An Evaluation of the Long-Term Service Costs and Vocational Outcomes of Supported and Center-Based Employees in Wisconsin

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Executive Summary

This evaluation explored the outcomes and monetary costs associated with supported and center-based employment in Wisconsin for the period January, 2000 to June, 2008 and for the month of September, 2009. Comparisons were made within and between three cohorts: (a) 154 individuals who worked in both the community via supported employment and in work centers, (b) 171 pairs of supported and center-based employees who possessed identical characteristics across 9 demographic variables, and (c) all 325 supported employees and 325 center-based employees participating in the study (i.e., 154 individuals in both programs plus 171 members of the matched pairs).

Across each comparison conducted, supported employees generated fewer total cumulative costs than center-based employees. For instance, from January 2000 to June 2008, all supported employment participants included in this study received follow along services costing the Wisconsin’s Family Care and Waiver funding systems an average of $9,130.43. This is compared to $32,353.40 averaged by center-based employees receiving prevocational services over the same period.

When matched pairs were examined, 66.5% of supported employees generated less cumulative costs than center-based employees with the same disabilities. Moreover, when individuals worked in both programs, 65.6% of time they generated fewer cumulative costs as supported employees than when they worked in center-based settings.

However, cumulative costs do not take into consideration that one group may have received services longer than the other. To examine this possibility, cost-per-month of service was compared between participants in supported employment and center-based programs. It was found that supported employees received services for an average of 67.90 months; whereas, center-based employees received services for an average of 68.57 months. After adjusting for these differences, supported employees

Primary Findings

- Supported employees generated fewer cumulative follow along costs than individuals served in work centers.
- Center-based employees tended to receive services longer than supported employees.
- Supported employees tended to earn more wages per month than center-based employees.
- Center-based employees tended to work more hours per month than supported employees.
- Supported employment was more cost-effective than work centers with regard to cost-per-month of service, cost-per-hour worked, and cost-per-dollar earned.
generated an average cost of $134.46 per month of service compared to $471.86 for center-based employees.

Yet within these months of receiving services, it could be that one group worked more hours than the other, thereby explaining and justifying the difference in the average monthly cost. To address this, the present evaluation examined the number of hours worked by a sample of 22 individuals who were in both supported and center-based employment during September, 2009. These hours worked were then compared to the costs for the corresponding employment services provided during the month in question. It was found that as supported employees, individuals worked an average of 37.70 hours per month and their service cost averaged $8.01 per hour worked. When in centers, these same individuals worked an average of 53.42 hours per month and their service costs averaged $13.40 per hour worked. In other words, on a “per hour worked” basis, this study found that serving people in supported employment cost the long-term care funding source 40% less than serving them in center-based employment.

Finally, this evaluation sought to determine which program was most cost-effective in relation to cost per dollar earned. It was determined that participants who worked in both programs in September of 2009 earned an average of $308.28 per month as supported employees and $162.14 as center-based employees. This translates to a service cost of $0.98 per dollar earned in supported employment and a service cost of $4.41 per dollar earned in center-based employment. On a “per dollar earned” basis, this study found that providing services to these individuals in supported employment cost the long-term care funding sources 78% less than in center-based employment.
Evaluation Questions

This evaluation explored the follow along costs generated by Wisconsin’s supported and center-based employees and the vocational outcomes that they achieved. The costs presented here relate only to those actualized by Wisconsin’s Family Care and Waiver funding systems during the period January, 2000 through June, 2008 and the month of September, 2009. Costs for services the individuals may have received prior to this period or funded by other sources are not included.

The main intent of this evaluation was to determine the cost-effectiveness of these two programs. More precisely, this study attempted to establish which program (i.e., center-based or supported employment) produced the lowest costs per month of service, lowest cost per dollar earned, and lowest cost per hour worked.

Methodology

Long-Term Care Functional Screen and service cost data were provided to the evaluator for all long-term care participants with disabilities who were in Wisconsin’s supported or center-based employment programs between January 1, 2000 and June 6, 2008. Data included:

- The costs of all services funded by Family Care and Waiver dollars that were provided to each worker during this period,
- The length of time each worker had received supported employment services in the community and/or prevocational services in a work center, and
- Results from the Wisconsin Adult Long Term Care Functional Screen (Version 3) assessment, which contains demographic and functional information on each program participant.

Evaluation Questions

1. What are the cumulative long-term service costs of supported employees in Wisconsin?
2. What are the cumulative long-term service costs of center-based employees in Wisconsin?
3. Which program is most cost-effective regarding cost per month of service?
4. Which program is most cost-effective regarding cost per dollar earned?
5. Which program is most cost-effective regarding cost per hour worked?
From the population of supported and center-based employees, two comparison groups were identified. The first contained 154 workers who participated in both supported and center-based employment at the same time. The second consisted of 171 pairs (i.e., a total of 342 individuals) of center-based and supported employees who possessed identical demographic characteristics.

Specifically, 171 matched pairs consisting of one supported and one center-based employee were created. The criteria for matching individuals included nine variables taken directly from the Wisconsin Adult Long Term Care Functional Screen assessment. These included the worker’s: (a) age, (b) race, (c) gender, (d) diagnosis or diagnoses, (e) employment status, and behavioral ratings of the individual’s (f) self-injurious behaviors, (g) offensive or violent behaviors to others, (h) communication skills, and (i) their toileting abilities.

Behavioral ratings for Self-Injurious Behaviors, Offensive or Violent Behavior to Others, and Communication were based upon a four-option scale. For example, an individual’s self-injurious behaviors were rated as being: "no injurious behaviors demonstrated", “some self-injurious behaviors require interventions weekly or less”, “self-injurious behaviors require interventions 2-6 times per week or 1-2 times per day”, or “self-injurious behaviors require intensive 1-on-1 interventions more than twice a day.” Toileting skills were evaluated using a three-point scale, including: “person is independent in completing the activity safely,” “help is needed to complete task safely, but helper does not have to be physically present throughout the task,” or “help is needed to complete task safely and helper does need to be present throughout task.”

There were six options for an individual’s race: (a) Black or African American; (b) Asian or Pacific Islander; (c) White; (d) American Indian or Alaskan Native; (e) Spanish, Hispanic, or Latino; and (f) Other. Multiple options could be selected for this variable.

The Wisconsin Adult Long Term Care Functional Screen assessment categorized disabilities into 11 possible categories:

- Developmental Disabilities
- Endocrine/Metabolic Conditions,
- Heart/Circulation Disorders,
- Musculoskeletal/Neuromuscular Conditions,
• Brain/Central Nervous System Abnormalities,
• Respiratory Disorders,
• Disorders of Genitourinary System/Reproductive System,
• Mental Illnesses,
• Sensory Impairments,
• Infections/Immune System, and
• Other Conditions.

Each of these broad classifications contained numerous, more specific, options for a total of 71 possible diagnoses. For instance, "developmental disabilities" consisted of (a) mental retardation, (b) autism, (c) brain injury (if onset was before age 22), (d) cerebral palsy, (e) Prader-Willi syndrome, (f) seizure disorder (if onset was before age 22), or (g) "otherwise met state or Federal definitions of developmental disability." As with the individual's race, multiple disabilities could be selected. For example, a worker may have mental retardation (a developmental disability) and chronic asthma (a respiratory disorder) as well as schizophrenia (a mental illness). In such cases, all three diagnoses would be indicated in the individual's functional screen assessment.

Finally, employment status included two options: full-time and part-time. However, neither of these options was defined within the functional screen assessment.

In order to be matched together, a supported and center-based employee had to have precisely the same demographics for the above nine variables. If a worker had multiple disabilities and came from multiple racial backgrounds, another worker would have to have the exact same combinations of disorders and racial backgrounds in order to be paired. In cases where multiple people met the same criteria (e.g., white 24 year old males with mental retardation and no other disabling conditions), individuals were selected for the matched pairs using a computerized random number generator.

Because data for this evaluation encompassed several years (i.e., January 2000 to June 2008), cost data had to be converted to a common monetary unit (i.e., June 2008 dollars). This was done by multiplying the costs generated by each of the participants by the consumers’ price index (CPI) of the base year (FY 2008) and then dividing the resulting product by the CPI of the year that the dollar value was originally designated. For instance, if $100 of services were furnished in 2000, $100 would be multiplied the CPI for June 2008 (i.e., 218.815). The product (21,881.5) would then be divided by FY 2000’s CPI (i.e., 172.2). The result would indicate that $100 of services in 2000 would equate to $127.07 in June 2008 dollars.

In order to obtain data on wages earned, hours worked, and employment service costs in September of 2009, surveys were sent to the agencies providing services to the 496 individuals
comprising the subjects for Questions 1 through 3. A response rate of 25% was accomplished with complete data being obtained on 124 individuals.

Of these 124 individuals, 29 (23.4%) participated in only supported employment programs, 73 (58.9%) participated in only center-based programs, and 22 (17.7%) were in both programs simultaneously. Of the 51 individuals participating in supported employment, 38 (74.5%) were employed in the community exclusively via an individual approach. Three (5.9%) were employed in the community via both an individualized supported employment approach and in work crews or enclaves at the same time. And ten (19.6%) were employed only in work crews or enclaves. And only

The demographics and functional characteristics of these 124 individuals were remarkably similar across these three cohorts (i.e., supported employment only, center-based only, and in both programs). Nearly all were Caucasians diagnosed with developmental disabilities and had no impairments to communication, toileting, or behavior. They comprised the subjects utilized to answer Questions 4 and 5.

Findings

Questions 1 and 2: What Are The Long-Term, Cumulative Follow-Up Costs of Supported and Center-Based Employees in Wisconsin?

The cumulative costs of follow along services provided to supported and center-based employees in Wisconsin were determined using several methods. First, by simply taking an average of all 325 individuals who participated in supported employment programs (i.e., 171 workers who were part of the matched pairs and the 154 who were in both programs at the same time) it was found that supported employees generated a mean total cost to long-term care funding agencies of $9,130.43 (SD=10,732.79). This is compared to $32,353.40 (SD=26,119.69) for the 325 center-based employees included within this evaluation.

Second, supported and center-based employees in the 171 matched pairs were compared. Utilizing this approach, it was found that supported employees

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1 Standard Deviation.
employees from the matched samples acquired follow along services costing an average of $16,238.60 (SD=$12,203.77) while the work center cohort acquired prevocational services averaging $29,382.67 (SD=$29,661.89). To put these figures in perspective, in 66.5% of the matched pairs, supported employees generated lower expenditures to funding agencies than their center-based pair with the exact same demographic and functional characteristics.

When individuals worked in both programs, they received follow along services costing an average of $7,993.73 (SD=$11,969.41) when they were in supported employment and $33,478.80 (SD=$33,571.70) when they were being served in work centers. Nearly two-thirds of the time (i.e., 65.6%), individuals generated fewer costs when they were in supported employment than when they were being provided services in work centers.

**Summation of Questions 1 and 2**

With regard to Questions 1 and 2, this study found that supported employment was typically more cost-effective than center-based programs. Specifically, when all participants were examined together, supported employees generated average cumulative costs that were 71.8% less than center-based employees. Further, when individuals participated in both supported and center-based programs at the same time, they generated fewer costs as supported employees in nearly two-thirds of the cases. However, it is important to note that these analyses do not take into account differences in the number of months of service received by the study’s participants. Nor do they take into consideration the differences in wages earned or hours worked.

**Question 3: Which Program Generates the Least Amount of Costs Per Month of Service?**

When all 496 participants were examined, it was found that supported employees received services for an average of 67.90 months (SD=30.42) between January, 2000 and June, 2008. This is compared to 68.57 months (SD=29.96) for center-based employees. When cost per month of service was calculated, supported employees generated an average cost of $134.46 per month. Center-based employees generated an average cost of $471.86 per month.

Taking into consideration only the 171 matched pairs, individuals in supported employment received services for an average of 54.13 months (SD=37.70) versus 60.47 months (SD=38.26) for individuals in work centers. Further, supported employees received services longer than their center-based employee matched pair in 46.8% of

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**Average Cost per Month of Service**

**For all 496 Individuals**
- $134.46 for Supported Employees
- $471.86 for Center-based Employees

**For 171 Matched Pairs**
- $300.00 for Supported Employees
- $458.82 for Center-based Employees

**For 154 Individuals in Both Programs**
- $192.64 as Supported Employees
- $448.60 as Center-based Employees
the cases, while center-based employees received services longer than their supported employee matched pair 49.8% of the time. In the remaining 0.4% of incidences, both matched pairs received services for identical periods.

When cost per month of services was calculated for the matched pairs cohort, it was found that supported employees generated an average cost per month of $300.00 (SD=$269.56). Center-based employees, on the other hand, accrued $458.82 (SD=$366.42) per month. In these analyses, 68.4% supported employees were more cost-effective than their matched pair from work centers.

Finally, when examining only the 154 individuals who were served in both programs at the same time, it was found that these participants received services for an average of 53.60 months (SD=40.66) as supported employees and 66.27 months (SD=34.53) as center-based workers. In the majority of cases (i.e., 53.2%), individuals obtained services longer as center-based employees than as supported employees. However, in 13.0% of the cases, individuals received services longer in supported employment than in work centers. In the remaining 33.8% of the cases, individuals received services in both environments for identical lengths of time.

As a group, individuals who worked in both settings generated an average cost of $149.14 (SD=$209.83) per month when they were in supported employment and $505.19 (SD=$348.25) when they were in work centers. In most incidences (i.e., 72.7% of the time), individuals generated fewer costs per month as supported employees than when they were center-based employees.

**Summation of Question 3**

While the analyses of cumulative costs explored in Questions 1 and 2 did not factor in differences in the number of months of service received by supported and center-based employees, the analysis completed for Question 3 addressed this directly. Results presented here indicate that participants of work centers receive services for longer durations than participants of supported employment. However, the average cost per month of service was lower in supported employment than for center-based employment. For instance, when individuals were in both programs at the same time, they received services 19.1% longer in work centers, but their cost per month of service was 70.5% less when they were supported employees. As with the analyses conducted to answer Questions 1 and 2, this analyses presented here do not take into consideration the differences in wages earned or hours worked.

**Question 4: Which Program Generates The Least Amount of Costs Per Dollar Earned?**

Data on programmatic costs, wages earned, and hours worked per month were obtained on 124 participants—29 supported employees, 73 center-based employees, and 22 who were in both programs during September, 2009.

Individuals served only through supported employment programs earned an average of $361.04 (SD=$279.32) in gross wages and received services costing funding sources $631.74
(SD=$703.79) per month. This resulted in a cost to the long-term care funding agency of $1.75 per dollar earned by individual.

In contrast, individuals who were served only in center-based employment programs earned an average of $159.77 (SD=$135.38) per month and had an average prevocational service cost of $1,073.98 (SD=$1008.46). This resulted in a cost to the long-term care funding agency of $6.72 per dollar earned by individual.

Finally, when individuals were in both programs, they earned an average of $308.28 per month (SD=$435.21) as supported employees and received services costing $301.80 (SD=$309.10). This resulted in a cost to the long-term care funding agency of $0.98 per dollar earned. However, while in center-based programs, these same individuals earned an average of $162.14 per month (SD=$183.06) and received services costing $715.72 (SD=$472.53). This resulted in a cost to the long-term care funding agency of $4.41 per dollar earned.

In 59.1% of the cases, individuals working in both programs earned more in supported employment than in work centers during the month for which wage and hour data were collected. Further, in 72.7% of the cases, these individuals generated a lower cost per dollar earned ratio as supported employees than as center-based employees.

**Summation of Question 4**

Taken in its entirety, analyses addressing Question 4 suggest that supported employees earned more per month and generated a lower cost per dollar earned ratio than center-based employees. For instance, when working in both programs, individuals earned 90.1% more as supported employees than they did as center-based employees. Moreover, they generated 77.8% fewer costs per dollar earned when employed in the community than when they worked in center-based programs. Of course, like all of the previous analyses, this analysis does not take account of differences in hours worked by these two populations.

**Question 5: Which Program Generates The Least Amount of Costs Per Hour Worked?**

The 29 participants who were only in supported employment during September of 2009 worked an average of 60.45 hours (SD=36.45) per month. As previously stated, they received services costing an average of $631.74 (SD=$703.79), which translates to a cost to the long-term care funding agency of $10.45 per hour worked.
The 73 participants who were employed only in centers in September of 2009 worked an average of 67.51 hours (SD=36.38) per month and generated a cost of service of $1,073.98 (SD=$1,008.46). This resulted in a cost to the long-term care funding agency of $15.91 per hour worked.

Finally, when the 22 individuals who participated in both programs in September of 2009 were in supported employment, they worked an average of 37.70 hours (SD=34.88) per month and received services costing $301.80 (SD=$309.10). This resulted in a cost to the long-term care funding agency of $8.01 per hour worked. While in centers, these same individuals worked an average of 53.42 hours (SD=37.57) per month and received prevocational services costing $715.72 (SD = 441.11). This resulted in a cost to the long-term care funding agency of $13.40 per hour worked.

When individuals participated in both programs, they worked more hours in sheltered workshops 56.5% of the time. However, as supported employees, they generated a lower cost per hour worked ratio in 63.6% of the cases.

**Summation of Questions 5**

Analyses addressing Question 5 indicate that individuals worked more hours per month in centers than in supported employment programs: 67.51 versus 60.45 hours for the matched pairs cohort; and 53.42 versus 37.70 hours for the cohort working in both programs. However, the supported employees generated a lower service cost per hour worked than center-based employees. For example, when individuals participated in both programs at the same time, they generated 40.2% lower employment service costs per hour worked as supported employees than they did as center-based employees. Further, individuals participating only in supported employment generated 34.3% lower employment service costs per hour worked than their counterparts in center-based employment.

**Interpretations**

The evidence stemming from the presented analyses appear to support previous research indicating that supported employment is less costly than center-based programs (Cimera, 2008). In each analysis conducted for this evaluation, supported employees were generally more cost-effective than individuals participating in centers. Specifically, when the total cumulative costs generated by all 496 participants (342 individuals comprising the matched
pairs and the 154 who were employed in both programs) were explored, supported employment was found to be 71.8% cheaper than work centers ($9,130.43 versus $32,353.40, respectively).

When cumulative costs were compared across the 171 matched pairs, 66.5% of the time supported employees were more cost-effective than their partner from work centers who had identical demographics across nine variables. Further, on average, supported employees generated 44.7% fewer cumulative costs than their matched center-based employees ($16,238.60 versus $29,382.67, respectively).

When cumulative costs were compared for individuals in both programs, 65.6% of the time they generated fewer cumulative costs as supported employees than as center-based workers. Further, on average, they accrued 76.1% fewer costs as supported employees than they did as center-based workers ($7,993.73 versus $33,478.80, respectively).

With regard to months of services received, center-based workers tended to receive services for more months than did supported employees. Specifically, when examined across all 496 participants, center-based employees received services for an average of 68.57 months in the 102 month period reviewed. This is compared to 67.90 months for supported employees. Moreover, when the number of months of services was compared only for the 342 individuals in matched pairs, it was found that center-based workers received services 11.7% longer than their peers from supported employment (60.47 months versus 54.13 months). When the 154 individuals who participated in both programs were examined, this variance increased to 23.6%. As center-based employees, individuals obtained services for an average of 66.27 months compared to 53.60 months when they were supported employees.

Although center-based employees generally received services for more months than did supported employees, they tended to generate more costs per month of services. For instance, as an entire group, center-based employees generated 250.9% more cost per month than did supported employees ($471.86 per month versus $134.46 per month, respectively). In other words, the center-based employees in this evaluation generate slightly more than two and a half times more costs per month of service than did supported employees.

This margin decreased to 132.9% when only individuals who were employed in both programs at the same time were examined ($448.60 per month when in work centers versus $192.64 per month).
month when in supported employment) and to 52.9% when only the matched pairs were examined ($458.82 per month for center-based employees versus $300.00 per month for supported employees).

With regard to service cost per dollar earned, supported employment was more cost-effective than center-based employment. Specifically, when individuals worked in both programs, 59.1% of the time they earned more as supported employees than when they were center-based employees. As supported employees, they earned an average of $308.28 per month versus $162.14 per month earned in the center. Further, they generated fewer costs per dollar earned in 72.7% of the cases examined. As supported employees, these individuals averaged costing $0.98 per dollar earned. As center-based employees, they averaged costing $4.41 per dollar earned.

Even more compelling, however, is this study's finding that supported employment is more cost-effective than center-based employment even when differences in the number of hours worked are factored into the analysis. Specifically, it was found center-based employees tended to work more hours per month than did supported employees. For instance, when participating in both programs at the same time, individuals worked an average of 37.70 hours per month as supported employees and 53.42 hours per month as center-based employees. Moreover, individuals participating in both programs worked more in centers in 56.5% of the cases examined.

Yet, even though they worked fewer hours, supported employees were more cost-effective than center-based employees. For instance, when people worked in both programs at the same time, the long-term care funding agency invested an average of $8.01 in services for each hour the individual worked in supported employment. This is compared to $13.40 for each hour worked in center-based programs. With regard to wages earned, the long-term care funding agency invested an average of $0.98 in employment services for each dollar the individual earned in supported employment compared to $4.41 for each dollar the individual earned in the center. Taken in its entirety, these findings suggest that, while individuals with disabilities receive services longer and work more hours per month when they are in center-based programs, they cost the long-term care funding agency less to support (on both a per-hour worked and per-dollar-earned basis) when they were in supported employment.

As with any evaluation, findings presented here must be kept within its contexts. For instance, costs contained within these analyses only include those actualized by Family Care and Waiver funding sources. Other costs, such as those typically experienced by Vocational Rehabilitation, were not factored into the equations. Consequently, the present evaluation does not report the complete costs of each program, but rather the costs attributed only to funding programs that provide long-term, follow along services. It should be noted that this was the study’s primary intent, so that the results would be particularly relevant for long-term care system personnel. Other research to date has not typically conducted these kinds of analyses using only long-term care system costs.

It should also be noted that the production of lower costs does not necessarily indicate that one program is of higher quality than another. The quality of the supported and center-based
employment programs were not addressed in this study, other than by examining wages earned and hours worked. Further, non-monetary outcomes, such as participant satisfaction, safety, and happiness, must also be taken into consideration whenever judging the merits of programs serving individuals with disabilities. Such outcomes were not included within the scope of the present evaluation.

Suggestions for Further Inquiry

Numerous studies have found that supported employment service costs and outcomes vary considerably across the country and within states (cf. Cimera, 2000; Kregel, Wehman, Revell, Hill, & Cimera, 2000; Lewis, Johnson, Bruininks, Kallsen, & Guillery, 1992; Noble, Conley, Banjerjee, & Goodman, 1991). The same might be true for center-based programs. By exploring the cost-effectiveness of specific service providers in Wisconsin, it can be determined which service provider produces the best outcomes at the lowest cost to funding agencies. Ancillary investigations could also help determine why some service providers are more cost-effective than others. Factors leading to increased cost-effectiveness can then be disseminated to other providers across the state. The findings from this proposed study could help increase the number of individuals with disabilities who can be served without the need for additional State or Federal funding.
References


