National Cost Efficiency of Supported Employees With Intellectual Disabilities: 2002 to 2007

Robert E. Cimera
Kent State University

Abstract

The cost efficiency of supported employees with intellectual disabilities who were served by vocational rehabilitation agencies throughout the United State from 2002 to 2007 was explored. Findings indicate that, on average, supported employees with intellectual disabilities were cost-efficient from the taxpayers' perspective regardless of whether they had secondary disabilities. In addition, no changes in cost efficiency were found during the period investigated. The data, however, did demonstrate considerable variability in cost efficiency throughout the United States and its territories.

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Cost efficiency is the measurement of the monetary benefits and costs actualized by a given perspective from the undertaking of a specific decision (Levin & McEwan, 2000). For instance, prospective students may use cost-efficiency methodologies to determine whether they should pursue graduate school. They may compare the monetary benefits of getting a graduate degree (e.g., an expected increase in pay after the degree is conferred) versus the corresponding monetary costs (e.g., tuition and the income that they could have generated had they not returned to school).

Results of cost-efficiency analyses are often presented in the form of benefit–cost ratios, where gross benefits are divided by gross costs. A benefit–cost ratio greater than 1.00 indicates that a decision is cost efficient. Some authors, however, have indicated that reporting *net benefits* (i.e., gross benefits minus gross costs) provide more useful information (Boardman, Greenberg, Vining, & Weimer, 2006). Consider the following example. A program serving individuals with intellectual disabilities generates $1,000 of benefits per $500 of costs. A second and similar program generates $2,000 of benefits per $1,000 of costs. Both programs are cost efficient and produce a benefit–cost ratio of 2.00 (i.e., $1,000/$500 and $2,000/$1,000, respectively). However, the first program only returns a net benefit of $500 (i.e., $1,000/$500), whereas the second program returns twice as much (i.e., $2,000/$1,000). In other words, all things being equal, the second program is more economically desirable.

Since 1980, many researchers have explored the monetary costs and benefits of supported employment. Some have examined supported employment from the perspective of workers with disabilities (cf. Cho & Schuermann, 1980; Kregel, Wehman, & Banks, 1989; Lam, 1986; Thompson, Powers, & Houchard, 1992). Others have examined supported employment from the perspective of taxpayers (cf. Baer, Simmons, Flexer, & Smith, 1995; Hill & Wehman, 1983; Rogers, Sciarappa, MacDonald-Wilson, & Danley, 1995; Schneider, Rusch, Henderson, & Geske, 1981; Wehman et al., 1985; Zivolich, Shueman, & Weiner, 1997).

For instance, Hill, Wehman, Kregel, Banks, and Metzler (1987) examined the monetary benefits and costs of 214 supported employees with intellectual disabilities in Virginia over a 94-month period. They found that for every dollar of

costs, these supported employees returned $1.87 to taxpayers. Conversely, Rusch, Conley, and McCaughrin (1993) investigated the cost efficiency of 729 supported employees with intellectual disabilities in Illinois and found that over a 4-year period, the return from supported employment was only $0.77 to taxpayers for every dollar of costs. Extensive reviews of these and other studies in the literature can be found in Cimera (2000), Cimera and Rusch (1999), and Kregel, Wehman, Revell, and Cimera (2000).

Although a once well-explored area of inquiry, there are at least three weaknesses of the cost-efficiency literature on supported employees with intellectual disabilities. The first is that nearly all of the available literature is more than 10 years old. Indeed, the most recent cost-efficiency analysis on supported employees with intellectual disabilities was published in 1998 (Cimera, 1998). Given that even slight changes in economic variables (e.g., how programs are funded, the rates at which taxes are calculated, or how much supported employees earn per hour) can alter a program's cost-efficiency, it is logical to assume that all of the previous research on this topic is now out-of-date (Heal, McCaughrin, & Tines, 1989).

Second, all of the prior cost-efficiency research on supported employees is based upon localized data. In fact, most of the available research comes from programs in only two states, Virginia (cf. Hill, Banks, et al., 1987; Hill & Wehman, 1983; Wehman, Hill, Wood, & Parent, 1987; Wehman et al., 2003) and Illinois (cf. Conley, Rusch, McCaughrin, & Tines, 1989; McCaughrin, Rusch, Conley, & Tines, 1991; Rusch et al., 1993; Tines, Rusch, McCaughrin, & Conley, 1990). As many investigators have found, monetary costs and benefits vary considerably within states as well as between them (Cimera, in press; Lewis, Johnson, Bruininks, Kallsen, & Guillery, 1992). Consequently, findings from Virginia or Illinois are unlikely to apply to individuals in Vermont or Iowa, thus limiting the utility of this research to policymakers and practitioners.

Finally, just as costs and benefits vary from location to location, there are considerable variations in the economic outcomes achieved by supported employees (Braddock, Hemp, & Rizzolo, 2008; Kregel et al., 1989; Noble, Conley, Banjerjee, & Goodman, 1991). Accordingly, studies with small sample sizes may not accurately reflect the economic potential of supported employment. Unfortunately, many of the available cost-accounting studies on supported employment have sample sizes of 100 or less (cf. Cho & Schermann, 1980; Hill & Wehman, 1983; Lam, 1986; McCaughrin, 1988; Schneider et al., 1981).

In the present study my goal was to address these shortcomings by analyzing data on all 104,213 supported employees with intellectual disabilities served by vocational rehabilitation agencies throughout the United States and its territories from 2002 to 2007. Specifically, I investigated four crucial questions that have not been explored since 2000. First, Are supported employees with intellectual disabilities cost-efficient from the taxpayers' perspective? This topic has been examined previously (cf. Schneider et al., 1981; Wehman et al., 1985; Wehman et al., 1987). However, as indicated earlier, all available studies are out-of-date. New analyses are needed to provide policymakers with accurate and contemporary data from which they can make informed decisions.

Second, Do secondary conditions affect the cost efficiency of supported employees with intellectual disabilities? More precisely, I attempted to confirm findings published in the 1990s that individuals with multiple conditions were just as cost efficient as individuals with only one diagnosis (Cimera, 1998; Noble et al., 1991). Given that many individuals who participate in supported employment have multiple conditions, understanding the impact of secondary conditions is paramount to comprehending the actual economic value of supported employment.

Third, Did the cost efficiency of supported employees with intellectual disabilities change from 2002 to 2007? The cost of providing supported employment may be increasing (Cimera, 2006). If this is accurate, the cost efficiency of supported employment to taxpayers would most likely be decreasing over time. In order to determine whether this was the case, I conducted a trend analysis of the cost efficiency of supported employment from 2002 to 2007.

Fourth, Were some states (or territories) more cost-efficient than others at providing supported employment to individuals with intellectual disabilities? Although researchers have repeatedly found that there are considerable variations between states in how supported employment is funded and what outcomes supported employees achieve (cf. Braddock et al., 2008; Rusch &

Braddock, 2005), to date there has been no detailed comparison between the cost efficiency of supported employees from all regions of the country. In the present study I addressed this shortcoming by calculating the cost efficiency of supported employees with intellectual disabilities from each state and U.S. territory.

Method

Data Source

The primary source of data for the present study originated from the Rehabilitation Services Administration's (RSA) 911 database, which consists of 43 fields of information on every individual who has ever applied for services from vocational rehabilitation services throughout the United States and its territories (e.g., American Samoa, Puerto Rico, Virgin Islands). Data include, but are not limited to, demographic information on the consumer (e.g., primary disability, secondary disability, age, gender), the total reimbursement cost of all services funded by vocational rehabilitation agencies, and the average amount of wages earned and subsidies received per week.

Specially trained counselors employed by each state's vocational rehabilitation agency enter data into a computerized case management system when individuals applied for services and when their cases are eventually closed. Data are then cross-checked with two computer programs, RSA_ERA and RSA Edit Program (Rehabilitation Services Administration, 2004). Both programs identify discrepancies and potential errors within each case record as well as confirm that each field of data is unique and not a duplicate.

Participants

From 2002 to 2007, 3,782,314 individuals had their cases closed by vocational rehabilitation agencies. Of these, 6.1% (231,204) had supported employment as a vocational goal on their Individual Plan for Employment (IPE). This included individuals funded by Title I and Title VI-B sources. Of these supported employees, 45.1% (104,213) had primary or secondary diagnoses of mental retardation. This cohort comprises the population for the present study. Their demographic characteristics are presented in Table 1.

Variables

Disability. When an individual is determined to be eligible for services, vocational rehabilitation agency counselors classify their primary disability as being 1 of 19 impairment codes (e.g., sensory impairments, physical impairments, and mental impairments). Each impairment code is then assigned 1 of 37 cause codes, including cause unknown, mental retardation, schizophrenia, cancer, and accident. If an individual has a secondary condition, it is coded in the same

Table 1. Demographics of Supported Employees With Intellectual Disabilities (in %) Served by Vocational Rehabilitation Agencies From 2002 to 2007

Characteristic	2002	2003	2004	2005	2006	2007	2002–2007
Male	57.3	56.9	56.9	57.0	56.2	57.0	56.9
Female	42.3	43.1	43.1	43.0	43.8	43.0	43.1
Age (in years)	37.06	32.09	33.99	33.94	32.39	n/a	33.89
White	70.7	69.7	73.0	73.2	72.8	71.2	71.8
African American	21.5	22.7	23.3	24.1	24.7	26.3	23.8
Native American	1.0	1.0	1.0	1.2	1.2	1.3	1.1
Asian	1.8	1.5	1.6	1.7	1.6	1.8	1.7
Pacific Islander	0.4	0.5	0.3	0.5	0.5	0.4	0.4
Hispanic or Latino	8.5	8.5	9.5	9.1	8.7	8.5	8.8
With secondary diagnosis	46.9	46.6	46.9	47.6	47.6	49.3	47.5

Note. Individuals could identify themselves as members of multiple ethnicities. Consequently, the cumulative percentages do not equal 100. Further, age was not available for supported employees whose cases were closed in 2007. The *N*s for 2002 through 2007 are 17,280; 17,482; 17,541; 17,497; 17,549; and 16,864, respectively. *N* for 2002–2007 was 104,213.

manner. For the purposes of the present research, individuals were considered to have an intellectual disability if either their primary or secondary conditions were caused by "mental retardation."

State vocational rehabilitation agencies. Each state and U.S. territory has two vocational rehabilitation agencies, one that provides services to individuals who are blind, the second for all other eligible individuals. For the purposes of the present study, all vocational rehabilitation agencies in each state were combined. However, state vocational rehabilitation agencies for individuals who are blind only provided minimal data for this study. Of the 104,213 supported employees with intellectual disabilities comprising the dataset, only 297 (.003%) received services from the vocational rehabilitation agencies serving those who were blind (i.e., they were blind and had mental retardation).

Change in subsidies received. Included within RSA's 911 database are data on how much each individual received in government subsidies per month at the time they applied for services as well as when their case was official closed. Types of governmental subsidies recorded were Social Security Disability Insurance (SSDI), Supplemental Security Income (SSI), Temporary Assistance for Needy Families (TANF), and "All Other Public Support," which includes General Assistance, Veteran's Disability Benefits, and Workers' Compensation. To measure the change in governmental subsidies received by supported employees, I subtracted the average monthly amount of public support at closure from the average monthly amount of public support at application.

Taxes paid. Included within RSA 911 database was the average amount of wages each individual earned per month at the time their case was closed. Based upon these gross wages, I calculated taxes for federal income tax, Social Security, Medicare, and (when appropriate) state income taxes. When calculating state and federal income taxes, I assumed that individuals were single and declared only themselves as dependents. Only standard deductions were factored into the calculations. I computed taxes using tax tables for 2007 provided online by each state's Department of Revenue or its territorial equivalent and calculated deductions for Social Security and Medicare at 6.2% and 1.45%, respectively (Tax Form Processing LLC, 2009).

Alternative program costs. As part of cost-efficiency analyses, the foregone costs of programs that individuals would have been in had they not entered supported employment are considered a benefit of supported employment (Conley & Noble, 1990; Johnston, 1987). For purposes of the present study, I assumed that if individuals were not enrolled in supported employment, they would have been in sheltered workshops. Such an assumption has been made throughout the supported employment cost-accounting literature (cf. Conley et al., 1989; Rusch et al., 1993; Tines et al., 1990).

In order to determine the monthly costs of sheltered workshops, I utilized data that I published in 2007 (Cimera, 2007a). In that study I investigated the cumulative costs generated by 209 sheltered employees with intellectual disabilities from 2002 to 2005 and determined that the average per capita cost of the services that these individuals received was $1,991 per fiscal quarter or $663.67 per month in 2005 dollars. This figure is consistent with data used by previous authors, if their data were converted to 2005 dollars (cf., Hill, Banks, et al, 1987; Hill, Wehman, et al., 1987).

Cost of supported employment services. The RSA 911-database documents the services provided to each supported employee (e.g., assessment, training, medical services, transportation) and the total costs that vocational rehabilitation agencies paid vendors for furnishing them. The cumulative cost of services was divided by the number of months the individual received services, thus creating a monthly cost of supported employment.

Targeted Jobs Tax Credit (TJTC). When hiring individuals with disabilities, employers may be eligible for a tax credit equal to 40% of the first $6,000 earned by the supported employee. In previous cost-efficiency research, most authors assumed that all employers would apply for, and receive, tax credits (cf. Hill, Wehman et al., 1987; McCaughrin et al., 1991; Rusch et al., 1993). However, in a recent study, I found that employers of supported employees rarely used such incentives (Cimera, in press). For the purposes of the present study, I assumed that 75% of employers would collect the tax credits offered through TJTC programs for an average monthly credit to employers of $150.

Calculating Cost Efficiency

I calculated cost efficiency from the taxpayers' perspective using a formula utilized by other

authors (Baer et al., 1995; McCaughrin et al., 1991; Rusch et al., 1993; Zivolich et al., 1997). The cost-efficiency framework from the perspective of the taxpayer was as follows: (a) taxes paid, decreases in subsidies, and savings from alternative program costs were perceived as benefits; and (b) supported employment operating expenditures and tax credits to employers were seen as costs. Gross monthly benefits were divided by gross monthly costs, thus producing a benefit–cost ratio. I also calculated net benefit by subtracting gross costs from gross benefits. A negative net benefit indicates a net cost to taxpayers. (For example, if the amount of subsidies received increased as a result of supported employment, as was found by Rusch et al. [1993], change in subsidies actually becomes a cost to taxpayers.)

Conversion of Dollar Values

Because a dollar spent in 2002 does not equal a dollar spent in 2007, I had to convert the monetary data examined for the present study to identical fiscal denominations (i.e., 2008 dollars). To accomplish this, I multiplied the dollar value by the Consumers Price Index (CPI) of the base year (2008) and then divided the resulting product by the CPI of the year that the dollar value was originally designated (Levin & McEwan, 2000). For example, as previously stated, the average monthly cost of sheltered workers with intellectual disabilities that I identified in an earlier study (Cimera, 2007a) was $663.67 in 2005 dollars. To convert this figure to 2008 dollars, I multiplied $663.67 by 2008's annual CPI (i.e., 215.303). The result was then divided by 2005's annual CPI (195.3), indicating that $663.67 in 2005 is the equivalent to $731.64 in 2008 dollars.

Results

Question 1: Are Supported Employees With Intellectual Disabilities Cost-Efficient From the Taxpayers' Perspective?

As can be seen in last column of Table 2, when taken as an entire group, the average supported employee with intellectual disabilities served by vocational rehabilitation agencies from 2002 to 2007 generated a per capita gross monthly benefit to taxpayers of $769.54 (in 2008 dollars). Their corresponding per capita gross monthly cost to taxpayers was $636.45, for a net monthly benefit of $133.10 and a benefit–cost ratio of 1.21. In other words, the average supported employee with intellectual disabilities served by vocational rehabilitation agencies returned $1.21 of benefits (e.g., taxes paid and foregone program costs) to taxpayers for every $1.00 of costs (e.g., supported employment operating costs, taxes lost due to TJTCs) (see Table 2).

Question 2: Do Secondary Conditions Affect the Cost Efficiency of Supported Employees With Intellectual Disabilities?

As indicated in Table 3, of the supported employees with intellectual disabilities served by vocational rehabilitation agencies from 2002 to 2007, 52.5% had no other diagnoses. Conversely, 47.5% had secondary conditions in addition to mental retardation. Supported employees without secondary conditions generated an average per capita gross monthly benefit to taxpayers of $697.38 and an average per capita gross monthly cost of $569.14 for a monthly net benefit of $128.24 and a benefit–cost ratio of 1.23. Supported employees with secondary conditions, on the other hand, generated an average per capita gross monthly benefit to taxpayers of $697.65 and an average per capita gross monthly cost of $584.62. Their monthly net benefit and cost-benefit ratio were $113.03 and 1.19, respectively (see Table 3).

Question 3: Did the Cost Efficiency of Supported Employees With Intellectual Disabilities Change From 2002 to 2007?

As documented in the last two rows of Table 2, supported employees with intellectual disabilities who had their cases closed by vocational rehabilitation agencies in 2002 generated an average net monthly benefit to taxpayers of $108.91 and a benefit–cost ratios of 1.17. By 2007, these outcomes remained nearly identical. Individuals who had their cases closed in that year generated an average net monthly benefit of $119.43 and a benefit–cost ratio of 1.18.

Question 4: Were Some States (or Territories) More Cost-Efficient Than Others at Providing Supported Employment to Individuals With Intellectual Disabilities?

As part of this study, benefit–cost ratios and net benefits to taxpayers were calculated for

Table 2. Per Capita Monetary Benefits and Costs (in Dollars) to Taxpayers From All Supported Employees With Intellectual Disabilities Served by Vocational Rehabilitation Agencies From 2002 to 2007

Cost-accounting variable	2002 (17,280)	2003 (17,482)	2004 (17,541)	2005 (17,497)	2006 (17,549)	2007 (16,864)	2002–2007 (104,213)
Reduction in subsidies[a]	(24.55)	(10.62)	(1.62)	(7.28)	(6.69)	(6.99)	(9.60)
Savings from alternative programs	731.64	731.64	731.64	731.64	731.64	731.64	731.64
Taxes paid	48.53	48.78	46.84	46.46	47.25	47.18	47.51
Gross monthly benefits	755.62	769.80	776.87	770.82	772.20	771.84	769.54
Costs of supported employment	496.72	491.49	451.99	488.84	488.03	502.41	486.45
Targeted job tax credits	150.00	150.00	150.00	150.00	150.00	150.00	150.00
Gross monthly costs	646.72	641.49	601.99	638.84	638.03	652.41	636.45
Net monthly benefits	108.91	128.31	174.88	131.98	134.17	119.43	133.10
Benefit–cost ratio	1.17	1.20	1.29	1.21	1.21	1.18	1.21

Note. Population size in parentheses. All values presented in 2008 dollars.
[a]Parentheses in the reduced subsidies line indicate that subsidies did not decrease.

vocational rehabilitation agencies programs from all 50 U.S. states, 4 territories (i.e., American Samoa, Guam, Puerto Rico, and Virgin Islands), and the District of Columbia. Results presented in Table 4 show considerable variations in the monetary returns to taxpayers. For instance, supported employees from Guam, the most efficient region, had an average per capita monthly net benefit of $566.62 and a benefit–cost ratio of 3.57. The Virgin Islands, on the other hand, was the least efficient region, generating an average benefit–cost ratio of 0.37 and an average per capita monthly net cost to taxpayers of $1,126.46. Of the 55 regions investigated, all but 9 (Indiana, Arizona, Hawaii, Washington, Wisconsin, California, Illinois, Puerto Rico, and the Virgin Islands) were cost efficient when providing services to supported employees with intellectual disabilities.

Discussion

Although the cost efficiency of supported employment was once a well-explored area of inquiry, few researchers have investigated the monetary benefits and costs of supported employees with intellectual disabilities over the past decade. Further, no previous researchers have explored the cost efficiency of supported employment across the entire United States. To this end, the present study extends the literature on the monetary costs and benefits of supported employment. Several salient findings emerged that may assist in the advancement of supported employment for individuals with intellectual disabilities.

The first of these findings was that supported employees with intellectual disabilities were cost-efficient from the taxpayer's perspective in each of the 6 years examined. Indeed, taken as a total, supported employees who received services from vocational rehabilitation agencies in 2002 to 2007 generated an average net monthly benefit to taxpayers of $133.10 and a benefit–cost ratio of 1.21. Stated more simply, for every dollar taxpayers lost as a result of supported employment, they gained $1.21.

Moreover, results suggest that the presence of secondary conditions did not adversely affect an individual's cost efficiency. Supported employees with and without secondary conditions actualized nearly identical net monthly benefits ($113.03 vs. $128.24, respectively) and benefit–cost ratios

Table 3. Per Capita Monetary Benefits and Costs (in Dollars) of Supported Employees With and Without Secondary Conditions

	Secondary conditions	
Cost accounting variable	Without (54,728)	With (49,485)
Reduction in subsidies[a]	(9.38)	(6.57)
Savings from alternative programs	663.67	663.67
Taxes paid	43.09	40.55
Gross monthly benefits	697.38	697.65
Costs of supported employment	419.14	434.62
Targeted job tax credits	150.00	150.00
Gross monthly costs	569.14	584.62
Net monthly benefits	128.24	113.03
Benefit–cost ratio	1.23	1.19

Note. Population size in parentheses. All values presented in 2008 dollars.
[a]Parentheses in the reduced subsidies line indicate that subsidies did not decrease.

(1.19 vs. 1.23, respectively). Taken together, these results support the findings of previous research in which investigators found that providing supported employment services to individuals with intellectual disabilities is financially justifiable from the taxpayers' point of view (Hill, Banks, et al., 1987; Hill & Wehman, 1983; Wehman et al., 1985).

Another significant finding from the present research was that, on average, supported employees acquired more government subsidies after applying for vocational rehabilitation services than they received prior to applying for services. For instance, in 2002, individuals with intellectual disabilities received $24.55 more per month from SSDI, SSI, TANF, and other forms of public support than before they were in supported employment. In other words, supported employment does not reduce the need for governmental subsidies as is often claimed (Cimera, 2000); rather, it appears to increase the amount of subsidies received.

This finding was not completely unexpected. Rusch et al. (1993) found a similar result in their 1989 data. However, what was surprising was the pervasiveness of this finding. In each of the 6 years studied, the average amount of subsidies received increased after individuals enrolled in supported employment. Based upon the data provided here, it would seem that once enrolled in supported employment, individuals with intellectual disabilities are more apt to apply for, and receive, public assistance, perhaps due to the advocacy of vocational rehabilitation agency counselors or job coaches. Yet, it is important to note that even with this increase in subsidies, which is a cost to taxpayers, supported employment is still cost-efficient.

Another surprising outcome of the present study was the variation in the cost efficiency of supported employment across the United States. For instance, supported employees from Nebraska, the most cost-efficient state, generated an average net monthly benefit to taxpayers of $481.49 and a benefit–cost ratio of 2.77. On the other hand, supported employees from Illinois, the least efficient state, generated an average net monthly benefit of −$364.88 (i.e., a net cost to taxpayers of $364.88) and a benefit–cost ratio of 0.63.

These results closely mirror many findings from previous research. For example, several researchers have concluded that supported employees from Illinois are not cost efficient from the taxpayers' perspective (cf. Conley et al., 1989; Rusch et al., 1993; Tines et al., 1990). In fact, Conley et al. and Tines et al. determined that supported employees in Illinois returned $0.66 per dollar of taxpayer costs compared to the $0.63 found here. Further, Hill and Wehman's (1983) findings indicated that in Virginia, supported employees with intellectual disabilities returned $1.17 per dollar of taxpayer costs compared with $1.36 found in the present study.

The fact that the cost efficiency of supported employment has not changed much since the 1980s and 1990s is counter-intuitive. The a priori hypothesis was that changes in how supported

Table 4. Net Benefit and Benefit–Cost Ratios (in Dollars) of Supported Employees by State

State/Territory	*n*	Net benefit[a]	Benefit–cost ratio
Guam	3	566.62	3.57
Dist. of Columbia	69	482.49	1.97
Nebraska	618	481.17	2.77
Massachusetts	269	452.65	2.75
American Samoa	2	425.85	2.55
New York	10,970	395.92	2.17
Nevada	417	377.69	2.07
Mississippi	1,177	373.43	2.15
Maryland	1,396	352.36	1.98
Minnesota	1,800	342.26	2.04
Texas	4,961	316.93	1.90
New Jersey	1,369	306.16	1.72
Arkansas	247	291.46	1.65
South Dakota	765	279.91	1.73
Idaho	854	279.77	1.74
New Mexico	637	276.45	1.67
Colorado	839	272.08	1.68
West Virginia	544	269.64	1.69
Oregon	766	269.01	1.61
Georgia	2,338	260.15	1.61
Wyoming	458	251.11	1.47
Oklahoma	1,979	245.17	1.48
Iowa	1,998	244.87	1.62
Utah	529	239.85	1.50
South Carolina	596	229.17	1.44
Michigan	3,701	222.02	1.48
Connecticut	351	218.12	1.47
Rhode Island	474	191.78	1.43
Alabama	1,860	185.55	1.33
Virginia	3,243	184.87	1.36
Ohio	3,481	178.64	1.35
North Dakota	280	177.96	1.34
Kentucky	1,880	177.00	1.35
Florida	5,027	163.31	1.33
New Hampshire	326	161.74	1.32
North Carolina	7,264	150.63	1.27
Kansas	716	112.50	1.20
Alaska	184	109.14	1.20
Maine	217	103.79	1.16
Vermont	940	88.93	1.15
Louisiana	1,995	87.30	1.14
Tennessee	2,970	82.33	1.16
Pennsylvania	2,047	70.71	1.11
Montana	376	54.15	1.09
Delaware	274	47.94	1.07

(Table 4 continued)

Table 4. Continued

State/Territory	*n*	Net benefit[a]	Benefit–cost ratio
Missouri	3,149	21.61	1.03
Indiana	6,198	(6.29)	0.99
Arizona	559	(82.04)	0.89
Hawaii	71	(106.61)	0.86
Washington	487	(148.04)	0.84
Wisconsin	1,103	(157.50)	0.79
California	16,923	(195.41)	0.78
Illinois	1,757	(364.88)	0.63
Puerto Rico	730	(630.37)	0.54
Virgin Islands	29	(1,126.46)	0.37

[a]Parentheses in the net benefit column indicate a net cost to taxpayers.

employment is funded or practiced would have altered its cost efficiency over time. However, the benefit–cost ratios calculated here were remarkably consistent from 2002 to 2007 as well as with research presented nearly 20 years earlier, suggesting that the policies and practices governing supported employment are more static than originally supposed.

The implications of the results in the present study are potentially substantial. This study reaffirms, on a national level as well as with current data, that providing supported employment services to individuals with intellectual disabilities is a financially sound decision in 46 out of 55 states and territories. As indicated by many authors, providing supported employment services to this population is a "win–win" situation for both individuals with intellectual disabilities and taxpayers (Cimera, 2000; Cimera & Rusch, 1999; Kregel et al., 2000).

However, this study does have limitations. The population investigated only involved individuals with intellectual disabilities served by vocational rehabilitation agencies. Those with other conditions (e.g., sensory impairments) or served via other funding sources (e.g., departments of mental health) may result in starkly different returns on the taxpayers' investment. Future researchers will need to investigate these issues.

Further, in the present study I did not factor in the costs associated with providing follow-along services to supported employees, which are traditionally not funded by vocational rehabilitation agencies. However, services funded by such agencies have been found to be the lion's share of the costs of supported employment (Cimera, 2007b). Moreover, this cost has been shown to decrease over time, whereas the benefit of not funding alternative programs (e.g., sheltered workshops) remains constant or increases (Cimera, 2008). Thus, any costs attributed to follow-along services would most likely be more than offset by the benefits of not funding alternative programs.

In addition to examining the cost efficiency of supported employees with other conditions or those funded with non-vocational rehabilitation agencies dollars, future researchers should also examine perspectives other than those of the taxpayers. For example, few investigators have explored the cost efficiency of supported employment from the employers' perspective (Cimera, 2009). Moreover, although many researchers have examined the perspective of the supported employee, most of these studies are out-of-date. Further research is necessary to determine whether individuals with disabilities are better off financially as a result of participating in supported employment.

Although a useful tool for policymakers, cost efficiency does not include nonmonetary costs, such as safety, improved quality of life, and increases in self-esteem or happiness. These factors are just as important as monetary benefits and should also be considered whenever programs are being evaluated. Programs that are not cost-efficient may still be socially desirable.

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Correspondence regarding this article should be sent to Robert E. Cimera, Kent State University, Educational Foundations and Special Services, White Hall, Kent, Ohio 44242. E-mail: rcimera@kent.edu

