Appendix 1: Previous studies of open employment services

This Appendix provides an overview of statistical data and other information about open employment agencies in Australia and supported employment services in the United States: their clients, clients' jobs, and the cost and benefits of placing people with a disability into open employment market jobs. The US supported employment services have been examined because most of the research studies, literature reviews and evaluations of supported employment have been conducted in the United States. Data from some Australian employment services are also briefly discussed.

The literature provides a useful context in which to examine the 1995 data on open employment services and their clients, collected through the National Information Management System (NIMS).

A1.1 Types of employment services in Australia

Under the Commonwealth *Disability Services Act 1986*, employment services fall into two main categories: open employment services and business services providing supported employment. This approach to disability employment services is intended to cover clients with all types and levels of disability. For details about the types of services in Australia see Section 1.3.

In late 1991 an evaluation of Section 10 disability employment services (The Roy Morgan Research Centre 1992) was conducted using a variety of methods: a questionnaire mailed to all 159 Section 10 services in Australia, client interviews, and analysis of data obtained from the Department of Health, Housing and Community Services 1991 Disability Census. Results from the questionnaire, which had a response rate of 83%, indicated that the competitive employment model was much more common than the four supported employment models (that is, ISJ, enclaves, work crews and small businesses). Competitive employment services were employing approximately two-thirds (1,121) of the estimated 1,748 clients in work, using Section 10 services in late 1991. The supported employment sector consisted predominantly of small businesses which employed over half of the 627 clients in the supported employment sector (340 or 54%). Work crews were also found to make a substantial employment contribution (149 or 24%). There were fewer clients in ISJs and enclave models (121 or 19% and 17 or 3% of the supported employment sector respectively).

This evaluation developed and assessed employment services against ten key indicators of program performance which were designed to reflect the aims of the *Disability Services Act 1986*. 'The aim of the Act was to place clients in socially valued jobs (indicator 1) which they would have the ability and support to retain (job retention: indicator 2). They were to be paid at award or near-award rates (indicator 3) and work on full award conditions (indicator 4). Being employed and earning an adequate income would promote independence, including financial independence and self-sufficiency (indicators 5 and 6). Working in conventional employment would provide opportunities for social integration and contact with non-disabled workers (indicator 7). Underlying these specific aims were aims relating to improved quality of life for people with disabilities. These included promoting fair treatment (indicator 8), job satisfaction (indicator 9) and enhanced life satisfaction (indicator 10)' (The Roy Morgan Research Centre 1992, p.91). Combining the different sources of information, competitive employment services had favourable results on nine of the ten indicators. The exception was indicator 4, regarding full award conditions. The percentages of workers receiving

full award conditions were lower than those for the general working population. Only 71% of working clients received paid sick leave, 66% paid recreation leave, and 57% superannuation.

The supported employment sector had mixed results against the criteria specified. These services rated favourably on six of the ten indicators: job retention, independent income management, full award conditions, fair treatment at work, job satisfaction and life satisfaction. Those in supported employment, however, were less likely to have received award wages or use independent modes of travel to work, and both clients and service providers were less likely to have reported that they did the same tasks as non-disabled workers or mixed socially with their work mates. Some of these findings may have been affected by the different client groups attending competitive employment services versus the Section 10 supported employment services. Most clients in competitive employment had a low level of disability and hence low support needs. In contrast, approximately half of the supported employment clients had a low level of disability and the other half a moderate or high level of disability (The Roy Morgan Research Centre 1992).

A1.2 Types of employment services in the United States

US definitions of supported employment

In the United States supported employment can be seen as an intervention package made up of several components, each component contributing to its overall effectiveness (Lagomarcino 1986). The specific components of the supported employment program in the United States (Rusch & Hughes 1989) appear to parallel descriptions of the Australian open employment models (that is, CETP and ISJ models) (Jeltes 1991; Tuckerman et al. 1992). Details of these components are contained in Section 1.4.

A majority of the research studies, literature reviews and evaluations of supported employment have been conducted in the United States. Therefore, it is important to clarify the definitions used in the United States and understand how they relate to the definitions used in Australia.

The US literature describes four distinct supported employment delivery models: the individual placement, enclave, work crew and small business models (Moon & Griffin 1988). The US individual placement model appears to correspond to a combination of both the Australian CETP and ISJ models. The remaining three US supported employment models correspond closely to the supported employment models of the same names used in Australia.

The Australian *Disability Services Act 1986* and the American *Developmental Disabilities Act 1984* have many similarities. Both focus on the integration of people with disabilities into mainstream work places, and their being paid wages and provided with ongoing support. The *American Rehabilitation Act Amendments 1986* has regulations specifying the standards of supported employment services and the people to be served. The target population consists of individuals with severe handicaps who have never been in competitive employment or for whom such employment has been interrupted or intermittent, that is, those who cannot function independently in employment without intensive, ongoing support services and who require ongoing support for the duration of their employment. Supported employment offers occupational choice to people who traditionally have been considered unemployable in the competitive labour market (Rusch & Hughes 1989).

The US supported employment regulations are more explicit and prescriptive than the Australian standards, which do not specify the number of hours to be worked, the size of the work group, or the minimum amount of support to be given to an individual. The

US regulations set a minimum of 20 hours per week for each pay period. Integrated work settings are defined as a work group of not more than 8 individuals with handicaps and there must be regular contact with non-handicapped co-workers. The regulations specify that ongoing support services be provided at least twice monthly at the job site, except for individuals with chronic mental illness (Rusch & Hughes 1989).

A1.3 Open employment agencies: some previous Australian data

Age of agency

The length of time an agency has been operating is likely to have an effect on its performance. For example, the total number of clients supported by the agency, the number of clients in jobs, and the average length of time in jobs are all likely to increase the longer an agency has been operating.

Research findings support that the length of time of agency operation does influence its performance. For example, one study (Tuckerman et al. 1992) reported the results from two separate CETP service outlets. One of the offices had been operating for 70 months with 60 clients, the other was newer and had been operating for 34 months and had 43 clients. For each office the average time a client had been in his or her present job was approximately half the time the office had been operating (34 months and 15 months respectively).

Agency size and activities

An evaluation of employment services in 1992 found there were 55 competitive employment agencies with an average of 20 clients employed per agency. It also found that competitive employment services were relatively large with an average of 100 registered clients, including both clients employed and those waiting for employment. In contrast, they reported 14 ISJ services with an average of 9 clients employed per service (The Roy Morgan Research Centre 1992).

The amount of staff time spent on client support activities also was found to differ between services (CETP and ISJ). Staff working in ISJ services spent more time on client support than did staff in CETP agencies. A recent study found that the most important and time consuming activity of most staff members was the provision of support to clients, including training in job-related skills. Staff in a typical CETP service on average spent 12.9 hours per week on support work, with staff classified as trainers/support workers spending 13.7 hours per week and vocational educators spending 16.0 hours per week. Staff working at ISJ agencies spent an average of 16.2 hours per week on support work, with trainers/support workers spending 18.5 hours per week (The Roy Morgan Research Centre 1992).

Some studies have investigated the size of the most effective working unit for open employment services. The most effective working unit appeared to be 10 staff members, consisting of a manager, a secretary and 8 placement and maintenance workers (Tuckerman et al. 1992; Coopers & Lybrand Consultants 1990).

Once the ‘ideal’ working group size has been determined, another issue of interest is the ‘ideal’ workload for each staff member (that is, the number of clients that can be placed and supported). Tuckerman et al. (1992) define two types of staff: a placement officer (whose tasks are to search for new jobs and provide training to clients placed in jobs), and a maintenance officer (whose tasks are to provide training to clients placed in jobs and give support as needed to clients to maintain them in a job). The study found that under good economic conditions, a placement officer could find jobs and provide initial training for 6.5 clients per year, by spending an average of one day per week on job search and four days per week on initial training. A maintenance officer was able to

provide ongoing support for 20 clients a year if working entirely on maintenance. If spending one day per week on initial training, a maintenance worker could give ongoing support to 16 clients. When economic conditions were tight, the placement rate fell to 5.5 clients per year and placement officers spent two days a week on job search. Under these circumstances, maintenance workers spend more time on initial training, leaving less time for maintenance, and could maintain only 12 clients.

There appears to be some discrepancy between the 'ideal' workload for each staff member and the work actually performed. The Roy Morgan Research Centre (1992) found that in the 1990–1991 financial year approximately 13 clients per agency were placed into employment. Using the findings from Tuckerman et al. (1992), 13 placements would correspond to an 'ideal' workload of approximately two staff members per agency.

A1.4 Client profile

Profile of clients using open employment services in Australia

The Roy Morgan Research Centre evaluation (1992) found that of the 1,242 clients placed in open employment in late 1991:

- 1,121 clients were employed in CETP placements and 121 clients employed in ISJ placements;
- 69% were male and 31% female;
- the majority were under 30 years of age;
- 66% had low support needs in relation to self-care, mobility and communication;
- 80% of the clients registered had low to moderate intellectual disabilities, 20% had a physical disability, 10% a sensory disability, 7% a psychiatric disability and 10% challenging behaviours. (Note that the total adds to greater than 100% because some clients have multiple disabilities.)

Tuckerman et al. (1992) studied the characteristics of 103 clients from two open employment offices and found:

- 51% were male and 49% female; and
- average intelligence quotient was 53.5.

Jeltes (1991) examined the characteristics of 38 clients who were placed into jobs in the open labour market by one agency. The study found:

- average age was 24 years (range 17 to 44);
- primary disability type: 20 mild intellectual, 17 moderate to severe intellectual disability; and
- 31 had multiple disabilities.

Parmenter and Knox (1991) studied a group of 73 young people with a disability who had left school. They found 73% were employed at the time of the interview, 42% in open employment. Those with disabilities other than intellectual tended to be in open employment, and those with intellectual disabilities generally were in sheltered employment.

In summary, in Australia, clients using open employment services (that is, CETP and ISJ) in studies up to 1992 were most likely to be male, under 30 years of age, and have a low to moderate intellectual disability.

A number of other factors have been found to influence success for people with disabilities placed in the open labour market. A large majority of service providers reported in The Roy Morgan Research Centre study (1992) that clients required adequate social skills. Physical and motor skills and the potential to work independently were also considered important if a client was to make effective use of their service.

A strong support network of family and friends was important. If the client lived with his or her parents or spouse, it was essential that these people supported the client working because otherwise the success of the placement would be unlikely. These significant others were often required to provide transport to work (Purdon Associates 1992).

Profile of clients using supported employment services in the United States

The US Disabilities Services Act specifies that supported employment programs are to be targeted at people with higher support needs. Research has shown that, with support, people with moderate and high levels of disability are able to work well in open labour market work settings (Parmenter 1992; Shafer et al. 1990; Wehman et al. 1979; 1982). Some studies have shown that supported employment agencies employ a high proportion of people with a mild level of intellectual disability.

Conley et al. (1989) examined characteristics of 193 clients who were placed into individual placements in Illinios during the 1987 financial year. They found that:

- 60% were male;
- the average age was 30 years;
- 74% were white;
- average intelligence quotient was 60; and
- 54% were in the borderline and mild range of mental retardation.

Hill et al. (1987) studied 214 clients of individual placement employment programs in Virginia who were in jobs and found:

- 66% were male; and
- 51% were moderately mentally retarded.

Thompson et al. (1992) compared groups of clients in Michigan entering supported employment against those in day and work activity settings and found:

- both groups were significantly more likely to be male than female;
- those entering supported employment were more likely to be in the 25 to 34 age group, those in activity settings more likely to be in the 35 to 44 age group;
- in both groups mental retardation was the most frequently occurring disability type; intelligence quotient scores for people entering supported employment were higher than the day and work activity group;
- both groups had similar racial characteristics; and
- those in supported employment were more likely to live in semi-independent settings.

Conclusion

In general, few conclusions can be drawn from the Australian and US studies discussed in this section. Most of the sample sizes were very small and perhaps not representative of the client population as a whole.

However, it appears that the client profiles from open employment services in Australia and individual placement services in the United States are similar. A client in either country is more likely to be male, around 30 years of age, and have the disability type ‘mental retardation’ in the mild to moderate range.

A1.5 Youth with disabilities

It is well established that youth with disabilities generally have less favourable workforce experience in comparison to their peers without disabilities. Ling et al. (1993) reviewed the international literature on youth with disabilities. The results indicated that youth with disabilities experienced poorer employment rates than non-disabled peers, earned less pay, and generally were restricted to unskilled labour or service sector occupations with few benefits or advantages. They reported a number of studies showing that less than half of all youth with disabilities achieved full-time employment within two years of leaving school. This group also has been shown to experience high levels of underemployment, often with seasonal, part-time or intermittent jobs. They tend to have a lack of job security and advancement opportunities, and poor wages.

A1.6 Working conditions, job retention rates and wages

Some Australian data

Some job characteristics differ depending upon whether the job is a CETP or ISJ placement. The Roy Morgan Research Centre evaluation (1992) found that of the 1,121 clients employed in the open labour market and supported by CETP agencies:

- 77% were in full-time employment;
- 12% were in part-time employment; and
- median hours worked were 36–40.

In contrast they found that of the 121 clients employed in ISJ placements:

- 45% were full time;
- 55% were part time; and
- median hours worked were 31–35 hours.

Examining all competitive employment placements in Australia in late 1991 (that is, combining the CETP and the ISJ placements), the Roy Morgan Research Centre study (1992) found that:

- the most common occupation groups were labourers and unskilled workers (75%), 8% clerks, and 7% sales and personal service staff;
- the most common industry types were manufacturing (23%), wholesale and retail (22%), and recreational and personal services (22%);
- 83% of clients in jobs were receiving award wages; and
- with respect to full award conditions, 71% of those in competitive employment were provided with paid sick leave, 66% with paid recreation leave, and 51% with superannuation.

Purdon Associates (1992) found that for 76 individuals employed through 14 CETP or ISJ services:

- 78% were receiving award wages and 9% above award-wages; and
- all CETP workers were receiving award wages.

The Department of Health, Housing and Community Services 1991 Disability Census (AGB Research 1991) showed that the average client in competitive employment worked 32.7 hours per week and received a wage of $216.80 (or $6.63) per hour.

Tuckerman et al. (1992) examined the characteristics of 105 employed clients in two open employment outlets and found:

- approximately half were males and half were females;
- average hours worked per week was 28;
- the average wage per week was $228.50 (range $70 to $442); and
- the most common job types were: food service (31 or 29%), factory (17 or 16%) and clerical (19 or 18%) occupations.

Job retention rates and definitions vary across studies. One study found that job retention rates in competitive employment were 57% 2 to 18 months after placement, with no significant differences in retention rates between male and female employees, or between different primary disability types (The Roy Morgan Research Centre 1992). Another study found that for CETP and ISJ services, job duration ranged from less than one month to over 3 years. Over 30% of workers had been employed for more than a year in the same job (Purdon Associates, 1992). Tuckerman et al. (1992) found an average annual retention rate of 82.5% (range 74% to 90%).

Examining the type of employer who employs people with disabilities is important particularly for the marketing of open employment services. Purdon Associates (1992) found that types of employers of people with disabilities could be categorised into three groups: those with personal experience, those with personal sympathy, and those for whom productivity-related issues were paramount and who would employ people only on the basis of satisfactory job performance. When employers were asked whether or not their initial expectations of employing a person with a disability had been met, the majority (86%) indicated that their expectations had either been met or exceeded.

In summary, CETP job placements have been found to be more likely than ISJ placements to be full time and hence involve working more hours per week, and also more likely to receive award wages and conditions. The majority of clients in the open labour market (both CETP and ISJ) were receiving award wages and a high proportion were receiving full award conditions (for example, paid sick leave, paid recreation leave, and superannuation). The types of occupations varied but were most commonly unskilled labourers and workers, or food service, clerical and factory workers. Job retention rates and definitions varied enormously.

Some United States data

Hill et al. (1987) examined 214 clients from individual placement employment programs who were in jobs. They found that:

- approximately 70% of clients remained employed for at least 6 months;
- the average length of time remaining employed during the study period was 21 months;
- all clients earned at least the federal minimum hourly wage or above, equating to a monthly salary of approximately $406;
- the average hours worked per week was 28; and
- clients were most often employed in non-skilled positions, in occupations such as food service or janitorial.

Shafer et al. (1990) obtained data from about 20 US states about clients in supported employment services between 1986 and 1988. Results from 4,384 clients in individual placement employment services indicated that:

- 25% (1,093) worked an average of less than 20 hours per week, 39% (1,711) worked 21 to 30 hours, 30% (1,328) worked 31 to 40 hours, and 6% (252) worked more than 40 hours per week; and
- the average hourly wage was $3.72 (range $3.34 to $4.92).

Several US studies have found that clients in individual placements received higher wages per hour than clients in sheltered employment settings (Kregel et al. 1989; Shafer et al. 1990).

A number of research studies in the United States indicate that supported employment, and in particular individual placement, is a means to higher income for persons with severe disabilities compared with those in sheltered employment. Thompson et al. (1992) compared groups of clients entering supported employment (individual placements and enclaves) with those in day and work activity settings. They found that, after adjusting for the effects of a number of factors (including intelligence quotient, the number of disabilities, and other factors), those in supported employment had twice the average wage of the other group. Some of the wage difference was due to more hours worked, but more consistent and larger differences resulted from hourly rates earned by workers in the community settings. The effect of intelligence quotient on wages was statistically significant, and workers with higher intelligence quotients had higher income.

Conclusion

Definite conclusions are difficult to draw from the studies cited because, again, some of the sample sizes were too small.

However, it appears that client jobs in open employment services in Australia and individual placement services in the United States have some similarities. People in both models are likely to earn award wages and be in the unskilled occupation types.

A1.7 Clients' feelings about working

Research indicates that there is great demand for the services offered in Australia by open employment agencies and that demand is greater than the available supply. Several studies have found that most services reported the demand for their services was higher than the capacity to support clients and most had a waiting list. Some agencies even reported closing their books to new clients (Purdon Associates 1992). One study found an average of 67 clients per agency on waiting lists. This equated to three clients waiting for work for every one for whom they had found work (The Roy Morgan Research Centre 1992).

People with disabilities are being employed in the open labour market but what are their thoughts and feelings about being there? Research indicates that clients who were working were more satisfied with their work and their lives as a whole, compared with those who were still on the waiting list for a job. Clients reported that their lives had improved since getting an open labour market job, and clients who had lost a job reported their quality of life had declined. Men were more likely to report job satisfaction than were women. Working men were also more likely than working women to have reported being happy with their lives. However, the reverse was true for clients not in work—more women reported being happy than men. The study suggested that these findings may be an indication that holding a job may be more important to general life satisfaction for men than for women (The Roy Morgan Research Centre 1992).

Clients were generally happy about working and about their jobs. Purdon Associates (1992) found that the main positive aspects of the job mentioned by clients were making new friends and meeting new people, the good wages being paid and that they liked performing the particular tasks that were part of their job. When asked about the negative aspects of their job, the majority replied that there was nothing they did not like about the job. The other main response was not liking specific aspects of tasks (such as mess, wet weather, heat, etc.) .

Other studies support the importance of the social rewards gained from work. Parmenter and Knox (1991) found the main reasons given by a group of young people with disabilities for working were social rather than economic reasons.

Over 75% of service providers and clients in competitive employment reported both social integration and integration of work tasks as important factors leading to client satisfaction (The Roy Morgan Research Centre 1992).

Reasons for leaving jobs

Clients of open employment services move through different jobs as do other people in the general labour force. The reasons for leaving a job can be either voluntary or involuntary. For the 561 clients of Australian open employment services who left jobs in 1991, just over two-thirds (or 383) did so on an involuntary basis. For these clients the main reasons given were: 53% redundancies in the organisation, 36% poor work attitude or lacked motivation, 31% unable to perform tasks, 9% unreliable attendance, and 2% did not get on with co-workers. The most common reasons for voluntarily leaving a job were: 62% not enjoying work or not wanting to work, 22% obtaining another job, 16% unable to perform the tasks, and 4% did not get on well with co-workers. These percentages do not add to 100% because multiple answers were possible (The Roy Morgan Research Centre 1992).

A1.8 Client support

The open employment model in Australia (both CETP and ISJ) specifies that when a person with a disability has been placed in a job there will be a period of intense on-the-job training, but once the individual is able to perform the job to the satisfaction of the employer the support should be faded out and eventually provided only when and if needed. One study included 138 clients from two separate open employment outlets and found that clients on average required 6 to 7 weeks of on-the-job training. After a client had completed the intense on-the-job training, maintenance support was very important to ensure the client continued employment. Job maintenance on average was half a day per fortnight (Tuckerman et al. 1992).

A1.9 Costs and benefits of open employment services

Benefits of open employment

In one US study, several supported employment programs were used to demonstrate how supported employment would benefit people with disabilities and society in various ways. Working in open labour market jobs offers the person a job that has obvious value in the economy (that is, someone is willing to pay for the job to be completed). Having a job provides structure to a person's day, the opportunity to expand his or her social circle, and the chance to contribute. The income generated from working creates new opportunities for community participation and expands the person's role as a client in the community. The personal, social and economic benefits of working are well documented for the general population and there is no reason to believe that people with disabilities will not experience the same benefits (Bellambi et al. 1988).

One study hypothesised that placing people with disabilities in open labour market employment also offers benefits to society as a whole. Social benefits exist from allowing the person with a disability to live and work in their own community. Economic benefits are also evident—the person with a disability becomes at least partially self-supporting, which leads to reduced dependence on public programs and income transfers. The more money the person earns the greater the public benefit; at a certain point the transfer of income from the Government becomes unnecessary and the person begins to pay tax (Bellambi et al. 1988).

Cost of running an open employment service in Australia

Are open employment services providing value for money and how much do they cost? In 1990–1991 the competitive employment sector in Australia was estimated to cost $9 million, comprising $8 million annual operating costs and $1 million capital costs. The typical competitive employment service total cost (capital costs plus operating costs) was $190,000; $172,000 of this total was spent on operating costs, $158,000 being met by the Commonwealth Government (The Roy Morgan Research Centre 1992).

Financial costs and benefits of supported employment services can be compared with alternative service models to determine if their benefits exceed their costs. Results from cost–benefit analysis and longitudinal studies indicate that costs of supported employment are greater than benefits during the first years of implementation, but that costs decrease and benefits increase over time because employees increase both their hours and average hourly wages and the amount of support required on the job decreases. These findings indicate that retaining clients in jobs may be an important factor in reducing costs. Jeltes (1991) found this reduction in the cost of open employment services over time: during the first year of service operation the expenditure per service was $134,427, during the second year $110,635, $100,135 for the third year, and the projected costs for the fourth year were $96,534. These costs were based on 28 clients for which 36 job placements were made over the three-year period.

Tuckerman et al. (1992) estimated the annual net cost to Government per client for an open employment service and compared it with alternative employment models (Table A1.1). The estimate was $11,498 per client. This figure is only $1,536 (or 15%) more than the cost of being unemployed and receiving only the pension (which was $9,962 at the time). The cost was $1,059 (or 8%) below the cost per client in sheltered workshops, and $6,715 (or 37%) below the cost per client in other supported employment programs, namely $18,213. The researchers suggested that, as an agency matures, costs are expected to fall further.

Table A1.1: Estimated net cost (in Australian dollars) per client per annum to Government

	Jobsupport	Other supported employment	Sheltered workshop	Disability support pension only
Budgeted expenditure/ Disability Services Program funding	7,484	8,336	2,740	0
Pension	3,537	7,892	7,832	7,977
Fringe benefits	201	927	927	927
Rent allowance	990	1,058	1,058	1,058
Jobstart	453	0	0	0
Work training	43	0	0	0
Total gross cost	12,708	18,213	12,557	9,962
Less tax	1,179	0	0	0
Less Medicare levy	31	0	0	0
Total net cost	**11,498**	**18,213**	**12,557**	**9,962**

Note: Budgeted expenditure is used for Jobsupport as this is the most accurate measure of costs. Disability Services Program funding is used as an approximation of cost for sheltered workshops and other supported employment, because expenditure information is not available for 1991–1992. Other supported employment data should be interpreted with caution because of the size of census sample.

Source: Tuckerman et al. 1992, p.58.

Cost of running a supported employment service in the United States

In the United States costs of supported employment have also been found to be greater than benefits during the first years of implementation. As for open employment services in Australia, these costs decrease and the benefits increase over time because employees increase both their hours and average hourly wages, and the amount of support required on the job decreases. This cost reduction over time has not been found with the traditional vocational programs such as sheltered employment and adult day-care programs because supervision, wages and hours worked usually remain stable over time (Conley et al. 1989).

Hill et al. (1987) examined 214 clients from individual placement employment programs who were in jobs. They found that for every $1 of public tax dollars spent on the program, clients earned $1.43 (or $1.24 for persons moderately and severely retarded). The program cost more until the third year of operation when it began to result in financial savings to the taxpayer, and the savings have continued over time.

Conley et al. (1989) estimated the costs and benefits for 394 individuals in supported employment from the perspectives of employees, society and taxpayers. The results indicate that, from the perspectives of society and taxpayers, measured monetary benefits were less than measured costs during the first year. However, actual dollar benefits to clients working in supported employment placements increased by 37% over earnings in alternative employment programs, and averaged approximately $60 per month more.

Conclusion

In summary, there appear to be many benefits of working, for both the person with a disability and society as a whole. The cost of running either an open employment service in Australia or a supported employment service in the United States, are greater than the benefits during the first few years of operation but over time the costs decrease and the benefits increase.

A1.10 Other employment service data

CES data

Clients of the Commonwealth Employment Service (CES) are asked, at an initial interview, if they have any disabilities. If the person self identifies, then the type of disability is recorded. The levels of disability recorded on the CES register must be treated with caution for a number of reasons (National Board of Employment, Education and Training 1994):

- clients are asked to self-identify and they may choose not to do so;
- the severity of a disability is not assessed and a self-identifying client may have no handicap; and
- the CES register is not representative of the labour force as a whole, as women are under-represented. For the CES register, the ratio of males to females is 61.6% to 38.4%.

Table A1.2 illustrates that there is a relationship between the duration of registration at the CES and the reported number of clients with a disability. These figures support the assertion that people with a disability have trouble finding work once unemployed and therefore experience a longer average duration of unemployment (National Board of Employment, Education and Training 1994).

Table A1.2: Percentage of self-reported disability in the CES Register

Duration of registration	Males (%)	Females (%)	Persons (%)
0–6 months	9.6	5.7	8.0
6–12 months	11.6	6.6	9.5
12-–8 months	15.0	8.9	12.5
18–24 months	15.3	10.1	13.2
24–60 months	17.2	12.9	15.8
60–120 months	23.7	21.6	23.2
≥120 months	28.9	28.9	28.9

Source: National Board of Employment, Education and Training 1994, Table 3.

Table A1.3 indicates that there is a relationship between disability and age, with the proportion of disability rising with each age group. For each age group males have a higher prevalence of disability. This pattern is consistent with that found by the Australian Bureau of Statistics 1993 Survey of Disability, Ageing and Carers (ABS 1993b).

Table A1.3: Percentage of disability in CES register

Age range	Males	Females	Persons
15–19 years	5.5	4.6	5.1
20–24 years	7.3	6.0	6.7
25–34 years	11.9	6.7	10.0
35–44 years	16.9	8.8	13.7
≥45 years	22.2	16.8	20.5
Total register	**13.5**	**8.2**	**11.5**

Source: National Board of Employment, Education and Training 1994, Table A8.

Services provided under the CSDA

Under the Commonwealth/State Disability Agreement (CSDA), governments undertook to share data on the services provided and funded under the Agreement. The Institute has been working since late 1992, with the Commonwealth, States and Territories, to develop specifications for a Minimum Data Set (MDS) for these services, to facilitate the collation of national data from all jurisdictions. The data collection based on the MDS is undertaken on an annual basis with the first full collection conducted in August 1995.

Service types covered included: accommodation, accommodation support, respite care, advocacy, recreation and information, print disability, research, independent living training, activity therapy, early childhood development, and case management. Forms were sent by State and Territory government agencies to services funded or provided by them, and these services took responsibility for providing data on services and clients, collected on a single 'snapshot day'.

Open employment services are a subset of the services covered by the Minimum Data Set collection (Table A1.4). Table A1.6 indicates that there were 261 open employment services around Australia in 1995 (172 CETP and 89 ISJ).

There were 4,219 CSDA-funded services which responded to the 1995 CSDA MDS collection (excluding Western Australian data), a 93% response rate. Of these 4,219 services, 257 were classified to a service type resulting in no consumer data being

required; these service types were advocacy, information, print disability and other. The consumer data therefore relate to the remaining 3,962 services, and the service data relate to all 4,219 services (Black & Eckerman 1997).

Three separate counts of consumer numbers are collected from CSDA services—the number actually receiving a service on the collection 'snapshot day', the number on a typical operating day and the number of individuals over the financial year.

Table A1.4: Number of consumers[(a)], service type[(b)] by auspice by time period, Commonwealth, States and Territories (excluding Western Australia[(c)]), 1995

	Government			Non-government		
Service type	Snapshot day	Typical day	Annual estimate	Snapshot day	Typical day	Annual estimate
Accommodation	6,733	6,999	15,572	7,921	8,267	43,456
Community support	4,827	5,707	48,445	3,744	5,083	103,535
Community access	2,226	2,294	4,954	6,511	7,291	72,032
Respite	582	639	4,031	909	1,256	17,000
Employment	1,844	1,981	4,562	15,759	17,023	35,743

(a) Consumer numbers are not added other than within service types due to an unknown level of double counting, arising because individuals may receive more than one service type on the snapshot day.
(b) Consumer data not collected for service types of advocacy, print disability, research and development, information or other.
(c) Western Australian State data excluded, Western Australian Commonwealth data included.

Source: Black and Eckerman 1997, Table 2.1.

Disability type was recorded in the 1995 data collection in two formats—the disability type identified as 'primary' for the service user, and 'all significant disability types'. The use of the two concepts enables comparison with a wider range of other data collections, and provides a more detailed picture of the 'multiple disability' of many service users.

Of the 63,530 service recipients on the snapshot day, 43,033 (67.7%) were reported as having a primary disability type of 'intellectual/learning'. This proportion was consistent across the sexes (males 67.4% and females 68.4%) (Table A1.5).

The next most frequently reported primary disability types were 'physical' (12.4%), 'psychiatric' (7.1%) and 'acquired brain injury' (3.3%). The category of 'deaf and blind' was the least frequently reported for 162 (0.3%) service recipients (Table A1.5).

These primary disability types do show differences between the sexes. There was a higher proportion of males with a reported primary disability type of 'acquired brain injury' (4.0% of males and 2.2% of females), and 'psychiatric' (males 7.8% and females 6.2%). Females had a higher reported proportion of 'physical disability' (males 11.9% and females 13.3%).

The distribution of reported primary disability type also varied between age groups. 'Developmental delay' was recorded as primary for 752 (46.3%) of those service recipients aged 0 to 4 years, and for 70 (2.1%) of those aged 5 to 14 (this category was intended to apply only to 0 to 5-year olds, and made up less than 0.2% of older age groups) (Table A1.5).

For those service users aged 15 years or more, the proportion with a primary disability type of 'intellectual/learning' decreased with increasing age (from 74.9% of the 15 to 24 age group to 43.6% of those service users aged 60 years or more). Corresponding increases occur in the categories of 'physical disability' (from 11.6% to 18.9%), and 'vision' (from 1.9% to 18.0%). 'Psychiatric disability' had a reported peak in the 25 to 44 and 45 to 59 age groups (Table A1.5).

Table A1.5: Service recipients[a], sex by primary disability type by age, Commonwealth, States and Territories (excluding Western Australia[b]), 1995

	Age (persons)								
Primary disability type	**0–4**	**5–14**	**15–24**	**25–44**	**45–59**	**60+**	**na**	**Total**	**%**
Males									
Developmental delay	447	53	14	18	6	6	5	549	1.5
Intellectual/learning	230	1,227	6,676	13,117	3,261	687	59	25,257	67.4
Physical	135	506	949	1,886	725	235	24	4,460	11.9
Acquired brain injury	15	42	288	766	300	83	6	1,500	4.0
Deaf and blind	2	2	17	49	6	7	0	83	0.2
Vision	23	37	170	373	180	214	11	1,008	2.7
Hearing	36	37	142	262	98	60	3	638	1.7
Speech	44	27	26	46	14	6	2	165	0.4
Psychiatric	10	7	379	1,893	495	102	19	2,905	7.8
Neurological	38	71	213	378	135	38	2	875	2.3
Not stated	1	3	7	23	2	4	5	45	0.1
Total males	**981**	**2,012**	**8,881**	**18,811**	**5,222**	**1,442**	**136**	**37,485**	**100.0**
% in age group	*2.6*	*5.4*	*23.7*	*50.2*	*13.9*	*3.8*	*0.4*	*100.0*	
Females									
Developmental delay	296	17	4	10	5	0	5	337	1.3
Intellectual/learning	135	639	4,292	9,475	2,413	560	39	17,553	68.4
Physical	89	414	747	1,269	561	301	22	3,403	13.3
Acquired brain injury	10	35	121	267	96	47	2	578	2.2
Deaf and blind	1	5	19	38	7	6	0	76	0.3
Vision	14	30	107	276	134	301	10	872	3.4
Hearing	24	36	140	195	68	66	3	532	2.1
Speech	19	18	12	22	11	1	1	84	0.3
Psychiatric	3	1	187	959	349	79	3	1,581	6.2
Neurological	28	48	122	251	98	53	8	608	2.4
Not stated	0	0	4	11	6	2	5	28	0.1
Total females	**619**	**1,243**	**5,755**	**12,773**	**3,748**	**1,416**	**98**	**25,652**	**100.0**
% in age group	*2.4*	*4.9*	*22.4*	*49.8*	*14.6*	*5.5*	*0.4*	*100.0*	
All persons									
Developmental delay	752	70	18	31	12	6	13	902	1.4
Intellectual/learning	371	1,890	11,000	22,682	5,698	1,260	132	43,033	67.7
Physical	225	925	1,706	3,170	1,295	545	55	7,921	12.4
Acquired brain injury	25	78	411	1,039	399	131	13	2,096	3.3
Deaf and blind	3	7	36	88	14	13	1	162	0.3
Vision	37	68	277	649	315	520	22	1,888	3.0
Hearing	62	76	282	457	166	126	11	1,180	1.9
Speech	65	47	38	68	25	7	3	253	0.4
Psychiatric	15	8	568	2,856	846	181	22	4,496	7.1
Neurological	66	120	336	630	233	91	12	1,488	2.3
Not stated	2	3	12	37	8	7	42	111	0.2
Total	**1,623**	**3,292**	**14,684**	**31,707**	**9,011**	**2,887**	**326**	**63,530**	**100.0**
% in age group	*2.6*	*5.2*	*23.1*	*49.9*	*14.2*	*4.5*	*0.5*	*100.0*	

(a) An individual may be counted more than once if more than one 'service type' was accessed on the snapshot day.
(b) Western Australian State data excluded, Western Australian Commonwealth data included.

Source: Black and Eckerman 1997, Table 2.13.

The distribution of reported Commonwealth-funded CSDA services, by service type, by State and Territory, is shown in Table A1.6.

Of the 772 employment services reported, sheltered employment accounted for 320 (41%).

Table A1.6: Number of Commonwealth-funded CSDA services, service type by State and Territory, 1995

Service type	NSW	Vic	Qld	WA	SA	Tas	NT	ACT	Total
CETP	56	43	40	19	5	5	3	1	172
ISJ	43	22	11	2	3	3	1	4	89
Supported employment	69	64	12	7	14	7	1	3	177
Sheltered employment	134	54	42	30	41	12	3	4	320
Employment—other, not stated	1	8	4	0	1	0	0	0	14
Total employment services	*303*	*191*	*109*	*58*	*64*	*27*	*8*	*12*	*772*
Advocacy	19	25	6	8	6	3	2	6	75
Information/referral	2	0	0	0	1	0	0	1	4
Print disability	4	4	1	2	1	1	0	1	14
Total other than employment	***25***	***29***	***7***	***10***	***8***	***4***	***2***	***8***	***93***
Total all Commonwealth funded	**328**	**220**	**116**	**68**	**72**	**31**	**10**	**20**	**865**

Note: A service may be a single outlet, or an aggregation of two or more outlets, of the same service type, for an organisation.

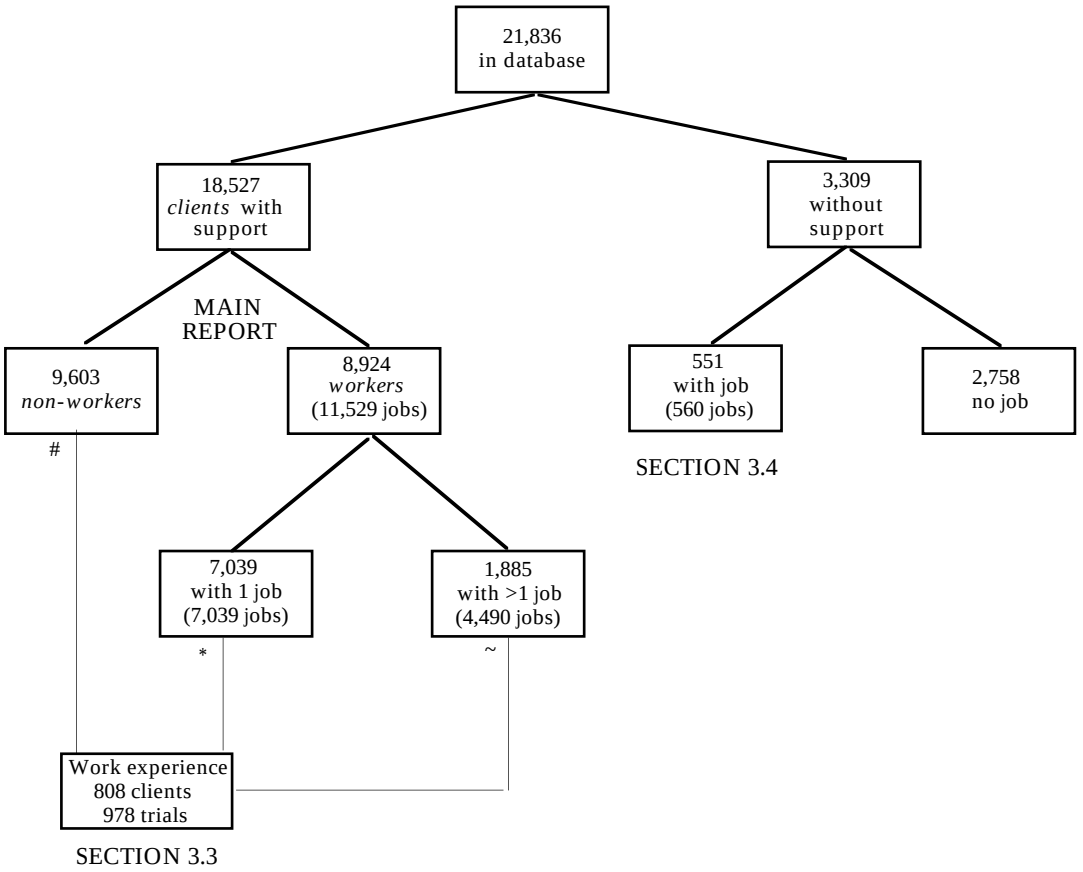
Source: Black and Eckerman 1997, Table 2.5.

The NIMS data collection examines the open employment services in more detail than is possible through the MDS.

Appendix 2: Technical notes

A2.1 Records included in the NIMS database, 1995

Figure A2.1 shows the types of records included in the NIMS database for 1995, and how they relate to the present report..



Notes:
includes 494 clients who had work experience but no job (578 work experience trials)
* includes 215 clients who had work experience in addition to job (272 work experience trials)
~ includes 99 clients who had work experience in addition to jobs (128 work experience trials)

Figure A2.1: Records included in the NIMS database for 1995

A2.2 Calculation of client job and support measures

Duplicate jobs

Two job records for the one client were regarded as being duplicates of the same job if they had the same commencement date, employer, Partnership with Industry program status and occupation group. If only one of the job records had a job completion date then the other record was deleted from all analyses. Otherwise the job record with the earlier completion date or else the lowest job number was deleted. In total, 30 job records were deleted.

Hours worked per week in a job

For jobs for which the recorded number of hours per week was greater than 50, the number of hours was set at 50 for the purposes of analysis.

Job dates

Where a client had two or more jobs current as at the end of 1995 which totalled more than 50 hours per week, it was assumed that the end dates for one or more jobs had mistakenly not been entered. In this case, the earliest commenced job was assigned an end date one day before the commencement of the next job. If necessary this procedure was repeated until the total number of hours was 50 or less. This resulted in the end dates for 164 jobs being assigned.

Each client was then checked to determine whether at any time during 1995 they were recorded as having concurrent jobs totalling more than 50 hours per week. If one or more of these jobs did not have a recorded end date then the earliest of these was assigned an end date consistent with the client's job support records. If this was not possible, then the end date was set at one day before the commencement of the next job. If all such jobs had a recorded end date, then one or more job commencement or end dates were altered by reference to the client's job support records. This resulted in 38 job end dates being assigned and 26 job end and 9 job commencement dates being altered. A further 3 job records were deleted.

Withdrawal of support

A total of 1,827 clients had a date of support withdrawn recorded as sometime during 1995. For 220 of these clients, the date of support withdrawn was before the date of the last support recorded for 1995. Such clients were not regarded as having had support withdrawn if the time between the two dates was greater than 14 days, as it was in 113 cases.

Calculation of the support period

Not all clients were receiving support for the whole of 1995, either because their support began after 1 January 1995, and/or because they withdrew from support before 31 December 1995. The NIMS database does not include a date on which a client commences with an agency, so for the purposes of analysis the support period of each client had to be calculated in some other way.

The beginning of the support period was set as the first date in 1995 for which support was recorded unless the client was already in work. If the client already held a job or jobs then the beginning of the support period was set as the date that job(s) began or 1 January 1995 whichever was the earlier. The end of the support period is defined as 31 December 1995 unless the consumer ended support before this date.

Adjustments to salaries

The NIMS system requires that the weekly salary rate be recorded for each job. For some cases it was apparent that the amount recorded could not realistically be the weekly rate. In some cases it appeared to be the hourly rate, and in other cases some constant value (for example, $1) had apparently been entered by the agency site.

To determine whether some adjustment to the recorded salary figure appeared necessary, the apparent hourly wage was calculated as the weekly salary rate divided by the number of hours worked per week. For jobs specified as being at less than 100% of award level, the apparent award wage per hour was calculated by dividing this figure by the recorded fraction of the award wage. The following adjustments were then made:

- Where the weekly salary was recorded as $0, $1, $999 or equal to the number of hours worked per week it was set to missing. It was also set to missing for three agency sites for which all recorded salaries were unrealistically low.
- For jobs specified at or above award level (10,630 out of 13,110 or 81%), where the apparent wage per hour was less than $4.50, then the salary rate was regarded as being per hour rather than per week. If the hourly wage was less than $2.50 and the salary recorded as $20 or more, then it was set to missing.
- For jobs specified at or above award level, where the apparent wage per hour was greater than $30 and the salary per week was greater or equal to $200, then the salary was regarded as being for a full-time week of 38 hours, and adjusted by multiplying by the number of hours worked per week over 38.
- For jobs specified as being at less than 100% of award level, where the resulting *award* wage per hour was less than $4.50, then the salary rate was regarded as being per hour rather than per week.
- For jobs specified as not being based on award, if the salary rate was less than or equal to $10 and the wage per hour less than $2.50, then the salary rate was regarded as being per hour rather than per week.

Measures of job experience and support

Various measures of job experience were analysed as described in Section 4.2. The precise calculation of these measures is as follows:

For each client with k jobs we have:

P = length of the support period in weeks, where $1 \le P \le 52$

D = total hours of direct support received by client

W = total number of weeks during the support period that the client had a job,

where $0 \le W \le P$ (if client has only one job then $W = w_1$ as below with $j = 1$)

w_j = weeks of work for job j,

where $\sum w_j \le W$, since the client may have two or more jobs concurrently

s_j = salary per week for job j

h_j = hours per week for job j

Then:

D / P = support hours per week

W / P = time in work as a proportion of time in support

$\frac{\sum h_j w_j}{W}$ = mean hours of work per work week

$\frac{\sum h_j w_j}{P}$ = mean hours of work per week of the support period

$\frac{\sum s_j w_j}{\sum h_i}$ = mean wage per hour

$\frac{\sum s_j w_j}{W}$ = mean wage per work week

$\frac{\sum s_j w_j}{P}$ = mean income per week of the support period

Each of the above can be averaged for any particular group of clients.

Finally for any group of n working clients:

$\frac{\sum_{i=1}^{n} D_i \times 100}{\sum_{i=1}^{n}\sum_{j=1}^{k} h_{ij} w_{ij}}$ = support hours per 100 hours of work

$\frac{\sum_{i=1}^{n} D_i \times 100}{\sum_{i=1}^{n}\sum_{j=1}^{k} s_{ij} w_{ij}}$ = support hours per $100 of wages

A2.3 Statistical analysis

Univariate and bivariate analyses were carried out using SAS 6.09 (SAS Institute 1990a, 1990b). GLIM 4 was used for multiple linear regression and logistic regression modelling (Francis et al. 1993).

A logistic regression was carried out to assess the possible contribution of each of a number of factors on the likelihood of a client having had a job during the support period. The factors considered for inclusion in the regression model included 12 client characteristics and 6 factors related to the agency site supporting the client. The client characteristics are recorded in the NIMS client personal and general details data files and are discussed separately in Sections 4.3 to 4.12. The agency site factors are State, site location (urban, rural or remote according to the classification of the Department of Health and Family Services), number of paid staff, number of clients and site group (see Section 4.16).

Modelling by linear regression was undertaken for the total income earned from jobs per week of the support period, and for the mean support hours per week for workers and non-workers separately. In each case the variable of interest was transformed to natural logarithms. This gave an approximately normal distribution, necessary for a valid analysis. Residual analysis supported the assumptions of linearity, normality of error terms and constancy of error variance.

An additional client characteristic included for the linear regression models was primary source of income as at the end of 1995 (see Section 4.13). It would not be meaningful to include this variable in the previous logistic regression because for most clients getting a job leads to the primary source of income being paid work. Thus a strong artificial association between the two would be expected simply due to this relationship.

For each of the four regression analyses, the final model included only covariates which could not be deleted from the model without a statistically significant change in error variance (termed deviance in GLIM) at the 1% level, as shown by the appropriate F-statistic or likelihood ratio chi-squared statistic. (The exceptions to this were sex and Indigenous status, which, because they are generally such important variables, were left in the model for information, even if not statistically significant.) Similarly, the addition of any remaining covariate to the final model did not result in a statistically significant decrease in deviance. In each case a large number of variables remained statistically significant. To simplify the model, where possible and appropriate the number of categories for a variable was reduced by combining similar categories. For each variable this was done only if the difference in deviance between the model with the full number of categories and the model with the reduced number of categories was not statistically significant at the 1% level.

No terms were fitted for interactions between variables, except that for the interaction between the number of clients at an agency and the number of agency staff which represents the client-to-staff ratio. The large number of possible interactions meant that, without having particular hypotheses to test, meaningful interpretation of any statistically significant results was not possible.

Glossary

ADL assistance — see 'frequency of assistance required for activities of daily living'.

client — a person with a disability who received some direct support from an open-employment agency site, during 1995.

direct support — support of clients from staff of an open employment agency directly attributable to a particular client.

frequency of assistance required for activities of daily living (ADL assistance) — the frequency of assistance required by a person with a disability in their overall situation, due to their condition, in one or more of the areas of self-care (bathing, dressing, eating and/or toiletting), mobility (around home or away from home) and verbal communication. The assistance required is classed as 'not at all', 'occasionally', 'frequently' or 'continually'. In the NIMS data dictionary this is termed 'level of support; required', but has been renamed in this report to avoid confusion with the support the client received from an open employment agency.

mean hours of work per week — for each worker this is calculated as the total hours worked in all jobs during the support period divided by the number of weeks in support; that is, the average work time per week for all weeks in support including those without a job. This is a measure of overall time spent in employment.

mean hours of work per work week — the total hours worked in all jobs for each worker during the support period divided by the number of weeks in work; that is, the average weekly time spent in work when working.

mean income per support week — the amount of income earned from all jobs, calculated as the total salary earned from all jobs divided by the total number of weeks in support. It is a measure of the amount of income received by the worker over the support period.

mean wage per hour — the hourly wage rate for each worker calculated as the total salary earned from all jobs divided by the total number of hours worked.

mean wage per work week — the weekly wage rate while in work for each worker, calculated as the total salary earned from all jobs divided by the total number of weeks with a job. The mean wage per hour and the mean wage per work week are measures of the pay from all jobs.

non-English-speaking background — here defined as preferred language being a spoken language other than English.

primary job — the job in which the most aggregate hours were worked during the support period.

support hours — the total number of hours of support received by a client during 1995 from staff of an open employment agency site, and which were directly attributed by the staff to supporting the client (direct support).

support period — the period during 1995 during which the client was receiving support from an open employment agency. This period was measured in weeks (see Appendix 1 for details of the calculation of the support period).

support week — a week of the support period.

time in work — the total number of weeks during the support period that the worker had a job or job(s). If the worker had more than one job, then the weeks in work may not necessarily have been continuous. To adjust for the fact that the support period varied from worker to worker, the number of weeks in work can also be calculated as a percentage of the number of weeks of the support period.

weeks to get a job — applies only to workers who did not have a job at the beginning of the support period. It is the number of weeks from the beginning of the support period to the start of the first (or only) job gained.

worker — a client who had a job at any time during the support period.

worker retention rate — the percentage of workers who had a job at the end of the support period.

worker without support — a person with a job during 1995 who was listed with an open employment site but had not received any support from that site during 1995. Presumably such people had received support prior to 1995.

work week — a week during which a client was working in one or more jobs.

References

AGB Research Australia 1991. 1991 Census of disability services, final report. Department of Health, Housing and Community Services, December 1991.

Australian Bureau of Statistics (ABS) 1993a. Disability, ageing and carers: data reference package. Cat. No. 4432.0 Canberra: AGPS.

Australian Bureau of Statistics (ABS) 1993b. Disability, ageing and carers: summary of findings. Cat. No. 4430.0 Canberra: AGPS.

Australian Bureau of Statistics (ABS) 1995. National Aboriginal and Torres Strait Islander survey 1994: detailed findings. Cat. No. 4190.0 Canberra: AGPS.

Australian Bureau of Statistics (ABS) 1996. Job search experience of unemployed persons Australia 1996. Cat. No. 6222.0 Canberra: AGPS.

Australian Institute of Health and Welfare (AIHW) 1995. Australia's welfare 1995: services and assistance. Canberra: AGPS.

Bellambi GT, Rhodes LE, Mank DM & Albin JM 1988. Supported employment: a community implementation guide. Baltimore: Paul H Brookes.

Black K & Eckerman S 1997. Disability support services provided under the Commonwealth/State Disability Agreement: first national data, 1995. Australian Institute of Health and Welfare (in press).

Conley RW, Rusch FR, McCaughrin WB & Tines J 1989. Benefits and costs of supported employment: an analysis of the Illinios supported employment project. Journal of Applied Behavior Analysis 22:441–47.

Coopers & Lybrand Consultants 1992. Review of Jobsupport. Prepared for the Commonwealth Department of Health, Housing and Community Services.

Francis B, Green M & Payne C (eds) 1993. The GLIM System Release 4 Manual. Oxford: Clarendon Press.

Hill ML, Wehman PH, Kregel J, Banks PD & Metzler HMD 1987. Employment outcomes for people with moderate and severe disabilities: an eight-year longitudinal analysis of supported competitive employment. The Journal of the Association for Persons with Severe Handicaps 12(3):182–9.

Jeltes GM 1991. An analysis of financial and employment outcomes of people with an intellectual disability provided in a community-based employment service. Australian Disability Review 1:29–34.

Kregel J, Wehman P & Banks PD 1989. The effects of client characteristics and type of employment model of individual outcomes in supported employment. Journal of Applied Behavior Analysis 22:407–15.

Lagomarcino TR 1986. Community services: using the supported work models within an adult services agency In Rusch FR (ed.). Competitive employment issues and strategies. Baltimore: Paul H Brookes.

Ling A, Morris C & Riches VC 1993. Transitions for students with disabilities: the first five years. Quality and equality in intellectual disability: Proceedings of the 29th ASSID National Conference, Newcastle, NSW; 209–28.

Moon MS & Griffin SL 1988. Supported employment service delivery models. In Wehman P & Moon MS (eds). Vocational rehabilitation and supported employment. Baltimore: Paul H Brookes.

National Board of Employment, Education and Training 1994. More than able: people with a disability and small business. Canberra: AGPS.

Parmenter TR 1992. An international perspective of vocational options for people with an intellectual disability: the promise and the reality. Presented to the 9th International Congress of International Association for the Scientific Study of Intellectual Disability, Queensland, Australia.

Parmenter TR & Knox M 1991. The post-school experiences of young people with a disability. International Journal of Rehabilitation Research 14:281–91.

Purdon Associates Pty Ltd 1992. Opportunities and barriers to open employment for people with disabilities. Canberra: Department of Health, Housing and Community Services.

Rusch FR & Hughes C 1989. Overview of supported employment. Journal of Applied Behavior Analysis 22:351–63.

SAS Institute Inc. SAS® 1990a. Language: reference, Version 6, First Edition. Cary, NC: SAS Institute Inc.

SAS Institute Inc. SAS® 1990b. Procedures guide, Version 6, Third Edition. Cary, NC: SAS Institute Inc.

Shafer MS, Wehman P, Kregel J & West M 1990. National supported employment initiative: a preliminary analysis. American Journal on Mental Retardation 95(3):316–27.

The Roy Morgan Research Centre 1992. Evaluation of disability employment services. Canberra: Department of Health, Housing and Community Services.

Thompson L, Powers G & Houchard B 1992. The wage effects of supported employment. Journal of the Association for Persons with Severe Handicaps 17(3):87–94.

Tuckerman P, Morgan J, Smith B & Delahunt R 1992. The relative costs of supported employment: Jobsupport six years on. Australian Disability Review 4:49–60.

Wehman P, Hill JW & Koehler F 1979. Placement of developmentally disturbed persons into competitive employment: three case studies. Education and Training of the Mentally Retarded 14:269–77.

Wehman P 1982. Job placement and follow-up of moderately and severely handicapped individuals after three years. Journal of the Association for the Severely Handicapped 7:5–16.