districts or for other choice decisions in special education rests upon this critical premise. Most school districts perceive that they have neither time nor resources to develop detailed instrumentation and collect outcome information for most choice decisions. When the empirical measurement of in-school or post-school outcomes is not feasible, then informed judgments about effects are satisfactory for this type of evaluation. Many researchers accustomed to using experimental and quasi-experimental design techniques in the collection of such information may be uncomfortable with this use of judgment in place of, for example, cognitive gain scores. But when experimental or other hard data are not available, except at considerable cost in resources and time, judgments about perceived or expected outcomes can be effectively employed as substitutes in a MAU program evaluation.

Finally, the attributes of the criteria should be sufficient to give measurable dimensions of the criteria but need not be exhaustive. Typically, an initial discussion of attributes might elicit a list with 30 to 40 descriptors, but such a list can and should be pared down to a manageable number and consolidated within the context of four to five criteria. The goal is to enlist stakeholder concurrence in keeping the list of attributes reasonably short.

Cost considerations. An obvious missing attribute from our list is cost. One possibility is to treat cost as another major criteria or attribute in our list. This is often done for quick and simple evaluations, especially when the costs are not clearly known and represent only ranges of estimates. In such cases, one would give a best estimate about the likely range of costs for each of the alternatives within the choice decision and include it in the analysis just like any other criteria or attribute.

However, we recommend that costs in special education be considered independent of the other attributes for several reasons. First, some evaluations in special education may not involve cost in any significant way, and we want to illustrate the MAU evaluation technique independent of cost considerations. Second, in the use of MAU evaluation techniques it is generally considered that the kind of judgment required to trade off cost against "utility points" is the least secure and most uncomfortable to make of all those that go into MAU (Edwards & Newman, 1982, p. 20). Often, the early weighting of costs and the early conversion of money or cost-savings into utility terms tends to lead to underassessment of the importance of nonfinancial consequences. When costs are considered a major element in the decision process, and when cost estimates are reasonably reliable, it is generally considered appropriate to use them only at the end of the MAU analysis as an independent denominator for estimating the relative cost-effectiveness and efficiency of the alternatives.

Assigning Importance Weights

After both criteria and attributes have been identified and structured into an outline similar to the one found within Table 3, the next step is to assign importance weights to both criteria and attributes. Not all of the criteria and attributes identified by stakeholders are likely to be considered equally important; although this scenario would pose no threat to the overall evaluation. Most often, there are those attributes to any educational program that are considered more critical to the program's quality and effectiveness than others. These differences in comparative value may also vary greatly from one individual stakeholder to another. "Weighting" these variables is one way in which these comparative values can be analyzed.

Although there are several different procedures for ranking criteria and assigning importance weights, the one most conventionally used is to assign each criterion with a value of relative importance on a scale of 0 to 100 and then to convert these values into proportion weights. This procedure is relatively easy to implement. A useful way to begin is to have the stakeholders first rank each of the criteria in terms of their relative importance. Then each stakeholder should assign a value of 100 to the most important criterion. Next stakeholders should assign a value between 0 and 100 to each of the remaining criteria that reflect their importance relative to the most important criterion. After these importance weights have been established for each of the criteria, the same ranking procedure and assignment of importance weights should be undertaken by each stakeholder with respect to each set of attributes identified within each of the criteria.

This simple method offers some important advantages to other possible systems of weighting. One of the primary advantages is that it provides for the independent assessment of each individual criteria. Such freedom is not provided, for instance, in situations where the stakeholders may be forced to divide 100 points of importance among the differing criteria. This method of scoring importance weights also has the advantage that it is simple; it is easy to understand and use. This method also has the advantage of allowing for equal importance weights to be placed on the entire criteria set. If any stakeholder should judge that all of the individual attributes for one of the criteria have equal importance, this should present no problem because the individual can simply assign 100 points to each of the items.

Following this assignment of individual importance weights, the analyst should then convert the average scores of these weights into "proportion weights" by simply dividing each of the importance weights by the sum of the total values for the set of criteria or set of attributes. Table 4 illustrates this procedure for determining the proportion weights of the set of criteria from average values reported by the stakeholder group in our case study. Note, for example, that the average importance weight for criterion A (derived from the stakeholder group) has been determined to be 81 and that this represents 25% of the total importance weights for all criteria (i.e., 324). By definition, the total of all proportion weights for any set of criteria or set of attributes will equal 1.00.

TABLE 4
IMPORTANCE WEIGHTS FOR CRITERIA

Criteria	*Importance Weights*	*Proportion Weights*
A. Participation in School Life	81	(81/324 =) 0.25
B. Satisfaction With Program	62	(62/324 =) 0.19
C. Accomplishments of Program	94	(94/324 =) 0.29
D. Process of Program	87	(87/324 =) 0.27
Totals:	324	1.00

As each set of criteria and attributes are reviewed, the results of the individual rankings should be presented to the entire stakeholder group for further discussion. If any of the criteria or attributes evidence large variability in responses from stakeholders, another individual ranking exercise should be conducted for the set under review. It is anticipated that by doing this, the individual variability of rankings will be minimized through a group process of consensus building. The individual results of this second weighting should again be totaled and averaged to determine the final weights for the main criteria categories and attribute subcategories of the taxonomical outline.

Although a common set of averaged weights (where each stakeholder has given similar weights to each criteria and attribute) with limited individual variability is the desired objective, this may not always be possible. In general, averaging is a useful technique when consensus is desired for the final valuing product. However, consensus (or near consensus with limited variability in individual responses) is not always possible. When individuals or groups of stakeholders disagree on importance weights, it is usually a good idea to discuss the disagreement and attempt to resolve whatever the issue might be. On the other hand, when such disagreement is fundamental, it is best to save both sets of weights for later analysis. Fundamental differences in importance weights can be either treated as a separate evaluation or they can be addressed with subsequent sensitivity analysis. In sensitivity analysis with MAU models, where the alternative weights are placed into a separate analysis, the literature indicates (see Edwards & Newman, 1982; Huber, 1980) that the final results are often insensitive to whichever set of weights are used. Nevertheless, it is essential that such separate treatment of material differences in opinions be preserved in order to test for possible important differences in the final results and to ensure the face validity and integrity of the process with the stakeholder groups.

An alternative approach suggested by Newman and Edwards (1982) is for the groups to essentially negotiate among themselves to arrive at an agreed-upon set of weights. They correctly note that models using such negotiated weights are essentially political models of negotiated policy positions, jointly formulated by multiple groups or individuals. Just as political and social policies are the result of group consensus, MAU models that reflect policy positions also result from group consensus—in this case, regarding the appropriate weights to use.

There are several other techniques for establishing rank ordering and weighting of listed items, including rank sum weighting and rank reciprocal weighting; however, all rank weighting methods in MAU analyses are at best approximations. Our ranking procedure is recommended largely on the bases of its simplicity and ease in use. For the reader interested in reviewing these other ranking techniques, an excellent source can be found in Van Winterfeldt and Edwards (1986).

In Table 3, presented earlier, the importance weights for both criteria and attributes have been identified. In viewing Table 3, the reader should note that the numbers in the taxonomical outline are "proportion weights" for each of the criteria and attributes, and that they sum to one for all the criteria and for each subset of attributes. This is a conventional way of displaying the weights and in organizing for their subsequent use. In this procedure the final weights have been "normalized" (i.e., will sum to one), and assign to the most important and least important criteria and attributes, the largest and smallest weighted numerical values, respectively.

The final weighted importance values for each of the individual attributes can now be calculated by a process defined as multiplying through the outline. The reader should note from Table 3, for example, that when attribute AA is multiplied through the outline it has a weighted importance value of 0.09. That is, when attribute AA's proportion weight of 0.37 is multiplied by its criterion (A) weight of 0.25, the product totals 0.09. It is this latter value which will be used in the technical analysis part of the evaluation when "weighted" utility values are estimated for each of the attributes found within each of the program alternatives.

Assigning Utility Values to Attributes

The next task is to assign utility values to each of our individual attributes through the construction of transformation graphs or utility functions. The transformation of measurable attributes to utility values is a straightforward procedure which can be explained either graphically or mathematically. Consider our case study of evaluating alternative delivery systems in special education and assume that the stakeholders have determined that one of the attributes they wish to measure is the degree of post-school student satisfaction with their prior experiences in high school. Although we have selected a relatively conventional attribute measure, we also could have selected any number of different attribute measures, including the average number of minutes each day that students must ride on a school bus between classes and that the fewer minutes on the bus the better or more desirable.

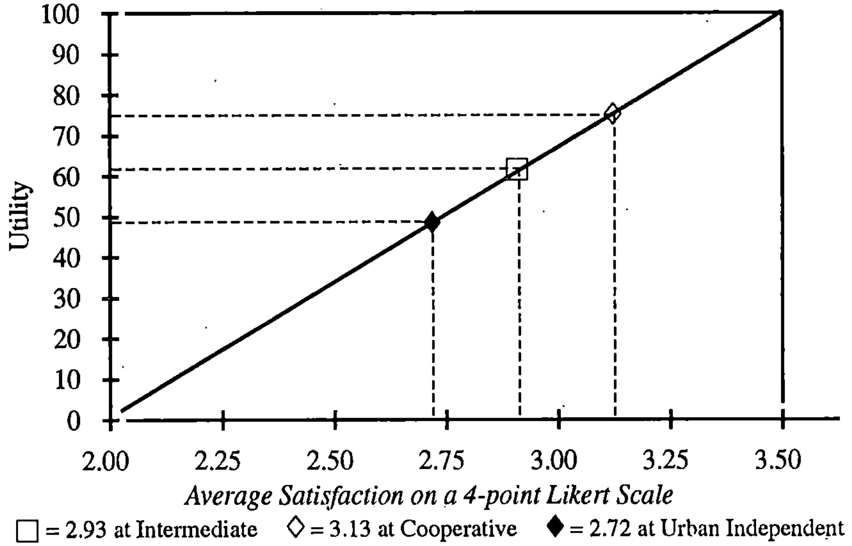
The utility box in Figure 1 models graphically the transformation of this measurable dimension into utility values. It illustrates, for example, that 66.67 units of utility are achieved from each point on the relevant range of a Likert scale drawn from a survey questionnaire. Knowing this exchange ratio permits the evaluator to then collect actual performance data from the alternative programs and to compute the utility corresponding to the performance data. Other utility indexes and graphs can just as easily be constructed for other measurable attributes with other units of measure and scales, such as adaptive behavior gain scores, the percentage of students participating in extracurricular activities, and the like. There are two important points to be noted here. First, the transformation of differing scales and types of attributes into a standardized unit of measure is accomplished by the simple process of converting all measures into utility values. Second, this transformation process is accomplished by establishing the exchange ratio or the slope of the line in Figure 1.

The usual transformation procedure for constructing the utility box and exchange ratio illustrated in Figure 1 is to first examine the likely range of expected performance on the attribute with plausible maximum and minimum values; and then establish this range as the relevant range for estimating the zero and 100 end points on the utility scale. Graphically, a single 45° line can then be drawn within the utility box to approximate the utility transformation and functional relationship. In the specific case of Figure 1, the slope of the 45° line expresses the exchange rate between average units of program satisfaction by students on a Likert scale and units of utility. In other cases, it might be the exchange rate between minutes on a bus and lost units of utility, or the exchange rate between gain scores on adaptive behavior and units of utility. This exchange ratio is also known as the slope coefficient of a straight line (or m).

Frequently, algorithmic transformation functions for each attribute are developed for ease in converting attribute performance data into utility values. A transformation function is really nothing more than the slope of the line we have drawn in the utility box in Figure 1 and can be expressed as

$$mi = 100 / (xi \max - xi \min)$$

FIGURE 1
UTILITY FOR ATTRIBUTE BB (STUDENT SATISFACTION)



wherein *mi* is the slope coefficient of the *ith* attribute, 100 is the maximum value of the utility scale which ranges from 0 to 100, *xi* max = the maximum plausible score or value of the *ith* attribute, and *xi* min = the minimum plausible score of the *ith* attribute. Drawing from our illustration in Figure 1, wherein we assume that the relationship is linear, and that the relevant or plausible range of average scores on a 4-point Likert scale is between 2 and 3.5 raw points, we can express the transformation relationship in Figure 1 in equation form as

$$mi = 100 / (3.5 - 2) = 100 / 1.5 = 66.67.$$

From this slope or transformation function we can now construct our utility box graph and simply read utility values from the represented scales.

It is also possible to construct formalized utility functions in notational form. The form of each function will depend upon whether the range of attribute performance goes from low and less desirable scores to high scores, as would be the case with student satisfaction as illustrated in Figure 1, adaptive behavior gain scores, or the number of high school completers; or, alternatively, whether the desirable performance of an attribute might be a low score, as would be the case with undesirable bus time or in the case of school dropouts.

In the case where more is better, we can express our utility function as

$$ui = mi\,(xi - xi\ \text{min})$$

wherein ui = the utility of the *ith* attribute, mi = slope coefficient or the transformation function, xi = actual performance of the *ith* attribute, and xi min = the minimum plausible score on the range of scores possible with the *ith* attribute. On the other hand, in the case where less is better, we are only required to make a modification in the utility function to note that

$$ui = mi\,(xi\ \text{max} - xi)$$

wherein xi max = the maximum plausible range of performance from the *ith* attribute.

Again following our Figure 1 example, we can now substitute real numbers for our notations within an appropriate utility function. Assuming, as we have been, that the relationship is linear, more is better, and that mi = 66.67, an alternative program (x) has an average score of 2.72 (xi) on the *ith* attribute, and xi min = 2, we would select our first utility function and estimate the utility for this attribute as

$$ui = 66.67\,(2.72 - 2) = 66.67\,(.72) = 48.$$

The two-stage process of developing separate transformation and utility functions can be consolidated into a more generalized utility function for all attributes and expressed in notational form as

$$ui = 100\,(xi - xi\ \text{min}) / (xi\ \text{max} - xi\ \text{min})$$

wherein again u = utility, i = the *ith* attribute, xi = the measured performance on the *ith* attribute, xi min = the minimum plausible performance score on the *ith* attribute, and xi max = the maximum plausible performance level for the *ith* attribute. This generalized utility function assumes that the performance scores on the attribute go from low to high, the relationship of utility values to performance is linear in nature, and the utility scale ranges from 0 to 100. Note that the only difference between this equation and the earlier one is that the equation for the transformation function has been included in place of just the value for mi or the slope coefficient.

As we have already noted, it is also likely that the desirable performance of an attribute might be a low score, as in the case of bus time or school dropouts, and the equation has to be changed accordingly. In such cases, the utility equation would simply be modified to reflect this relationship wherein

$$ui = 100\,(xi\ \text{max} - xi) / (xi\ \text{max} - xi\ \text{min}).$$

These utility relationships all assume a linear relationship throughout the relevant ranges. This linear relationship is also represented by the straight 45° line in the utility box of Figure 1. Other curvilinear relationships can just as easily be constructed and in some cases may be better representations as to how some people might judge rates of utility (i.e., satisfaction). However, research in the field (Edwards, 1980; Keeney, 1977) has indicated that such curvilinear representations almost never make any difference to the decision outcome, largely because of the small differences in utility values which might result. Nevertheless, if linear relationships for certain attributes prove troublesome to any of the decision makers or stakeholders, it is a very simple process to create a utility box with curvilinear transformation lines. The evaluator can simply draw a graph similar to Figure 1 with the measurable dimension of the attribute on the X axis and the 0 to 100 point utility scale on the Y axis, and then draw whatever functional curve most appeals to the group.

The task of assigning utility scales to each of the attributes in a MAU evaluation is usually undertaken by the evaluator, in consultation with knowledgeable individuals in the field for making estimates about the plausible ranges of attribute performance. This results because the determination of ranges is largely an empirical and technical question. However, in special education, once plausible performance ranges have been tentatively established, it is almost always a useful strategy to review these ranges and the shape of the utility functions with the stakeholders. When employing an MAU evaluation in special education, the involvement of stakeholders in this process is important primarily because of the significant political role stakeholders play in both the development and execution of special education policy. The validity of the entire evaluation will be largely determined by the acceptance and support given to the process of the evaluation by participating stakeholders. When they have a role in determining not just the identification of attributes and assignment of importance weights, but also a role in confirming utility values, their support and the validity of outcomes will be enhanced.

Collecting Performance Data From Alternative Programs

After our MAU evaluation model has been framed and we have assigned importance weights and utility scales to each of the attributes, we need to begin collecting data from each of the alternatives for measuring the performance on each of the attributes. In the assessment of programs in special education, it is expected that most attribute data will come from one of three classes of information. Some data will be collected from school district internal records that include information on such items as achievement scores, program completion rates, IEPs, mainstream participation rates and the like. Other data will be drawn from surveying the judgments of teachers, parents, and students on such issues as satisfaction with the program. Finally, other data will be collected through postschool surveys of former student participants which would address such issues as adaptive self-maintenance skills, adaptive community living skills, and adaptive employment skills.

The instrumentation for surveying and collecting individual respondent information on many of the attributes which are deemed important for assessment in special education are frequently available from other studies in the field. Several recent studies, for example, have focused on the postschool employment, residential living, and community adjustment of former students with moderate to severe mental retardation (see, for example, McGrew, Bruininks, Thurlow, & Lewis, 1992; Frank, Sitlington, Cooper, & Cool, 1990; Hasazi, Gordon, Roe, Finck, Hull, & Salembier, 1985; Lewis, Bruininks, & Thurlow, 1991; Schalock, Wolzen, Ross, Elliot, Werbel, & Peterson, 1986). Almost all of these studies have developed or adapted existing survey instruments, such as the Inventory for Client and Agency Planning (ICAP) developed by Bruininks, Hill, Weatherman, and Woodcock (1986), for the collection of their data; and such instrumentation should be routinely available within school districts. Moreover, one of the intended purposes of the new National Center on Educational Outcomes (Ysseldyke, Thurlow, Bruininks, Deno, McGrew, & Shriner, 1991) for students with disabilities is to identify just such instruments for field related use.

In addition to post-school followup surveys, most MAU evaluations in special education will require the collection of sampled responses from current parents, teachers, administrators, and students. Many of these survey questions will focus upon the opinion and judgment of survey respondents. Any standard reference book can give guidance regarding how to proceed in the use of Likert scales and other survey techniques for the collection of such data (see, for example, Dawes & Smith, 1985; Kalton, 1983; and Herman, 1987).

Collecting the MAU case study outcome data. The collection of program outcome data in our case study was driven by the identification and selection of specific program criteria and measurable attributes by the stakeholder group. The stakeholder group identified the criteria and measurable attributes profiled in the taxonomical outline of Table 3 as being the most important for assessing an effective special education program designed for students with moderate to severe disabilities.

All instruments and data collection procedures were reviewed by the project advisory committee. The student samples on which data were collected were drawn from the five participating districts and included all students in the target programs. Data on current students in programs were collected from school district records in all five districts, along with a post-school followup survey to obtain relevant outcome data on students with moderate to severe mental retardation. The data collected from district internal records used a field reporting form that included information on the rates of (a) mainstream and community participation by students, and (b) the regular education adaptions currently being provided for secondary students in severe programs. This information was drawn directly from student Individual Educational Plans (IEPs). The student followup included all individuals who had participated in and completed their special education program during 1989 within the participating school districts.

Teachers, administrators, and adult service providers were surveyed to obtain information regarding their satisfaction with current services provided to students with moderate to severe mental retardation in five curricular areas: (a) functional academics; (b) independent living skills training; (c) community participation skills; (d) recreation and leisure skills; and (e) jobs and job skills. Educational staff were also requested to report on their levels of satisfaction with their district's staff development programs on secondary special education and transition services.

Parents of former students were asked questions regarding their satisfaction with the educational programs provided to their children. Survey items collected data on: (a) the number of extracurricular activities in which former students participated; (b) the parents' overall satisfaction with the educational program; (c) the students' level of satisfaction with their educational experiences; (d) parental satisfaction with specific curriculum components; and (e) satisfaction with parental training and support provided by the district. Other items on the parent survey assessed several post-school community adjustment factors (e.g., type of independent living arrangement, the nature of their child's social network, employment status, and other outcomes).

Collecting Cost Data From Alternative Programs

The cost-analysis technique used in our case study was based upon a modified resource components approach to costing out programs and was similar in method to several other special education cost studies (Kakalik, Furry, Thomas, & Carney, 1981; Lewis, Bruininks, & Thurlow, 1989, 1990; Moore, Strang, Schwartz, & Braddock, 1988; Raphael, Singer, & Walker, 1985). A resource components approach focuses on the type and amount of resources which are employed in the delivery of programs, rather than exclusively on the budget categories or expenditure records of the target agency. In the establishment of educational budget and accounting records, the allocation of expenditures is often so commingled by type of expenditure item (i.e., object code) that it is difficult to disentangle or determine the actual allocation of expenditures to programs or subareas without some reference to the resources employed. Only by focusing on the actual use of resources (e.g., numbers of teachers) within program and service areas is it possible to get an accurate accounting of the costs of each program. The application of this approach to district level cost analysis was undertaken through the examination of district records and consultation with administrative personnel. This approach required the listing of a comprehensive set of the functional activities and educational services within a school district, and the identification, measurement, and valuation of the specific resources employed within each functional and instructional service area and subprogram to determine individual program costs. On the basis of these allocations of cost data across the program service areas, and in conjunction with the number of students and days of service in each program, various annualized and averaged per student costs were estimated for each program within each district.

Once these total cost profiles were prepared for each of the five districts, specific program cost profiles were developed for the three alternative service delivery models. That is, average costs for the programs provided by the independent suburban district were combined with the parallel program costs found at the intermediate district, with appropriate adjustments for tuition payments. Costs were similarly aggregated for the independent rural district and its special education cooperative. After the data collection was completed within each district, the data were reviewed with district personnel for accuracy. Summary profiles of the costs for the three different service-delivery models across 15 program areas for 1988–1989 were analyzed and reported in the original study (Lewis et al., 1992).

Table 5 illustrates the procedure for determining total resource costs from the "district" level cost data collected in the case study for the target program area across the three alternative administrative structures. In Table 5, for example, for the independent suburban district we note that average costs per student per year were $4,383 prior to tuition payments to the intermediate for their additional program services. These costs were those indirect costs incurred by the suburban district for managing and serving their students outside of the intermediate district's direct instructional and

TABLE 5
AGGREGATED RESOURCE COSTS IN ALL SAMPLE DISTRICTS

Program Area: Moderate to Severe/Profound Mental Disabilities
Alternative Delivery Model

	Intermediate District Model				
	Intermediate	+	*Suburban Independent*	=	*Aggregated Resource Costs*
Total Resource Costs Per Year	$4,823,704		$122,727		
Avg. Costs Per Student Per Year	10,113		4,383		$14,496
Avg. Costs Per Unweighted Membership Day	59		26		85
Avg. Costs Per Attendance Day	69		30		100
Payments to Outside Agencies for Services	0		223,345[a]		
Total Local District Costs Per Year			346,072		
Avg. Costs Per Student Per Year			12,360		
Avg. Costs Per Unweighted Membership Day			73		
Avg. Costs Per Attendance Day			86		

Source: Table 7.3 in Lewis et al., 1992.
[a] Payments to intermediate district for services.
[b] Payments to cooperative district for services.

training program. As a consequence, we must add these average resource costs (i.e., $4,383) to those of the intermediate (i.e., $10,113) for their direct delivery of services and reestimate that the average costs per student to society is really $14,496 per year for students with moderate to severe mental disabilities participating in the intermediate district's program.

Conducting the MAU Technical Analysis

Through the procedures of the previous steps in developing our MAU evaluation model, we have constructed three sets of numbers for each of the attributes in our case study evaluation model: (a) the importance weights for each attribute, normalized to sum to 1.0; (b) the utilities assigned to each unit of measured performance for each attribute, expressed on a scale of satisfaction from 0 to 100; and (c) the adjusted performance measure of each attribute for each alternative. The next step in our MAU procedure is to aggregate these numbers into a weighted utility

Independent District Model		*Cooperative District Model*		
Urban Independent =	*Aggregated Resource Costs*	*Cooperative* +	*Rural Independent* =	*Aggregated Resource Costs*
$6,489,089		$441,989	$10,219	
27,151		12,277	1,135	$13,413
160		72	7	79
186		81	8	89
216,288		0	32,752[b]	
6,705,377			42,971	
$28,056	28,056		4,775	
165	165		28	
192	192		33	

score for each attribute for each alternative, and then sum all of these weighted utility scores for each alternative.

The assignment of weighted utility to each attribute is a simple process which requires only multiplying the weighted importance assigned to each attribute times its assigned utility unit value times its adjusted performance measure for each alternative. Total weighted utility for each alternative is derived by just adding up the products for each of the attributes. This procedure is illustrated for our case study in Table 6 wherein each of the attributes is listed along with its assigned normalized importance weights (column 1) and constructed unit utility values (column 2) common to all the alternatives. Also included in Table 6 are the adjusted measured performance (column 3) on each attribute from each alternative. It is important to note that these performance measures are adjusted according to whether "more is better" or "less is better" as the desired performance value. When more is better on the performance scale, the adjustment is to subtract the minimum plausible score from the actual

TABLE 6
CALCULATING FINAL UTILITY WEIGHTS OF ALTERNATIVE PROGRAMS

					Intermediate Model		
Attributes	Normalized Importance Weight [1]	x	Utility Ratio [2]	x	Adjusted Performance [3]	=	Weighted Utility [4]
AA	0.09		10.00		7.5		6.75
AB	0.07		66.67		0.4		1.87
AC	0.09		2.50		17		3.83
BA	0.05		66.67		1.33		4.43
BB	0.05		66.67		0.93		3.10
BC	0.04		66.67		1.37		3.65
BD	0.05		66.67		1.01		3.37
CA	0.06		2.50		32		4.80
CB	0.06		2.00		40		4.80
CC	0.06		3.33		18		3.60
CD	0.06		1.67		47		4.70
CE	0.04		10.00		10		4.00
DA	0.10		66.67		1.43		9.53
DB	0.08		66.67		1.35		7.20
DC	0.09		66.67		0.79		4.74
Total Weighted Utility Values:							70.37

[1] Normalized importance weights represent proportional weight of each individual attribute multiplied by the proportional weight of its corresponding criteria.
[2] Utility ratio represents the units of utility awarded to each unit of adjusted performance.
[3] Adjusted performance of attributes represents the actual raw score of the alternative minus the minimum plausible performance level, for those cases where more is better. For those cases where a lower score on performance is better, the adjusted performance measure represents the maximum plausible score minus the actual raw score.
[4] Weighted utility is the product of multiplying the normalized importance weight times the utility ratio times the adjusted performance.

performance number (i.e., *xi* - *xi* min). When less is preferred as a performance outcome, the adjustment is to subtract the actual performance number from the maximum plausible score (i.e., *xi* max - *xi*). Each of these three values (i.e., the normalized importance weight for the *ith* attribute, the attribute transformation ratio, and the adjusted performance score) are then multiplied through the table to arrive at a weighted utility value (column 4) for each of the attributes for each of the alternatives.

Independent Model			*Cooperative Model*		
Adjusted Performance [3]	=	Weighted Utility [4]	Adjusted Performance [3]	=	Weighted Utility [4]
3.25		2.93	3.26		2.93
0.2		0.93	0.56		2.61
32		7.20	29		6.53
1.27		4.23	1.3		4.33
0.72		2.40	1.13		3.77
1.24		3.31	1.18		3.15
1.35		4.50	1.38		4.60
31		4.65	31		4.65
27		3.24	13		1.56
27		5.40	6		1.20
53		5.30	47		4.70
10		4.00	10		4.00
1.12		7.47	1.35		9.00
0.89		4.75	1.21		6.45
0.6		3.60	0.95		5.70
		63.90			65.18

The weighted utility values for each of the attributes are then simply added up for each of the alternatives to arrive at a total weighted utility value for each alternative. Because of the methodology used in this MAU evaluation, the larger the numerical value of each total weighted utility score, the "better" or "more effective" that alternative program can be considered by the evaluator or final decision maker. This *total weighted utility value* of each alternative can be now used in making comparisons between alternative programs, or between differing timespans of the same program. For example, with the values for our case study reported in Table 6, we can rank the intermediate model program as the most effective with the program at the self-contained independent district ranked as the least effective of the three alternatives.

Adding Costs for Estimating Efficiency Through Utility-Cost Ratios

If costs have not been already included in the MAU evaluation through inclusion as one of the criteria, then it now needs to be explicitly addressed in order to estimate the relative efficiency of the programs under review. In the use of utility-cost ratios we have a special variation of what is conventionally known as effectiveness-cost analysis. In the use of effectiveness-cost analysis, the costs and outcomes of alternative programs with similar goals are taken into account in the assessment of their relative efficiency. In the use of this technique, it is assumed that only programs with similar goals can be compared and that a common measure of effectiveness can be used to assess them. This common measure of outcome data then can be combined with costs in order to provide an effectiveness-cost ratio that will enable the evaluator to judge which of the alternatives provides the maximum outcome per level of cost or which program requires the least cost per level of effectiveness. One of the unique qualities of MAU evaluation is that it allows the conversion of any number of disparate measures of outcomes to be converted into a common measure of effectiveness.

This technique of combining measures of costs and effectiveness for estimating costs per unit of utility (or alternatively the utility per dollar of costs) and efficiency is illustrated in Table 7. Our concern within Table 7 is with assessing the relative efficiency of special education programs for our case study students with moderate to severe mental retardation at our three alternative service models. The total weighted utility values for each of our three alternatives are taken from Table 6, while the annual costs

TABLE 7
ESTIMATING UTILITY-COST AND COST-UTILITY
AMONG SERVICE-DELIVERY ALTERNATIVES

	Service-Delivery Alternatives		
	Intermediate Model	*Urban Independent Model*	*Cooperative Model*
Total Weighted Utility	70.37	63.90	65.18
Average Resource Costs Per Year	$14,496	$28,056	$13,413
Utility-Cost Per Year[a]	4.85	2.28	4.86
Cost-Utility Per Year[b]	$206	$439	$206

[a] Units of utility per $1,000 of annual costs per pupil (e.g., 70.37 utility points divided by 14.496).

[b] Annual cost per pupil per unit of utility.

per student in the three alternatives have been estimated through the related cost study reported in Table 5.

In reviewing total utility values as our common measure of effectiveness, we notice that the intermediate model is clearly the most effective in terms of performance with the independent model the least effective. On the other hand, in reviewing the costs of delivering the special education services, we notice that the cooperative and intermediate models have clearly the lowest costs with the self-contained independent district model having the highest costs per pupil. When costs are factored into a utility-cost ratio, as shown in Table 7, the effectiveness per dollar of instructional cost was greatest for the intermediate and cooperative models with the independent model indicating the lowest level of effectiveness-cost results. These latter conclusions regarding the relative efficiency of the alternatives can also be expressed in reciprocal cost-effectiveness terms as well. For example, as we noted that the independent district has the lowest utility-cost ratio, we can also note that the same district has the highest cost-utility ratio—that is, the cost per unit of utility at the independent district is $439 versus only $206 at the intermediate and cooperative model districts.

It is instructive to note that units with the highest costs may not necessarily be the most inefficient. Similarly, it should be evident that the unit with the highest measure of effectiveness may not necessarily be the most efficient alternative. Although it is true in the case of our illustration, it should also be evident that the unit with the lowest level of costs may not necessarily be the most efficient when costs are coupled with outcomes. It is only true in this illustration for the intermediate and cooperative models because their relative lower costs are coupled with their relative higher performance in effectiveness.

In cost-effectiveness terms, it appears from the results of our case study in Table 7 that the intermediate and cooperative model alternatives are the two strongest candidates for further consideration. The cooperative and intermediate alternatives both have the lowest costs and the highest ranking in effectiveness.

Performing Sensitivity Analysis

Performing sensitivity analysis consists of changing the numbers on several of the variables we have used to perform MAU evaluation, and then examining whether these changes make any difference in the outcome or results of our evaluation. Outside of errors in estimating costs, the most important parameters to change for testing the sensitivity of MAU analysis are importance weights. This results because weights are clearly more subjective than performance values and the subject of more controversy with most stakeholder groups. Moreover, if there is some concern by stakeholders about whether a criterion or attribute belongs in the analysis at all, it can in effect be eliminated in sensitivity analysis by the assignment of a zero weight to its importance.

Sensitivity analysis can be conducted for any value or set of values originally inputted in earlier phases for importance weights, attribute performance, or even cost estimates. As noted earlier, however, the most likely candidate for testing the sensitivity of our results is any outlier or divergent set of values which were uncovered during the assignment of importance weights by stakeholders. If any bimodel distributions were apparent from the stakeholder sessions, for example, now is the time and place for testing their likely effects on the ranking of the alternatives' effectiveness.

It is generally recognized in the field of MAU evaluation that most minor changes in importance weights or minor inaccuracies in measuring attribute performance will not likely have a material influence on the final rankings and outcomes (Huber, 1980, pp. 83–84; Keeney & Raiffa, 1976; Newman, 1977). This results primarily from the fact that whatever error might be present with any one attribute is diluted percentagewise due to the presence of the other attributes, and the larger the number of attributes the greater the dilution. Even a 30% error in the performance of an attribute having an importance weight of 10% results in only a 3% error for the weighted utility score of the attribute (i.e., .30 x .10 = .03). As a consequence, most MAU models are fairly robust and insensitive to minor inaccuracies. Only in cases where the errors are major or where there are few attributes are errors in estimating either importance weights or attribute performance likely to create problems. Similarly, the higher the initial level of the importance weight (i.e., if it is a criteria weight versus an attribute weight), and the greater the value (i.e., proportion weight) of the weight, the more likely will a change in its value result in a material change in the overall outcome.

Summary of Case Study Program Evaluation

Although this paper does not report on the results from all of the 15 special education program areas across the three alternative administrative models in the case study, it does identify those criteria and attributes judged to be important by a particular stakeholder group in assessing an effective special education program for students with moderate to severe mental retardation. As illustrated in Table 3, four basic criteria were identified for assessing the effectiveness of this special education program. These criteria included (a) student participation in school life; (b) satisfaction with the program; (c) accomplishments of the program as measured by a range of post-school outcomes; and (d) selected program characteristics. The weighted importance for each of the measurable attributes assigned by the stakeholder group to each of these criteria ranged from 4% for school completion to 10% for appropriate curriculum components within the program.

Determining program effectiveness across the three delivery models. Data on the performance of each of the identified measurable attributes were collected from a purposive sample of three alternative service delivery models for the program area. These performance data were then converted into utility measures (see Figure 1) and loaded into the evaluation study's taxonomical outline with assigned importance weights for determining the final utility weights for the three alternative program models (see Table 6). The total weighted utility values in Table 6 indicate the relative *effectiveness* of the three alternatives based on their respective performances. From the results reported in Table 6 it is shown that on the basis of effectiveness, independent of costs, the three alternatives can be ranked from the most effective intermediate option with a weighted utility value of 70.37, to the cooperative model with a weighted utility value of 65.18, to the least effective independent district with a weighted utility value of 63.90.

The weighted utility estimates profiled by attributes in Table 6 for each of the alternative delivery systems indicate that the independent and cooperative models were most successful with mainstreaming their program activities, the cooperative model was least successful in postschool outcomes, and the intermediate model was most successful in the provision of components to the process of the program. Most other measured performance results were similar across the three alternatives.

Cost-utility comparisons between the three alternatives. The results of the case study employing MAU technology also permit us to examine the relative cost-utility of three alternative service-delivery models in the context of our case setting. These results, summarized within Table 7, indicate that the costs and effectiveness outcomes found in the study are very similar across both the intermediate and the cooperative service models, and that both multidistrict service-delivery models are about twice as cost-effective as the urban independent district model. Our results indicate that the annual cost per pupil per unit of utility for the urban district is $439 as compared to $206 for each of the other two service models.

Discussion

In this paper we have focused on the use of MAU evaluation techniques for involving stakeholders in goal and criteria setting and for estimating the effectiveness and cost-effectiveness of alternative programs and delivery systems within special education. We have described the conceptual framework and procedures necessary to develop and use multiattribute utility evaluation techniques for assessing alternative forms and types of special education programs and delivery systems. It is intended that the evaluation framework developed in this paper will provide the structure and describe the procedures that individual school districts can use on a regular basis for consultation with stakeholders in the assessment of program goals in special education, and for making comparisons in the assessment of the effectiveness and cost-effectiveness of alternative programs.

Several recommendations relative to the use of MAU evaluation techniques in special education follow from our case study experience with the technology.

- District level decision makers and program planners need to employ systematic evaluation procedures in determining the criteria and multiattributes associated with special education program effectiveness.

The present knowledge base of special education outcomes (especially for program and service indicators) is limited due to lack of attention and importance placed on the need for an improved understanding of such program outcomes by program planners and decision makers. In the absence of such information, efforts to better understand special education's "effectiveness" in achieving its program goals are limited. This has also prevented efforts to link multiattribute program outcomes to associated costs of services. This information is critically important and policy relevant to local, state, and federal agencies. The MAU procedures outlined and employed in this study provide a structured and efficient means by which locally based program planners and decision makers can derive an understanding of the multidimensional and multiattribute nature of special education outcomes.

- Cost-utility analysis should be employed on a recurring basis by local districts as a means for evaluating the cost effectiveness of special education programs.

Methods and procedures for evaluating relationships between service costs and expected or perceived outcomes of special education have been a principal focus of this paper and within the related study. The multiattribute evaluation techniques and cost utility analyses examined in the case study are promising methodologies for deriving program and policy relevant information in special education. These procedures have had extensive use in the private sector and some use in assessing social programs in deriving group decisions concerning alternative programs and administrative/management actions. The unique and important quality of MAU evaluation strategies is their ability to involve and structure the decisions of multiple stakeholders with multiple goals, beliefs, and perspectives on attributes of a program. The participatory nature of MAU procedures is highly consistent with the interests of special education programs to engage varied constituencies in program planning and decision making.

- Cost-utility analysis should be used in evaluating alternative instructional strategies and models for serving students with disabilities *within* independent districts.

Current programming trends in special education will continue to emphasize the importance of serving students with moderate to severe disabilities in their local school districts within neighborhoods and community schools. If family and professional interests continue to focus on the desirability of serving students with disabilities in their home school districts, alternatives within district instructional models (e.g., special education teachers team teaching with regular education teachers, and mainstream inclusion) will need to be tested from the standpoint of both program effectiveness and efficiency. No attempt was made in the case study to analyze the relative nature and characteristics of alternative instructional models and delivery systems *within* the independent districts. Such models are now only beginning to evolve in response to parental, student, and professional pressure to serve students in natural community and neighborhood school settings. MAU evaluation techniques are particularly well suited for evaluating the relative merits of alternative strategies for accomplishing similar goals within these new settings.

In the past, comparisons of alternative programs and delivery systems in special education were either ignored or rested on idiosyncratic rationale unrelated to measures of effectiveness. Although many programs were assumed to have similar goals, comparative assessments were judged to be highly problematic because of the multiple nature of these goals and because of the presence of differing stakeholders. Through the use of MAU evaluation techniques, policy and administrative decision makers now have an effective tool for assessing alternatives in special education.

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DARRELL R. LEWIS *is a professor of education policy at the Institute on Community Integration, College of Education, University of Minnesota.*

DAVID R. JOHNSON *is a senior research associate in educational psychology at the Institute on Community Integration, College of Education, University of Minnesota.*

RONALD N. ERICKSON *is a research specialist in educational psychology at the Institute on Community Integration, College of Education, University of Minnesota.*

ROBERT H. BRUININKS *is a professor of educational psychology at the Institute on Community Integration, College of Education, University of Minnesota.*

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Reprints of this article may be obtained by contacting Darrell R. Lewis, Professor of Educational Policy, Department of Educational Policy and Administration, 136 Burton Hall, University of Minnesota, Minneapolis, MN 55455.

A nation's humanity and civility can be judged by how it treats its citizens with disability. In *Making Disability,* Paul Higgins argues for a new conceptualization that better puts disability in a group interactional context and pleads for the humane treatment of those with disabilities. In doing so, he calls for a civility in society based on an intellectual foundation, traditional values, and a humane social policy. In his many contributions to the sociology of disability, Higgins has employed a symbolic interactionist perspective to explore the lives and meanings of persons with disabilities and their relations with others. These studies have benefited from his personal experience with the deaf community and years of fieldwork. The present volume builds on his insightful previous fieldwork by calling for an intellectual and policy reorientation to disability studies.

Again, he uses a symbolic interactionist perspective and social construction of disability argument to build his case. Higgins (p. 14) says the purpose of the book is "to understand how we make disability and to be involved in that making in ways that enhance us all. If we take seriously the making of disability, then we realize that we must take responsibility for what we have made." Through eight chapters Higgins argues,

> We make disability. Typically, we have made disability a defect to be endured by individuals. We have made less worthy those we made disabled. We have portrayed them as dangerous, evil, pitiful, or maladjusted. Interactions between disabled and nondisabled people have often been awkward, the identities of disabled people spoiled, and the experiences of disability too often dissatisfying. We directed disabled people to put themselves in the hands of professionals, who so often worked on a 'broken' person instead of serving a fellow citizen. Our policies have intentionally, at times unwittingly, and at other times in spite of good intentions typically oppressed disabled people. With all of this making disabled people have contended. (p. 227)

Higgins continues that disabled people are forced to live in a world built by others for those without disabilities. As a consequence, persons with disabilities must learn to fight back to make their worlds liveable.

He suggests that the disability field can profit by conceiving of disability as a product of social groups not as an attribute of an individual; and, that individuals with disabilities can take more control of their worlds and disabilities. He concludes, "We need to remake all realms of our world in order to 'accommodate' us all, not just those of us with disabilities. . . . To remake disability, we will need to refashion our world to include us all" (p. 254). This analysis of disability and plea for tolerance and humanity in society is to be applauded. The difficulty arises in how to achieve these goals.

Certainly many scholars recognize the deficiencies of an individualistic analysis of disability and attempt to analyze disability within group settings and a cultural context. Fewer, however, are as courageous as Higgins in calling for a humanistic, humanitarian conception of disability.

While I agree in large part with his analyses and share many of his humanitarian values, I was disappointed that he did not provide a more carefully conceived alternative conceptual approach and more detail in how to embody such an approach in social policy and everyday life. I would also like to see such analyses placed in a larger political-economic context. As I write this review in Pecs, Hungary, less that 100 miles from the heart of the civil war and "ethnic cleansing" of the former Yugoslavia, I am struck by the power of social forces in producing impairments and peoples' ability to ignore those in need. Impairment and disability are normalized in those areas surrounding a war zone. In the United States, similar processes operate. Impairments are generated in the inner city through drugs, gang warfare, and poor living and working conditions but normalized by those at some physical or social distance. The political-economic and structural forces in a society must be integrated into any understanding of disability and considerations of a better life. For example, the environmental forces bearing on Bosnian refugees and inner-city minorities illustrate the folly of conceiving of disability only in a stable and resource-rich environment. Likewise, citizens' ability to normalize disability in some groups and not in others warrants further explanation.

Furthermore, the experience of disability in North America and Western Europe is not the reality of much of the world where survival is the issue and there are few, if any, resources. A careful study of these other social and cultural contexts would enlighten disability analyses in our own society. The plight of disabled refugees fleeing the Bosnian war zone is not dissimilar from that of our own inner-city minorities who have an incredible array of needs that are not met and who daily confront insurmountable barriers to care.

After reading Paul Higgins's book, I am struck with his sensitivity and values but am not left with a conceptual approach or series of action steps to address the fundamental issues he raises. I suggest that we give more attention to the political-economic contexts and social and cultural environments where disability is produced and dealt with to improve our theoretical models and social policies.

Gary L. Albrecht
University of Illinois at Chicago

I arrive at this evaluation from what may be a unique perspective. My expertise (whatever that may be) derives from my experiences and perspective: I suffer from a variety of physical disabilities, and, though I do not have a degree, I have read fairly extensively on disability, welfare, and related public policy issues. (The reason that I do not as yet have my degree, while too long to detail here, validates many of the criticisms that Prof. Paul Higgins raises with his book.)

Because the author is a sociologist, and sociologists critically evaluate the social dynamics of our culture, this book makes numerous critical assessments of how society operates in ways that, intentionally or not, undermine the life chances of whole categories of people. For example, Higgins (1992, p. 30) repeatedly illustrates how myriad discriminatory practices serve only to "conserve present (social) arrangements." For this reason, many readers might dismiss this treatise as an attack on American culture.

That would be a mistake. In part, such an interpretation would deprive one of the chance to understand people with disabilities (PWDs). However, it also would cheat able-bodied people of the opportunity to learn about themselves. "Understanding disability," Higgins (p. 13) writes in the introduction, "can help us to understand those of us who are not disabled."

How does one convey that what, on first look, might appear to be a dry academic tome is actually an important book? Certainly, Professor Higgins has written his book in a standard, scholarly academic form. Even so, it is not as inaccessible as some might fear. Moreover, it is important enough that even the general reader would do well to make the effort.

Higgins divides his book into several sections, each of which discretely examines the various ways that "wider social arrangements and others' practices [are] problematic for disabled people" (p. 156).

In chapter 3, "Depicting Disability," we see how culture skews the reality of PWDs through stereotypical representations which reduce PWDs to less than we are. To some, we are "feebles" or "weaklings." Indeed, in his many examples, the author often uses the word "weaklings" deliberately, to highlight this practice and its insidious nature. For example: "[M]any of the difficulties experienced by the weaklings are not due to their lack of strength but to attitudes and actions of the nonweaklings" (p. 5).

In chapter 6, "Servicing Disability," he illustrates how the various professions that ostensibly serve PWDs—social workers, administrators, hospital attendants, and the like—do not, in fact, do so. My own experiences (again, too numerous to note here) with such professionals emphatically underscore this analysis. Economics writer Robert Kuttner (1987, p. 43) aptly captures the essence of such outrageous practices when he writes that "Richard Cloward and Frances Fox Piven argue persuasively that the apparent contradictions of [federal] programs . . . become much easier to fathom when they are understood as purposive."

Barbara Ehrenrich, in examining "what might be called 'mainstream' ideas," notes that they "originate within a narrow social base" that she describes as a "professional middle class," a group that enjoys a "status as an implicit mainstream and a presumably neutral vantage point." She continues, "This class plays an overweening role in defining 'America': its moods, political direction, and moral tone" (p. 6). Higgins observes similarly that

> we often take for granted the experience of the dominant group (white, advantaged, able-bodied men) as the "natural" way of life, rather than seeing those experiences as one partial set among many . . . The dominant group's experiences in the guise of the "natural" way of life become the standard by which other experiences are evaluated and are said to differ. (p. 8)

While Ehrenreich's (1990, p. 5) treatise examines middle-class concerns about increasing economic hardship, she discusses this group's views of poverty, which gives us a clue as to their sentiments about other needy people.

> While ideas about gender, and even race, have moved, however haltingly, in the direction of greater intolerance and inclusivity, ideas about class remain mired in prejudice and mythology. "Enlightened" people, who might flinch at a racial slur, have no trouble listing the character defects of an ill-defined "underclass," defects which routinely include ignorance, promiscuity, and sloth.

Many of these social workers, administrators, and policymakers belong to this class, which may explain the indifference, low expectations, contempt, et cetera, many of them have for PWDs. Higgins examines these biased perceptions extensively; he notes, for example, that many attendants at residential facilities "hold fatalistic views of the 'residents.' [They feel that n]ot much can be accomplished with them" (p. 165). Ehrenrich would agree with this assessment: She writes that the classic stereotypes that she discusses "are hurtful in many ways, not least because they imply that nothing can be done" (p. 7).

Higgins also analyzes specific themes of how mainstream culture "conserve[s] present arrangements," which he examines throughout the various chapters. Perhaps the most significant and ubiquitous of these is language. People articulate their reductionistic distortions through language. "[N]ondisabled people," for example,

> have named disabled people through 'negation' [that is,] disabled, invalid, abnormal, unsound, and so on . . . They are first and foremost—and maybe completely—not able. (p. 82)

Jane West agrees, writing that mainstream culture has described PWDs "in terms of 'diseases, deformities, and abnormalities'" (p. xviii). When I hear such language, I have to ask, "Who had the unmitigated gall to decide that I am an invalid?"

This practice of keying particular words to a particular social class or minority is of special interest in my own attempts at academic scholarship; in part, I will examine, etymologically and otherwise, the common slurs in our language such as "kike" wetback," "nigger," "bitch," "faggot," "cripple," "tramp," "spic," "homo," "sheenice," "dago," "queer," in terms that I have come to call *minority-specific pejoratives.*

However, in my reading and learning, I also have come to discern a second, more formal, track of minority-specific pejoratives: "Negro," "handicapped," "homosexual"—this one explicitly "coined and popularized" in the context of pathology—"lady," "invalid," "Gypsy," "Indian," and many others. Many of the words that fit in this second track derive from the clinical terms for psychiatric disorders; for example, hypochondria, hysteria, nymphomania, and homosexuality being perhaps the best-known examples of this. Most of these clinical terms have become nouns that label those individuals who suffer the supposed disorder or condition; for example, hypochondriac, nymphomaniac, and homosexual. These are the more pernicious words, for they carry the weight of formal speech: "Accepted professional terms seem to become the future schoolyard epithets." (Higgins, 1992, p. 83)

Another theme is "individualizing disability," the practice of putting the onus for PWDs' failure to function well in society on the PWDs themselves. The author writes, "We typically have individualized disability. Through various conceptions, we have understood disability as a *defect within individuals that limits them*" (p. 25, emphasis added). He continues, "[The] difficulties or challenges disabled people face reside within them. . . . Disabled people's minds, bodies, or spirits are the problem" (p. 156). Still later, he writes, "[W]e . . . locat[e] the challenges disabled people experience within their 'flawed' selves" (p. 186).

In their treatise on the ramifications of stress in the workplace (a major cause of work-precipitated disability), Robert Karasek and Töres Theorell, while speaking in a more specific context (illness as a consequence of workplace stress, and the labor/management discord that grew out of the resultant loss of productivity), are critical of "research examining characteristics of the individual (personality, genetics) as causes of illness, which in turn have led to overwhelming numbers of person-oriented cures, [such as] . . . self-awareness therapies tending toward mysticism, [which] will lead to victim blaming" (p. 7) among other problems.

Another important theme is what Higgins calls "the Economic/Work-Limitation Conception," a model that ranks one's ability to work as the primary criterion for our worth and that views disability as "an abnormal state that inherently limits people's capacity to work" (p. 29). Later, he continues the point, "[D]isability has provided a flexible tool for bolstering our often threatened work ideology that proclaims that everyone should work . . . and work is the prime means for obtaining what is desirable" (p. 52). This mechanism is one that has the biggest impact on society as a whole: As long as PWDs linger in a limbo of massive unemployment—"[t]wo thirds of all Americans with disabilities between the ages of 16 and 64 [a]re not working at all"! (p. 5)—we continue as the "burden" society has made us (ironically, confirming and perpetuating the most pernicious stereotype of all: that we are helpless, that we are a burden).

Yet again, my own experiences corroborate Higgins's analysis: Owing to my disabilities, I cannot work, certainly in a conventional employment setting. Yet, I could be productive (and paying in federal income taxes at least what I receive in Supplemental Security Income benefits!)—but our policymakers, economists, academicians, legislators, and other "experts" fail (or would it be more accurate to say "refuse"?) to recognize this. One small example: My Social Security Administration caseworker tells me that I may not attend college because I am "too disabled," for the existing status quo allows them to ignore the unfair—indeed, intolerable—circumstances of the economic hardship that wrecks our lives.

Some will insist that Higgins goes too far when he argues that "[o]ur service agencies make death," contributing to the deaths of "[p]erhaps as many as 200,000 disabled people" annually. However, theologian Thomas Merton (1984) observed in a broader context that

> death is all the more innocent and effective because it involves a long chain of individuals, each of whom can feel himself absolved from responsibility.

He continues,

> [W]hen oppressive power is thoroughly well-established, it does not always need to resort openly to the "method of beasts" because its laws are already powerful—perhaps even bestial—enough. In other words, when a system can, without resort to overt force, compel people to live in conditions of abjection,

> helplessness, wretchedness that keeps them on the level of beasts rather than of men, it is plainly violent. To make men live on a subhuman level against their will, to constrain them in such a way that they have no hope of escaping their condition is an unjust exercise of force. (pp. 6–8)

Once again, my own experiences confirm Higgins's assertion. Under the oppressive weight of public policy and poverty, my life has no meaning; I feel no prospect for improvement in my future. I have watched my health erode, as I slip from one illness to another. Because I lack sufficient income to meet my needs, or to address unanticipated problems as they appear, life for me has been one economic catastrophe after another—whether it be from an unresponsive caseworker or an arrogant landlord. (I even have had to endure the outrage of a drunken college student in search of a fight he is sure to win!) While I am anything but suicidal (I note it only to preempt intrusive inquiry), I see in my future no prospect for a decent quality of life, no prospect for attaining the achievements of which I am capable, no reason to live. This is a demoralization born of hopelessness, the hopelessness of inadequacy among plenty, not from any supposed internal "flaw" of mine. Higgins ably illustrates this chilling reality in his remarkable book.

David R. Lentz
Columbus, OH

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Book Review

Gostin, Lawrence O., & Beyer, Henry A. (Eds.). (1993).

Implementing the Americans With Disabilities Act

Baltimore, MD: Brooks Publishing Company
368 pages, $49.00 cloth

Implementing the Americans With Disabilities Act provides the reader with a thorough explanation of the law. It contains chapters by law and disability experts—many who were directly involved with the construction of the Americans With Disabilities Act (ADA). The chapters provide clear explanations of each of the five titles of the ADA and clarify legal terminology succinctly.

The various authors give the reader a complete overview of the law. Chapters include such topics as the evolution of disability rights, the history of the ADA, legislative strategies utilized in the law's passage, attitudes and feelings of the public regarding the passage of the law, the mobilization of the disabled community in support of the law, and the key components of the law. What sets the book apart from the current assault of "How to . . ." books on the ADA is the treatment of controversial issues that surround the law.

One of the complicating aspects of the ADA from inception (and an area of criticism) was the use of vague and confusing terminology. Words such as "reasonable accommodation," "undue financial hardship," etc., were viewed as providing a goldmine for lawyers once the public tried to interpret the law. *Implementing the Americans With Disabilities Act* includes concrete examples of terminology interpretation. For example, one of the issues identified by the Equal Employment Opportunity Commission (EEOC) as resulting in confusion is the definition and scope of the term "substantially limits" (. . . person with a disability is someone who has a physical or mental impairment that substantially limits one or more of life's major activities). Feldblum states that, although the term is quite broad, it can be clarified by specific example. The reader is then provided with descriptions of five individuals with disabilities and how one would interpret "substantially limits" in each situation (chapter 4). This is the unique characteristic of the entire book—providing clear, concise, understandable life examples that clarify the confusing terminology of the law.

Chapters describing key components (Titles I–V) provide the reader with the fundamentals of the law. This aspect of the book would particularly appeal to those individuals who are not familiar with the law and who are interested in acquiring a basic knowledge or introduction to the separate titles without the cumbersome technical jargon associated with reading a federal law. However, those individuals who have studied the law since inception would find that there is little new knowledge in the title clarifications and would more than likely use the text as a resource for specific examples on interpretation of the law.

The parts of the book that do provide new information to the knowledgeable as well as novice reader of this new law are the inclusions of controversial issues that surround the ADA. One such issue is the inclusion of individuals with a mental illness under the ADA. The EEOC reports that at the end of the first year of ADA implementation, of the 12,000 complaints alleging discrimination associated with Title I, the second most common disability from those who filed complaints was mental illness—9.8% (the first being back injuries—18%). Although the ADA was intended to include individuals with mental illness under the ADA umbrella of protection, it is difficult to conceptualize how the law will be implemented in ways that will protect these individuals. Including individuals with mental disabilities under the ADA, albeit controversial from the beginning, demonstrated the desire of society to reduce the profound prejudice against these individuals. Rubenstein and Chamberlin question whether the law will be able to reduce the severe stigmatization of individuals with mental illnesses and feel that issues surrounding psychiatric disabilities will require more litigation than other disabilities (chapters 15 and 16). Chamberlin views the general public as possibly uninformed as to what might constitute reasonable accommodations for a psychiatric survivor. She raises another question, also: Will the ADA help in the elimination of involuntary commitment?

Another controversial issue presented in the book is the relationship of our current health care system and the ADA. With the Clinton administration's current proposal to change dramatically the U.S. system of health care delivery, this topic is indeed a timely one.

The area of the book that is the most underdeveloped is an account of actual ADA implementation. The book's title suggests implementation of the ADA will be the main focus, yet there is little discussion of implementation. As a result, the reader is left without significant information on the processes of implementation of the ADA and what is currently occurring in the public and private sector concerning ADA implementation. Questions are raised regarding the expected problems surrounding implementation, but there are few examples (in a book full of examples) of actual implementation. The book could be more useful with the inclusion of discussion by individuals solely involved in the ADA implementation process to address questions the public has, such as: What is currently going on in the implementation process? What are the problem areas? Why are the number of filed complaints to the EEOC after the first year of implementation far higher than filed complaints from the Civil Rights Act of 1964? However, since the book was written in the first months of enforcement, there was only speculation as to the actual processes of implementation.

Despite this shortcoming, which is understandable when writing on a subject that is changing daily, the book makes an excellent contribution to the growing body of literature on the ADA and serves as a good introduction to the basics of the ADA.

Marta W. Casper
The George Washington University

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