

# Transitions to employment from labour market enterprises in Norway

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In this article we analyse a labour market programme for partially disabled workers that involves the transition from labour market enterprises to a job in the ordinary labour market. We found that the percentage of these people who found jobs after a maximum two-year programme period increased over time. In 1995, 28 per cent became employed in the ordinary job market after leaving the programme. Exit rates to employment increased to 36 per cent in 1998 and to 39 per cent in 1999. We also found heterogeneity in the job transitions. Employment ratios for men were relatively stable over time, varying between 30 and 40 per cent over the period 1995–1999. For women, however, we found a significant change in employment ratios, with 21 per cent finding a job in 1995 and 40 per cent in 1999. In 1995, employment ratios for female participants were below those of male participants, although there was no difference over the whole period studied (1995–1999). In 1999, the average transition rate to employment was higher for female than for male participants.

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## Introduction

The first half of the 1990s brought major changes in welfare policies in Norway. This was part of a broader change in welfare policies seen in several countries (e.g. Denmark, France, UK, USA) under the heading 'activation'. This term refers to: 'policies and measures targeted at persons claiming public income support or who are in danger of becoming permanently excluded from the labour market' (Drøpping, Hvinden & Vik, 1999: 134). An important reason for these changes/reforms in Norway was the increasing costs of the sickness insurance and disability pension schemes in the previous decade. The work of two government-appointed committees resulted in a white paper (St.meld. nr. 39, 1991–92) that, among other things, recommended several changes in the system for vocational rehabilitation (VR). A reform process was initiated, and in the period 1993–95 a whole range of new measures was introduced for the purpose of limiting or reversing the inflow of new sickness insurance and disability benefit recipients.

One of these measures was the introduction of a new support and management system for Labour Market Enterprises (LMEs) from January 1, 1993. The white paper states (p. 98) that the purpose of the reform is: 'to open the companies towards the surrounding world

through introducing a structure that encourages them to strengthen the attention and quality of the rehabilitation and outplacement activity/work'. The LMEs had for several years a relatively low outplacement rate to the open labour market, and the ambition of the reform was to increase this rate. The average outplacement rate for the period 1983–93 was only around 8 per cent, and the LMEs therefore more or less had the character of permanent sheltered employment.

In several countries there have been attempts to make the sheltered employment sector more business-like and competitive in the hope of increasing the chances of transition into the open work sector and reducing the problem of segregation and stigma effects for work-disabled people. Sheltered employment is widespread in many countries, with around 10 participants per 1,000 of the population in The Netherlands and Poland, around 5 per 1,000 of the population in Switzerland, Sweden and Norway, followed by 3 per 1,000 in Austria, Belgium, France and Germany (OECD, 2003: 114).

The reorientation of sheltered employment towards temporary training and a focus on reintegration of disabled people in the open labour market has taken place for instance in Norway, The Netherlands, UK and Spain. This reorientation has been successful in only a few cases (see OECD, 2003). Norway has experienced

relatively high outplacement rates, at least in periods of decreasing unemployment.

The success of vocational rehabilitation has not been subject to extensive analysis in Norway, and a major reason for this is most likely the lack of data and certain methodological difficulties. But there are a few exceptions, e.g. Aakvik (2001, 2003), Spjellkavik and Widding (1999) and Andreassen and Børing (2000). Internationally, there is an extensive literature on evaluations of vocational rehabilitation programmes for the unemployed, but according to Frölich, Heshmati and Lechner (2000) there are very few studies of occupational rehabilitation programmes where the health status of the participants are included in the analysis. Examples of such studies, with the exception of Frölich, Heshmati and Lechner (2000), are Marklund (1995), Heshmati and Engström (1999), Selander, Marnetoft, Bergroth and Ekholm (1997) and Menckel and Strömberg (1996).

In this article we analyse the transition from the LMEs as a labour market programme for partially disabled people to a job in the open labour market. We used a sample of workers who ended their vocational rehabilitation effort in September and October over a five-year period from 1995 to 1999. Partially disabled workers can participate in the programme for a maximum of two years, and the success of the programme is measured by the number of participants going from the programme into a job in the ordinary labour market. An important part of the study is to analyse outplacement job ratios over time. Have job ratios changed over time? What factors can explain this change? Do individual characteristics, such as education, work experience, age, health and so on, and conditions on the local labour market have any influence on the vocational rehabilitation process?

We find that the percentage of participants who found jobs after a maximum two-year programme period increased over time. In 1995, 28 per cent became employed in the ordinary job market after leaving the programme. This increased to 36 per cent in 1998 and to 39 per cent in 1999. These transition rates are much higher than in other countries. We also found heterogeneity in the job transitions. Employment ratios for men were relatively stable over time, varying between 30 and 40 per cent over the period 1995–1999. For women, however, we found a significant change in employment ratios, with 21 per cent finding a job in 1995 and 40 per cent in 1999. In 1995, employment ratios for female participants were below those of male participants, although there was no difference over the whole period studied (1995–1999). In 1999, the average transition rate to employment was higher for female than for male participants.

The remainder of the article is organised as follows. In the next section we briefly describe the international

context in which the changes in the vocational rehabilitation policy must be understood, as well as the institutional features of the Norwegian vocational rehabilitation system. This is followed by a description of the data, descriptive statistics and statistical modelling. In the subsequent sections we present the empirical results from our analysis. The last section provides a more general discussion of the results and what policy implications these might have.

## Background and institutional setting

In the Nordic countries active measures have been a central part of social policies since World War II. Active labour-market policies have a strong and long tradition, especially in Sweden, and the work approach has been a guiding principle behind income maintenance schemes (Hvinden, 1994; Lindqvist & Marklund, 1995).<sup>1</sup> In this approach there is a direct link between the social security system and labour-market services, and it has been a part of the income maintenance schemes to maximise labour-market participation (Drøpping, Hvinden & Vik, 1999). Long-term public income support, such as disability pension, should therefore not be granted before all possibilities for making the person self-sufficient through employment have been exhausted. Even though the work approach has a long history in the Nordic welfare states, the concept received more attention, a renewed content and strengthened emphasis during the early 1990s.

In general, the activation policies in labour market and social policies came as a response to challenges faced by developed welfare states – high and persistent unemployment, an increasing number of early retirees, disability pensioners and social assistance recipients and increasing costs of cash benefit systems. These policies have in common a process or movement from ‘passive’ to ‘active’ measures in the way that one seeks to increase the labour-market participation of people who have not been employed (Hvinden, 1999; Hvinden, Heikkilä & Kankare, 2001). The OECD (1990, 1995), was a driving force behind the switch from passive to active measures. The policies implemented in different countries covered a whole range of schemes (e.g. social assistance, unemployment benefits, sickness insurance and disability benefits), using both incentives and disincentives to achieve the desired aim of making people self-sufficient through work.<sup>2</sup>

In general, one can distinguish between four types of activation measures for people with disabilities

<sup>1</sup> The underlying ideology of the work approach and activation is approximately the same (Hvinden, 1999).

<sup>2</sup> For a discussion of activation of social assistance recipients, see e.g. Lødemel and Trickey (2001), and of the unemployed, see e.g. Clasen, Kvist and Oorschot (2001) and Andersen, Clasen, Oorschot and Halvorsen (2002).

(Hernes, 1995): legislation, vocational rehabilitation, sheltered work and wage subsidies. In the Nordic countries, the last three have played a key role, whereas legislative approaches have played a limited role compared with many other European countries (Drøpping, Hvinden & Vik, 1999).

The focus in social policy in Norway since the 1990s has been on integration in the regular and open labour market, and the policy towards the vocationally disabled should be an active one with early intervention as an important goal (NOU 2000: 27). According to Drøpping, Hvinden & Vik (1999), the objective of integration has been promoted through wage subsidies and financial support to employers and/or counselling employers, while sheltered employment and workshops have been seen as supplementary provision, intended largely for those who were not likely to find work in the labour market even after vocational rehabilitation.

The vocational rehabilitation sector in Norway has expanded rapidly since the National Insurance Act was passed in 1966. The expansion has been guided neither by a firm knowledge of the overall economic impact of the training programmes, nor by which groups might benefit most from programme participation. In 1998, some 35,000 people participated in a training programme each day, which is around 1.5 per cent of the labour force.

Most persons who apply for a VR job-training programme have previously been employed. The term 'vocational disabled' in our context applies to a job seeker who has a physical, mental or social handicap, which reduces his or her job opportunities in the open labour market. Income replacement for workers with a health problem usually starts with sickness benefits while the worker receives medical treatment. The sickness benefits scheme in Norway is generous, paying 100 per cent of previous income for up to 52 weeks, subject to a maximum benefit restriction of around NOK 335,800 (€41,000) in 2003.<sup>3</sup>

Individuals unable to return to work after 52 weeks on sickness benefits are entitled to a VR benefit. From 1994, the labour market authorities decide both on rehabilitation benefit payments and training participation. The VR benefit is usually two-thirds of the gross income in the previous year subject to maximum and minimum benefit restrictions. Health status is the legal eligibility criterion for VR benefits, but labour-market prospects and social integration may also implicitly be taken into account. There is no waiting period for episodes between work and sickness benefits, nor between sickness benefits and VR benefits.

While receiving VR benefits, a decision has to be

<sup>3</sup> State and municipal employees and many employees in large companies have collective agreements stipulating that the employer is to make up the difference between the employee's wage and sickness benefit. This means that even high-income earners often receive full pay during illness.

made whether the individual can return to his or her old job, or has to search for a new job. At this stage, some workers return to their old job or apply for a disability pension without entering the employment-training sector. Individuals who are not granted a disability pension or who by their own effort return to their old job are referred to the local employment office<sup>4</sup> for participation in a job-training programme. The local employment office evaluates whether training could help applicants obtain a job. The process at the local employment office starts with a conversation between a VR labour consultant and the VR client. The consultant inquires about the interests and potential occupations, and the severity of the person's medical condition.<sup>5</sup> The caseworker and the individual client usually decide upon a rehabilitation plan that includes participation in one or more training programmes, where the final goal is to place the client in a new job in the open labour market.

The current principle is that vocational rehabilitation should be tried before disability pensions are made available. All labour-market programmes for vocationally disabled people as well as general labour-market programmes may be used, depending on the individual's needs and motivation. Programmes include information, guidance, ordinary labour-market measures and job-placement assistance. In addition, vocationally disabled people may utilise schemes that have been specially developed for disabled job-seekers. Measures outside the public employment service, e.g. in ordinary schools, may also be used.

The local employment office is responsible for vocational rehabilitation, which can include (1) educational measures in schools/courses and training or job training in visiting positions, (2) wage subsidies and contributions to operating costs received by ordinary employers, (3) supported employment and (4) sheltered employment. There are two types of sheltered employment: work co-operatives for permanent employment, and labour market enterprises (LMEs) aiming at transition into a job in the open labour market after programme participation.<sup>6</sup>

<sup>4</sup> 'Aetat lokal' in Norwegian.

<sup>5</sup> Each individual has at least one medical diagnosis, for instance 'hardness of hearing', 'lower back injuries', 'migraine', 'alcoholism', 'drug abuse', 'minor mental disorders', 'problems in social adjustment', 'musculoskeletal diseases' etc. There is a clear administrative distinction between medical rehabilitation (MR) and vocational rehabilitation (VR) in Norway. Even though health improvements may occur during vocational rehabilitation, the main purpose of VR training programmes is to enhance employability given the medical diagnosis, not to improve health impairments.

<sup>6</sup> Work cooperatives offer permanent employment in sheltered sectors for people with special needs or extensive disabilities who cannot benefit from other labour market programmes and who receive (or will receive) disability benefits. This includes the mentally retarded. Sheltered work is also a part of the LMEs. Sheltered work is termed 'phase 3' in the LMEs and is not included in our study.

The local employment office, the companies themselves and the central government organise vocational rehabilitation. Owners of the LMEs are usually the local municipality and the county, and they are joint-stock companies. The work disability must be documented before the rehabilitation takes place. The LMEs are organised into three different phases, but only phase 2 focuses on employment after training. Phase 1 clarifies each person's employment potential (for a period of up to six months), while phase 3 is sheltered work if all forms of rehabilitation are unsuccessful. Training to obtain new skills and work experience in phase 2 can usually last for up to two years, which is also the maximum training period. Training takes place in a production environment and is closely related to practical job training. In this article we analyse only phase 2 in the LMEs because transition to employment is not the main aim in the other two phases.

A total of around 5,000 partially disabled people work in LMEs at each point in time. This number includes all three phases. Around 2,500 workers are employed in phase 2, which is the phase we are focusing on in this article. On average, around 900 persons are employed in the open labour market after training in a LME each year.

### Data sources

We use individual data in addition to data collected at the municipality level, such as unemployment and type of industries where the LMEs are localised. The unemployment rate in municipalities is calculated separately for men and women. Both the unemployment and industry sector data come from Statistics Norway (SSB). The individual data are collected from the Directorate of Labour.<sup>7</sup> We have data on individuals ending their vocational rehabilitation effort in September and October for the years 1995–1999 given that they have been in phase 2, giving us a total of 994 individual observations. We have background variables such as age, gender, level of education, work background and medical diagnosis. We also have detailed information about each LME. These data are collected by the central organisation of the LMEs (AMBL)<sup>8</sup> each year, and include data on total number of partially disabled workers, type of training (industrial sector), average duration of training, number of exits to jobs in the open labour market (and also what type of jobs) etc. We use data from 87 LMEs located all around Norway. These

firms have accurate data for all the years we use in our analysis. Four firms have been dropped because of invalid data for some of the years.

Our sample includes people who ended their rehabilitation effort in September and October each year. We have no indication that those who left a LME in these two months are different from those leaving in another month of the year. We have compared our results with aggregate statistics for all leavers, and the exit rates are very similar to the exit rates on average for all leavers in a given year. The Directorate of Labour gives aggregate statistics on exit rates, giving us an opportunity to compare our results.

The maximum duration of training in phase 2 is two years. Thus, every participant will eventually be a leaver. This means that those who leave a LME in a given month are not necessarily a selected group or different from an average participant on work training in a LME. We have compared background variables, such as age, education, health etc., for those who leave to aggregate statistics from the LMEs about persons participating in the programme. Because there is a maximum participation period of two years, the leavers are not very different from the average worker in the LME. Since everyone eventually will be a leaver, those who leave at a given point in time are not very different from the pool of participants, although small differences may occur.

The quality of the data is very good. Health data (medical diagnosis) is the only variable with some missing observations. Around 10 per cent of the subjects in our sample have a missing observation on health status. We have solved this problem by including a separate dummy variable for medical diagnosis if an individual has a missing observation on this variable.

Our outcome variable is constructed by the caseworker in the firms (LMEs) where the subject had training. The caseworker reports to the Directorate of Labour whether the subject is starting in a job in the open labour market or has other exits, such as disability pension, is out of the labour market or in further rehabilitation. The local employment office checks this information. The information provided by the LMEs is considered to be accurate. We do not have information about the duration of employment given that the subject obtains a job; neither do we have information about earnings. This would have been useful information in a broader cost-benefit analysis.

### Descriptive statistics

Table 1 gives the explanations of the variables and descriptive statistics for the sample we use in the regression analysis. From Table 1 we can see that the LMEs are male dominated. Around 70 per cent of trainees in LMEs are male participants. The mean age of the subjects in the sample is more than 37 years. The

<sup>7</sup> 'Aetat Arbeidsdirektoratet' in Norwegian.

<sup>8</sup> AMBL ('Arbeidsmarkedsbedriftenes Landsforening') is the national organisation for labour market enterprises. It is the industrial body for these enterprises, and their purpose is to help organise the work related to vocational rehabilitation in the LMEs. They also have substantial contact with the central government.

Table 1. Variable explanation and simple descriptive statistics.

Variable	Explanation	Mean
Age	Age in number of years	37.8 years
Gender	Indicator variable for gender, taking the value 1 if male, and 0 if female	71.2% males
Education	Indicator variable for upper secondary education (high school), taking the value 1 if the person has at least upper secondary education, and the value 0 otherwise	20% had upper secondary education or more
Industry	Indicator variable taking the value 1 if the person has work experience from manufacturing industry, and 0 otherwise	35.1% had a background in the manufacturing industry
Misb	Indicator variable taking the value 1 if the person has the medical diagnosis 'mental suffering/psychic disease and alcohol/drug abuse', and 0 otherwise	21% had this medical diagnosis
Musc	Indicator variable taking the value 1 if the person has the medical diagnosis 'musculoskeletal diseases', and 0 otherwise	30.5% had this medical diagnosis
Social	Indicator variable taking the value 1 if the medical diagnosis was related to social misbehaviour/adjustment problems, and 0 otherwise	20.4% had this medical diagnosis
VR-dur	Number of days in vocational rehabilitation the last 4 years	514 days
Year 95	Indicator variable taking the value 1 if the person left a LME in 1995, and 0 otherwise	191 persons
Year 96	Indicator variable taking the value 1 if the person left a LME in 1996, and 0 otherwise	181 persons
Year 97	Indicator variable taking the value 1 if the person left a LME in 1997, and 0 otherwise	232 persons
Year 98	Indicator variable taking the value 1 if the person left a LME in 1998, and 0 otherwise	176 persons
Year 99	Indicator variable taking the value 1 if the person left a LME in 1999, and 0 otherwise	214 persons

number of individuals with an upper secondary school diploma (high school diploma) or more is only 20 per cent. This is much lower than the average number of years of education in the population. However, this can probably be explained by the fact that LMEs are oriented towards the manufacturing industry, and that individuals attending this type of training in general have very little education above compulsory education. Around 5 per cent are dropouts from the compulsory school system. Around 35 per cent of the sample have work experience from traditional manufacturing industry.

In terms of medical diagnosis, most of the participants have a medical diagnosis related to musculoskeletal pain. More than 30 per cent of the subjects in the sample had this diagnosis. Other medical groups used in this article are mental suffering/psychic disease and alcohol/drug abuse (21 per cent), and social misbehaviour or social adjustment problems (20 per cent). The fourth group consists of other medical diagnoses that are grouped together. This group includes for instance people with problems of sight and hearing, cardiovascular diagnoses, lung diseases, allergies and the like, or because medical diagnoses are unknown/missing (around 10 per cent of the sample).

In 1995, 191 people left phase 2, while the number in 1997 was 232. The number decreased in 1998, but then increased again in 1999 to 214 individuals. For the period 1995–99 as a whole, the increase is 12 percentage points. Our sample includes only people who have finished their rehabilitation in the months September and October, and includes those leaving directly from a LME. Individuals leaving the LMEs can do so for different reasons: work, education, other training programmes, sickness leave, social assistance, disability pension and so on. In this article we focus on the transition to regular jobs.

### Statistical modelling

Logistic regression is used when the dependent variable is dichotomous. In our case we analyse the transition from a labour-market programme to a job, where the variable job has two values, 0 if the subject left for reasons other than work, and 1 if the subject is registered with a job after leaving. As a starting point, a logistic regression estimates logit coefficients. The probability of employment is given by

$$\Pr(Y_{it} = 1|X_{it}) = \frac{1}{1 + \exp^{-X_{it}\beta}}, \quad (1)$$

where exp is the base of the natural logarithm, and

$$X_{it}\beta = \beta_0 + \beta_1 X_{1it} + \dots + \beta_k X_{kit}, \quad (2)$$

where k is the number of variables in the regression. The  $\beta$ -vector is the marginal effects. The regression results from estimating equation (1) can be hard to interpret since they are estimated on logit form. We thus transform the regression equation to obtain the marginal effects, which are usually the parameters we are interested in. The transformation takes place in two steps. First, we write

$$\frac{\Pr(Y_{it} = 1|X_{it})}{1 - \Pr(Y_{it} = 1|X_{it})} = \frac{1 + \exp^{X_{it}\beta}}{1 + \exp^{-X_{it}\beta}} = \exp^{X_{it}\beta}. \quad (3)$$

Then we take the natural logarithm

$$\ln\left(\frac{\Pr(Y_{it} = 1|X_{it})}{1 - \Pr(Y_{it} = 1|X_{it})}\right) = X_{it}\beta, \quad (4)$$

to obtain the marginal effects. In the regression, we have recalculated coefficients to percentage points. The estimated coefficients in the Table 5 are, in other words, to be interpreted as percentage points.

Given our data and statistical modelling, it is not possible to answer counterfactual questions such as: 'How would the participant in the training programme make out if s/he were not a participant in the programme?' This type of question requires data on (comparable) people who have not participated in the programme. The best way to conduct such an investigation would be through a randomised controlled experiment, as in the medical science tradition, where participation in a training programme is randomly assigned. The VR literature reports no estimates of training effects based on such experiments. Also, randomisation of training participants in the VR sector would raise ethical questions.

Our estimation strategy is to look at changes over time, implicitly assuming that the transition rates for participants, had they not participated, is constant over time. A change in the employment rate for participants, under this assumption, is a relevant measure of the effect of training. In this approach, it is paramount to control for as many background variables as possible, in particular individual characteristics and the unemployment rate in the area where the participants live and work. Selection on observed variables is controlled for by including these variables in the regression model. Since we compare changes over time rather than comparing participants with non-participants, we must be careful in interpreting the results since different unobserved selection mechanisms may affect the results. The assumption of a constant transition rate to jobs in the ordinary labour market for participants had they not participated is probably optimistic. Thus, the results from the regression models will give an upper limit of the treatment effect.

### Employment outcomes

Table 2 gives, as percentages, the annual rate of exit to regular work in the years from 1995 to 1999. The table also gives the job rates for men and women separately. In our sample, more than 30 per cent were women, which is in accordance with company data from AMBL which also shows that more than 30 per cent of the employees in the labour market enterprises were women. This percentage has been relatively stable over time.

Table 2. Percentage with employment as rehabilitation outcome 1995–1999.

	1995 (%)	1996 (%)	1997 (%)	1998 (%)	1999 (%)
All	28	25	28	36	39
Men	32	30	33	37	39
Women	21	9	16	35	40

The percentage of people who obtained a job after ending their rehabilitation effort from a LME increased in the observation period in question. While 28 per cent of those who left in 1995 obtained a job, the share obtaining ordinary work increased to 39 per cent in 1999.<sup>9</sup> This is an 11 percentage points increase over the period. A simple t-test concludes that the increase is not significantly different from zero in 1996 and 1997, but that the increase is significant in 1998 and 1999 at the 5 per cent level.

We will for the time being not speculate on the causes of the increase in employment for training participants. An important question is whether the individuals who were in rehabilitation in the LMEs in, for example, 1995 are different from the individuals going through rehabilitation in 1999. The composition of leavers can change only if different types of people are selected into the programme over time. For instance, more employable people might be selected into the programme over time. This might explain the increasing year-specific job exit rates. Labour-market conditions can also play an important role. In periods with high unemployment it is likely that it would be more difficult for partially disabled workers to find a job in the ordinary labour market compared with periods with low unemployment. A third factor could be a learning effect, where LMEs become more efficient in helping people obtain a job over time. Regression analyses allow us to control for several background variables and labour-market characteristics. This gives us a clearer picture of the causes of the rise in employment and of whether the rise can be explained by individual characteristics or conditions on the labour market.

Table 2 shows that the employment shares among men were relatively stable over time. Men have a job ratio between 30 and 39 per cent from phase 2 with an increase from 32 per cent in 1995 to 39 per cent in 1999. For women, we can see a clear and substantial increase in job ratios over time. In 1995, 21 per cent of those who completed their rehabilitation obtained a job in the ordinary job market. In 1999 the share increased to 40 per cent. This is a 19 percentage points increase. From the table we can see that the women had a considerably lower employment share than did the men. Over time this difference has been equalised. In fact, women had on average a slightly higher employment rate in 1999 than did the men.

<sup>9</sup> It is difficult to measure job quality after re-employment. We thus use a simple measure of the re-employment opportunities in the primary labour market as an indicator of the effectiveness of labour market programmes. Although job quality is of crucial importance in this context, our data are not suitable for analysing this aspect of re-employment. Another important aspect is the duration of employment and wages. These are also important in a broader cost-benefit framework, but unavailable to us in this research project.

Part of the explanation for the rising employment rates for women is the increased effort on educating and training persons within what has traditionally been looked upon as typically female occupations. This is work training within sectors such as healthcare, childcare, cleaning, restaurants and so on. In times with very low unemployment there is a demand for employees in these jobs, which means that it is easier to get a job within these occupations than in several other occupations. This leads us back to the fundamental problem in effect evaluation: Is it possible that those who obtain these types of jobs would have obtained such jobs even without training in a LME? Is it worthwhile to go through the effort of training in times with low unemployment? We address this issue in the regression analysis in the next section.

Next we compare employment rates for partially disabled people who have completed three years of upper secondary education or more with employment ratios for people without a diploma from upper secondary school. Completed upper secondary education means that the individual has earned a diploma. Generally speaking, the partially disabled people in the LMEs have relatively low education; a clear majority have no upper secondary education or craft certificate.

Table 3 gives the job percentages for individuals who have completed their upper secondary education or vocational education or additional education,<sup>10</sup> and job percentages for individuals who have not completed upper secondary school. In our data a relatively low percentage of people in LMEs had completed their upper secondary schooling. Of those who had completed vocational rehabilitation, less than 20 per cent of the individuals from phase 2 had completed upper secondary school or beyond. In Table 3, EDUC = 1 means that they have completed upper secondary schooling or vocational education, and EDUC = 0 that they do not have an upper secondary education or beyond.

Table 3 shows that the employment ratios for individuals with an upper secondary education have increased over time. We can observe a clear effect of education on the job possibilities from phase 2, but the difference varies considerably. In 1995, people with an upper secondary education had a 29 per cent exit rate to regular work, while the job ratio was 28 per cent for clients without specific education, i.e. a difference of only 1 percentage point. The difference in job ratios increased to 10 percentage points in 1996 and 21 percentage points in 1997. The difference fell in 1998 and 1999 to 16 and 11 percentage points, respectively. In other words, there seems to be a very clear effect of education on the probability of obtaining a job. Having

<sup>10</sup> Less than 3 per cent of the partially disabled workers we analyse in this article have an education beyond upper secondary school.

Table 3. Percentage with employment as rehabilitation outcome by level of education.

	1995 (%)	1996 (%)	1997 (%)	1998 (%)	1999 (%)
EDUC = 1	29	33	46	50	47
EDUC = 0	28	23	25	34	38

*Note:* EDUC = 1 is upper secondary education or higher, EDUC = 0 otherwise.

completed upper secondary school prior to entering the VR sector substantially increases the probability of a successful outcome. Similar tables can be made for all the other background variables, for instance health, but we choose to discuss these results within the framework of a regression model.

### Empirical results from regression models

We will now tighten up the results by analysing the data within the framework of regression analysis and include more variables in the analysis. In this section we analyse more closely the probability of getting a job after finishing rehabilitation, using a logistic regression model. We include available variables such as age, gender, education, year indicators, duration in VR, municipal unemployment level split into different measures for men and women and medical diagnosis.

Table 4 shows the results from a logistic regression where we have estimated the effect of important individual characteristics, duration as partially disabled, and unemployment in local municipalities on the probability of obtaining a regular job after ending rehabilitation in a LME.

The results from Table 4 show that men had on average a 10.7 percentage points higher exit probability to work in the ordinary labour market than women, when

Table 4. Probability of employment. Logistic regression. The coefficients are reported as marginal effects in percentage points.

Variable	Coefficient	SE	P[ Z > z ]	Mean X
Constant	-10.81	0.094	0.250	
Age	-0.56	0.002	0.000	37.8
Gender	10.72	0.036	0.001	0.712
Education	10.27	0.041	0.013	0.20
Industry	-8.58	0.032	0.094	0.35
VR duration	0.01	0.000	0.094	514
Misb.	-8.48	0.047	0.069	0.21
Musc.	7.37	0.048	0.057	0.31
Social.	-4.31	0.042	0.306	0.20
Unemployment	-0.11	0.001	0.942	2.87
Year 96	-3.15	0.051	0.541	0.182
Year 97	2.27	0.052	0.957	0.233
Year 98	10.04	0.055	0.070	0.177
Year 99	12.84	0.054	0.017	0.215

*Note:* Number of observations = 994. R<sup>2</sup> = 0.21. Mean of dependent variable = 0.312.

all other variables were held constant. This number is an average over the sample period of five years.

The effect of age was negative on the probability of regular employment. Older persons had a significantly lower probability of obtaining a job in the open labour market compared with younger persons. For instance, increasing the age by 10 years reduced the probability of employment by almost 6 percentage points.

People who completed upper secondary school had a 10.3 percentage points higher probability to obtain a job after rehabilitation compared with those without such an education. People with low education had, in other words, more difficulty obtaining a job in the ordinary labour market than did those with a somewhat higher education. It is worth stressing that the level of education for this group was substantially lower than the mean education for comparable groups with no work disability. The mean level of education for the cohort born in 1960, which approximately reflects the mean age in our sample, is 11.9 years.

People with an occupational background in manufacturing companies had on average an 8.6 percentage points lower probability of obtaining a job compared with those with a different occupational background, holding all other variables constant. It is no advantage to have a background from the manufacturing industry when it concerns the possibility of obtaining a new job after completed rehabilitation.

We have chosen to divide the persons into four different medical diagnosis groups. The original data had 10 different medical diagnosis groups, but some of them were very small. The sample consists of three large groups. These are: (1) mental disorders and drugs/alcohol abuse, (2) musculoskeletal diseases and (3) social adjustment problems. The other (six) diagnosis groups are treated as the reference category, and also include the missing observations on health. We found that persons with musculoskeletal diseases had a 7.4 percentage points higher probability of leaving to a job compared with other diagnosis groups. Persons with mental disorders and drugs/alcohol abuse problems had the lowest probability for transition to a job. Persons in this group had nearly 16 percentage points lower job probability compared with persons with musculoskeletal diseases. Furthermore, persons with mental disorders and drugs/alcohol abuse problems had a 8.5 percentage points lower job probability than did persons in the reference category. People with mental disorders and drugs/alcohol abuse are the most difficult group to successfully rehabilitate.

The table also shows that partially disabled individuals with social adjustment problems had a relatively low probability of finding a job, especially compared with individuals with musculoskeletal diseases. Those with social adjustment problems had a 4.4 percentage points lower job probability than the reference category, 12 percentage points lower than people with musculo-

skeletal diseases, but a 4 percentage points higher job probability than people with mental disorders and drugs/alcohol abuse problems.

The year variables in Table 4 are compared with 1995, which is used as the base category for the time indicators. The coefficient for the variable 'Year96' means that, after controlling for several background variables, people who completed their rehabilitation effort in 1996 had a 3.2 percentage points lower job probability compared with those who completed their rehabilitation in 1995. From 1997 to 1999 the year coefficients are positive. This means that people who completed their rehabilitation efforts in 1997, 1998 and 1999 all had a higher probability of having a job compared with those who completed their rehabilitation in 1995. It is important to stress that we are controlling for local unemployment at the municipality level in the regressions. People who completed their rehabilitation in 1999 had a nearly 13 percentage points higher probability of leaving for regular work compared with those who left in 1995. The coefficient for 1999 is significant at the 5 per cent level. We can also compare the different years with each other. Individuals who left in 1999 had on average (12.8–10.0) a 2.8 percentage points higher employment rate than did those who completed their rehabilitation in 1998. The major increase in employment came in 1998.

The results also show that a higher unemployment rate reduced the probability of obtaining a job, but that the estimated coefficient was not significantly different from zero. This is perhaps surprising, since the unemployment rate decreased during the period, and the exit rate from LMEs increased during the same period. We should thus expect to find a negative correlation between the two variables. However, after adjusting for several individual characteristics, this relationship was washed away. We have included year dummies in the regression. These time dummies capture some of the national changes in unemployment and other trends over time. The unemployment variable included in the regression will mostly capture local variation in unemployment. Although there was a large variation in the local unemployment rate over municipalities, this variable is not significant and cannot explain the rising employment exit rates for the labour market enterprises over time in our model.

## Conclusion and discussion

The purpose of this study has been to evaluate the changes in outplacement rates from Norwegian labour market enterprises over time. We have analysed the transition from the LMEs to ordinary work for participants who have completed their rehabilitation, and analysed the change in employment ratios over a time period of five years. Although participants can exit

for several reasons, our focus has been on exit to employment in the open labour market since this is the main goal of the training programme.

The analysis of individual data shows that the percentage that got a job in the ordinary labour market after training in a LME increased over time, from 28 in 1995 to 39 per cent in 1999. This is substantially higher compared with outplacement rates prior to the activation reform in 1994. In the period 1983–93 the average outplacement rate was around 8 per cent.

Even if we can analyse changes over time, we do not know how many of the participants in phase 2 would have found a job without rehabilitation in a LME. If we assume that the job ratio without rehabilitation is constant over time, which is a less restrictive assumption than to assume that no one would have been in a job without participating in the rehabilitation programme, the effect would have increased by 11 percentage points. The assumption of a constant transition rate to jobs in the ordinary labour market for participants had they not participated is probably too optimistic. The 11 percentage point effect must thus be considered an upper limit of the treatment effect.

The regression analysis showed that the employment rates increased over time, and that the probability of obtaining a job decreased with age, was higher for men than for women, was higher for participants with an upper secondary education than for those without, was lower for participants with a background in the manufacturing industry than for others, increased with the length of the period as partially disabled, and was higher for participants with musculoskeletal diagnoses than for those with mental disorders, drugs/alcohol abuse and social adjustment problems. The higher the municipal unemployment rate, the lower was the probability of work. However, it turned out that this variable was not significantly different from zero, at least for the time period in our analysis, which was characterised by decreasing unemployment.

Several of our findings are in accordance with other research findings concerning sickness absence, rehabilitation and disability pension and the effect of age, education, gender and unemployment (e.g. Hansen, 1999). If from our analyses we are going to evaluate which group of partially disabled workers to concentrate on in order to get them back to work, it seems to be young people with a good education, with musculoskeletal diagnoses and who do not have an occupational background from the manufacturing industry. The problem with this conclusion is that these individuals probably have the highest probability of obtaining a job on their own, and that the benefits to society of focusing on them are lower than if the resources were expended on other groups. An empirical analysis of Norwegian rehabilitation programmes in general by Aakvik and Risa (1999) shows that the

programme effect is higher for elderly participants with low education than for young participants with high education, even though the latter have a higher gross employment rate than elderly partially disabled workers with low education. Accordingly, the positive effect of persons spending a long time in a programme prior to transition to work must be evaluated against the alternative cost. In such a perspective it is not sure that long programme periods is the most rational solution.

We can see from the analysis above that people with an occupational background from the manufacturing industry do worse when it comes to obtaining a job than people with a different occupational background. We also know that a majority of the LMEs are oriented towards the manufacturing industry (mechanical, wood ware, printing industry etc.). What we do not know is whether or not participants with a background in the manufacturing industry are over-represented in companies of this kind. If this is the case, it may pose a problem because the employment rate in the manufacturing industry has been falling for some time, whereas the employment rate in the service sector is increasing. It is therefore possible that there will be a 'discrepancy' between the job training provided by the LMEs and the demand in the labour market. Widding (2000) finds that only 12 per cent of the caseworkers in the local employment offices believe that there is good correspondence between the companies' work and training and the demand in the labour market. With better correspondence between the companies' activities and labour market-demand, the transition to ordinary work could increase. This question can be illuminated by merging individual and enterprise data. In addition, with such data it would be possible to analyse individual career choices as a function of individual background characteristics, the employment effect of a different composition of partially disabled workers in the LMEs, and whether specific investments in the LMEs are relevant for successful rehabilitation.

Widding (2000) found in a series of interviews that it is more difficult to recruit people to LMEs over time. At the same time, we do not find that the number of people in LMEs have decreased over time. The easier it is to recruit individuals into LMEs, the easier it is to recruit favourable candidates who are easy to rehabilitate. If the number of potential candidates is reduced, the composition of candidates might be less favourable for the enterprises. However, it is an empirical question whether the training effect is lower for this group.

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