

Inés Hardoy

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## Young and unemployed, then what?

Effects of Norwegian labour market  
programmes in the early 90's

Institute for Social Research

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## Preface

This report presents the results from the project “Effects of youth programmes in Norway”. The project is financed by the Norwegian Research Council through the Programme on Labour Market and Regional Research (grant number 102866/510).

The data analysed are collected from several administrative registers. The data are prepared by Statistics Norway for the Ragnar Frisch Centre for Economic Research and the Institute for Social Research. I thank the Division for Labour Market Statistics of Statistics Norway for preparing the data in a tidy manner and for their helpful assistance otherwise. I thank my colleagues at the Institute for Social Research, Knut Opdal, Pål Schøne and Hege Torp, who did a lot of the data programming, and also Harald Dale-Olsen for helping me to understand the registers in question.

The report deals with registered unemployed 16-25 years old. It includes several studies of the effects of labour market programmes for youth in Norway in the early 90's. Among other things it discusses the transition to programmes as well as the effect of programmes based on different measures of success. I am particularly indebted to Hege Torp for support and advice all along and to Erling Barth for useful comments on an earlier draft.

Oslo, May 2000  
Inés Hardoy



## Introduction

Norway experienced the highest levels of unemployment since WW2 in the early 90's. Unemployment started to rise at the end of the 80's and continued rising until 1993, when the trend was reversed. Youth were particularly affected by the fall in economic activity. To counteract the negative effects of unemployment for those affected, the authorities intensified the supply of labour market programmes. Youth were one of the main target groups of the labour market authorities. In 1993, there were on average 4.4 per cent of youth 16–24 participating in labour market programmes while 3.5 per cent were registered as openly unemployed. Among person aged 25 and over the equivalent figures for 1993 were 1.3 per cent in labour market programmes and 2.1 per cent openly unemployed.

The main purpose of this report is to reach some understanding of what happened with these youth who became unemployed, particularly with those who participated in labour market programmes. Which types of youth are more prone to participate in labour market programmes? And how does labour market programme participation affect their subsequent labour market situation? These are two of the main questions we wish to answer.

The data at hand are non-experimental register data on all young people between the ages of 16 and 25 who entered the unemployment register in the course of 1991, as full time unemployed or labour market programme participants. After removing certain groups of individuals, who for various reasons can be regarded as not comparable, we are left with a sample of 93,050 individuals.

This report is organized in such a way that each chapter stands on its own. That is, knowledge of the content of previous chapters is not

a prerequisite to understand subsequent chapters. Since each chapter takes up different aspects of the youths' situation or the data utilized, reference is made to the relevant chapters for details. Furthermore, each chapter has an introduction and a summary.

Chapters 2, 3 and 4 are of a descriptive nature. We start out by describing the youths' situation inside and outside the labour market over time. Our main purpose at this point is to get an impression of the opportunities available to youth and how these are affected during times of increasing unemployment. Further we wish to know how the institutional setting may condition and/or contribute to them achieving their goals. We discuss youth's employment and unemployment situation, the educational system and its coverage, and enrolment in the compulsory military service. We present the institutional framework of labour market programmes. We also give a brief account of rules and regulations concerning employment and eligibility for unemployment benefits, student grants and loans, social security and economic assistance. Such information will hopefully contribute to place the group of youth we are particularly interested in, unemployed youth, in the context of the Norwegian society.

In chapter 3 we present the data which are to be used in the subsequent chapters to analyse the effect of labour market programmes. For the 93,000 unemployed we have panel data on personal characteristics, geographical mobility, education, social insurance, as well as information as regards employment, unemployment and participation in labour market programmes for the five-year period, from 1.1.89 until 31.12.93. Several registers were merged to provide this information. In chapter 3 we introduce the different registers, describe their contents and assess their reliability. Thereafter we present the criteria by which the registers are matched to provide panel data for the five years under study.

The data at hand is non-experimental, which means that there is no random selection of individuals to programmes. In chapter 4 we present the sample selection rule which is used to divide individuals into participant categories and the non-participant group. The sample selection rule applied is basically as follows: the comparison group includes all individuals who have experienced exclusively openly



unemployment during the first year since they entered the register in 1991; the participant group is made out of all those who participated in at least one labour market programme which started within the first year after their first appearance in the register in 1991, irrespective of whether they were also registered as openly unemployed during this first year. Participants are further divided into four broad categories: 1) one or several employment programmes (on-the-job training in the public and private sector); 2) one or several vocational programmes for youth (a combination of classroom courses and working practice); 3) one or several training programmes (off-the-job classroom courses); 4) various combinations of these three categories of programmes, and other programmes not covered by the three other categories. Thereafter we present descriptive statistics for the different participant categories and the comparison group.

In Chapters 5, 6 and 7 various types of econometric models are applied to the data presented in chapters 3 and 4 with the purpose of studying what affects selection to programmes (chapter 5) and subsequent labour market prospects (chapters 6 and 7). In all three chapters parallel analyses are done for four subgroups: women 16–20 years old, men 16–20 years old, women 21–25 years old and men 21–25 years old, the reason being that the descriptive analysis of chapter 4 suggest that gender and age are important variables in explaining the observed differences among participants in the different programme categories and non-participants as well as subsequent outcome states.

The non-experimental nature of the data poses a serious problem in evaluation studies. That of selection bias. When individuals are not randomly placed into a participant and a non-participant group it becomes impossible to assert that the effects estimated are a result of participation, and not of characteristics unobserved by the analyst which correlates with participation in the first place.

In chapter 5 we study how observed characteristics are correlated with the enrollment rule. We apply a Multinomial Logit Model to estimate the probability of being in the various programme categories relative to being unemployed for persons with different observed characteristics.

Chapter 6 includes two types of analyses. In the first part we

discuss one aspect of sample design: the sample selection rules chosen by the researcher. We apply a Binary Logit Model (the response variable is job/no job) to different samples which differ as regards the selection rule adopted and show how different sample selection rules affect the results. The purpose of the second part of this chapter is to study whether labour market programmes fulfil the desired intention, which is basically to improve the labour market prospects of the youth. We estimate the impact of programmes on the probability of being in different states two years after entering the register in 1991. The states considered are part time employment, full time employment, unemployment, participation in labour market programmes, education, on social security, and an unknown state which is residually determined. The method applied is the Multinomial Logit Model. No attempt is made to control for selection bias.

In chapter 7 the effects of programmes are measured in terms of annual earnings in 1993. Here the results from Ordinary Least Square are compared to those of the so called Conditional Expectation Correction Method, developed to control for selection bias and proposed by Dubin and McFadden (1984). Chapter 8 summarizes findings and concludes the report.

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## Youth in Norway

Youth is a period in a person's life characterized by search. Once one finishes compulsory education at the age of 16 or 17 the future is wide open. One can move away from home, start to work, decide the type of education if one wants to go onto further education, travel, do the compulsory military service, have kids or whatever. This gives a feeling of freedom. For the first time one can make "important" choices in life. At the same time the choices one makes will lay the basis for life as a grown up. In that sense this period in the life cycle can be scary, and the uncertainty as to whether one makes the "right" choices can even be overwhelming/devastating.

Furthermore, what one harvests from the youth stage in the life cycle is not altogether a matter of free choice, at least not for all youth. The Norwegian wage formation with traditionally strong labour unions has high "minimum" wages.<sup>1</sup> There are a series of rules and regulations which secure continued employment for those who hold a job, while at the same time they may worsen the probability of stable employment for those with little or no labour market experience. Also, all people in Norway have, in principle, access to the national educational system, free of charge. Yet, availability of vacancies in the more popular areas of study is limited. Youth are selected according to marks/grades such that those with bad/low marks/grades have the lowest chances of being accepted in the education they want.

On the other hand, the Norwegian welfare system secures a minimum standard of living for all. In Norway all persons are secured

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1. Meaning not minimum wage regulated by law, but the actual minimum wage which result from the local negotiations between firms and trade unions.

a minimum income in the form of economic (social welfare) assistance. In addition, there exist pupil/student grants and loans, and unemployment benefit for those with previous employment experience who search for a job but cannot get one. Conscripts who have finished their service are also entitled to unemployment benefits. Employed women are entitled to maternity leave. Parents receive a monthly lump sum for each child, and single parents can receive extra economic support. Further, the “youth guarantee”, which was introduced in the late 70's, is meant to secure all youth between 16 and 19 years of age, who cannot get a job or start an education, the possibility of participating in a labour market programmes. Since 1992–1993 the state has also provided a “follow-up service” (oppfølgingstjeneste) with the purpose of assisting youth at risk of falling outside the system in deciding and/or achieving their goals.

In the following we present the main options available in Norway to help youth in the transition to adulthood, and give a brief description of their coverage. We also describe the youths' situation inside and outside the labour market: what they do and what they live of. Such information will hopefully contribute to place the group of youth we are particularly interested in, unemployed youth, in the context of the Norwegian society.

## 2.1 Demographic characteristics

About 7.5 per cent of the Norwegian population were between 15–19 years of age in 1991, while nearly 8 percent were between 20–24 years of age. That is, in 1991 about 16 per cent of a population of nearly 4.5 million was in the age group 15–24. Immigrants, including Norwegians born of two foreign parents, accounted for 5 per cent of the population in Norway in 1996. 6 per cent of the immigrant population were 16–20 years old, and 7 per cent between 20–24. (Roalsø 1997). The proportion male/female is about 51/49 for all ages involved.

Women marry younger than men. In 1993 only about one fourth

of women 25 years of age were (formally) married.<sup>2</sup> Less than one per cent of males born in 1973 or later were married by 1993, while 22 per cent of those born in 1966 were married by then. In 1993, 3 per cent of women born in 1973 or later were married, and 38 per cent of women born in 1966 (Skrede 1996, Table 1). There is also a little group consisting of those who are neither married nor single (formally speaking); that is, they are separated, divorced and single parents. As is the case for the category married, the proportion in this group increases with age and is relatively bigger for females than for males. In 1993, less than 1 per cent of women born in 1971 or later belonged to this category, where as much as 5.34 per cent of those born in 1966. In 1993 there were nearly 6000 women in age group 18–27 (16–25 in 1991) in this not married/not single category (*ibid*).

Young men live more often at their parents' home than women. In 1991, 87 percent of young men 16–19 years old lived together with their parents, while 75 per cent of women in the same age group did so. The proportion living at their parents' home is lower for age group 20–24. Still, nearly half of males (49 per cent) and one fifth of females (18 per cent) in age group 20–24 lived at home in 1991. Fewer men lived at home in 1995 than in 1991, while the opposite is the case for females. 80 per cent of women 16–19 years old, and 21 per cent of women 20–24, lived at their parents' home in 1995. The equivalent proportions for males are 84 and 42 per cent (Roalsø 1997). It seems that a major reason why youth aged 20–24 move away from home is to take further education (see *Ungdomsundersøkelsen* 1990).

Youth between 20–24 years old in the 90's also wait longer to establish a family of their own than youth did before. And men wait longer than women. In 1988, 54 per cent of women in age group 20–24 were living as married/unmarried couples, against 38 per cent in 1995. On the other hand, less than 20 per cent of men in this age group were living as couples in 1995. As regards child-bearing, few women give birth before the age of 20 nowadays: about 15 per 1000 teenage

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2. Persons living as couples who are not separated or divorced and who are not single parents either, are included in the "single" category. Thus this marital status division does not fully capture the household composition.

women gave birth to a child in 1991, and 13 per 1000 women in 1995. Among women 20–24 there were nearly 90 births per 1000 women in 1991 and less than 80 per 1000 women in 1995. In addition it can be mentioned that 19 per 1000 women in age group 15–19 and 27 per 1000 women in age group 20–24 had abortions in 1993 (Roalsø 1997).<sup>3</sup>

Thus the trend appears to be that youth wait longer to take adult related decisions, such as moving away from their parents' home, entering marriage and child-bearing. The difficult labour market situation, the greater proportion of youth taking further education, and the relatively expensive student loans and housing rents are assumed to be some of the factors affecting the observed pattern of the last decade. This is the focus of the remains of this chapter.

## 2.2 Main activity

The Labour Force Survey (LFS) collects quarterly information from a representative sample of the population on what persons consider is their main activity during the survey week. According to this survey education and employment are main activities for youth. In 1992, 93 per cent of youth aged 16–19 (79 per cent education and 14 per cent employment) and 77 per cent of those 20–24 (30 per cent education and 47 per cent employment) had one of these two activities as their main activity. A clear trend during the last twenty years is that relatively more youth are engaged in education now than before, and they remain in education longer. Relative to 1972 the percentage engaged in education of age group 16–19 increased by 21 percentage points, from 58 per cent in 1972 to 79 per cent in 1992. The proportion of youth 20–24 years old engaged in education increased by 11 percentage points during these twenty years period (NOU 1994:3).

The proportion doing compulsory military service has been about 6 per cent of those aged 20–24 and 1 per cent of those aged 16–19 (mostly men) since 1980. Women's increased participation in education and the labour market has reduced considerably the proportion of women in age group 20–24 who consider themselves as housewives,

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3. Abortion was legalized in Norway in 1979.

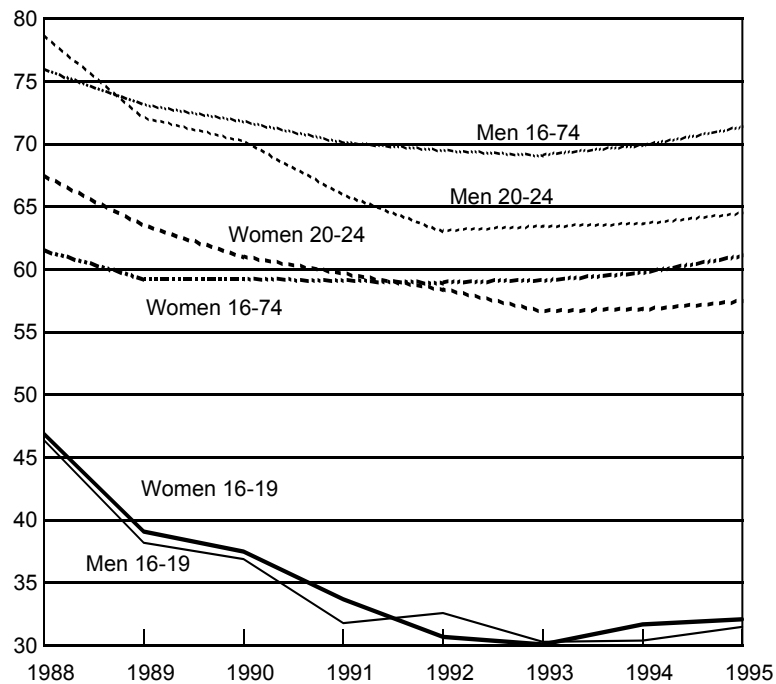
from about 15 per cent in 1972 to 3 per cent in 1992.

In spite of the increase in unemployment since the late 80's the proportion of youth aged 16–19 who consider themselves as unemployed and searching for work has been stable at about 3 to 4 per cent during most of the period 1972–1992. This is not the case for youth aged 20–24. Unemployment was stable at a level of 4 per cent or less until 1988. Thereafter it started rising, reaching a level of 9 per cent in 1992. This implies that youth aged 20–24 have been more strongly affected by declining economic activity than teenagers, who are mostly engaged in education.

## 2.3 Employment and wages

Labour market related rules and regulations in Norway make no age distinctions, in general. Nevertheless they affect youth and adult employees differently. Temporary employment is in principle not allowed except for seasonal work. There is however a period of probation of 6 months during which the employers can either offer continued employment on a permanent basis or cease the contract, in which case the employer has to come up with good reasons for making the employee redundant. At the same time employees who are fired within the period of probation can start legal proceedings, during which time he/she remains employed. This can contribute to make employers reluctant to employ young persons without working experience. Seniority regulations are not to the youths' advantage either, since they often have less seniority and thus are the ones who are laid off first. Costs of lay offs increase with age and seniority, which means that young employees with short seniority are the least costly to lay off. Entitlements and regulations regarding maternity leave (increased from 6 to 10 months in the mid 90's), having small children (right to shorter working hours, time free for breastfeeding and sick leave when a child is sick) and the compulsory military service (between 12–14 months) imply that youth are a more uncertain investment from the employer's viewpoint than older workers. Replacing the person on leave temporarily is often not free of costs either. In addition, there are more restrictive

Figure 2.1. Persons employed by age group and gender expressed in percentage of women and men in that age group



rules as regards type of work, working hours, overtime and night work for youth less than 18 years old than for older employees.

The most important source for information on employment is the Labour Force Surveys (LFS). LFS uses terms and definitions in accordance with recommendations given by the International Labour Organization (ILO). Employed persons are defined as those working for pay or profit one hour or more in the survey week, as well as persons temporarily absent from work and conscripts. Figure 2.1 shows that between 30 to 35 per cent of persons 16–19 years were employed in the period 1990–94, and that there is hardly any difference between men and women. The proportion employed in the age group 20–24 is higher than



*Table 2.1. Youth with very low income\* in 1993 expressed as proportion of all youth and proportion of youth experiencing registered unemployment in 1991*

	All youth						Unemployed youth			
	Unmarried		Married		Other		Unmarried		Married	
	M	F	M	F	M	F	M	F	M	F
Age 20	59	56	45	65	75	49	61	75	56	83
Age 21	44	44	40	52	40	40	65	60	54	66
Age 22	33	36	30	44	38	28	52	53	45	63
Age 23	28	29	23	38	28	25	40	51	40	59
Age 24	24	23	20	32	31	18	35	48	30	57
Age 25	20	18	15	28	23	15	34	46	26	54

\* Annual income of 40,000 NOK or less in 1993.

Source: Skrede (1997) and own data calculations.

for teenagers, and higher for men than for women. During the period 1991–95, between 64 and 66 per cent of males, and between 56 and 59 per cent of women, in that age group were employed. However, if we take into account conscripts the gender differences disappear. It is estimated that there are about 20,000–25,000 conscripts at any one time, most of whom are in age group 20–24 (Historical Statistics, 1994). If, for instance, 15,000 of the conscripts are between 20–24 years old then the 5–6 percentage point employment difference between men and women disappears. Also as Figure 2.1 shows, youth have been much more affected by the decline in economic activity in the early 90's, compared to the population 16–74 years old. For instance, the rate of employment among youth 16–19 decreased by 35 per cent in a five year period, from 46 per cent in 1988 to 30 per cent in 1993. For youth 20–24 the decrease was in the order of nearly 30 per cent.

Annual earnings are a measure of the individual's labour market attachment. Many employed have very low annual earnings, and specially youth with previous unemployment experience. Table 2.1

shows the proportion of youth with annual income<sup>4</sup> before tax of 40,000 NOK or less (equivalent to about one fifth of a blue-collar worker's earnings) relative to all youth and relative to youth who registered as unemployed in the course of 1991<sup>5</sup>, according to age (Skrede 1997). The table shows that previously unemployed youth in all age groups more often have very low income than youth in general. Further, the proportion with very low income decreases with age, but much faster for youth in general than for youth with unemployment experience. The proportion with very low income is very much the same for both unmarried men and women in general, for all ages considered. This is not the case for unemployed youth. Table 2.1 also shows that married females more often have very low incomes than married men. Also that married men more often have income over 40,000 NOK than unmarried men. The pattern is the same both for the youth population at large and among unemployed youth.

## 2.4 Unemployment

Unemployed in Norway are defined as those without salaried work who are actively searching for work. That is, unemployment is defined as an "involuntary" state which one actively tries to change. We make a distinction between openly unemployed and labour market programme participants. Programme participants would, most probably, be openly unemployed had they not participated in a programme at the time. Although according to the rules labour market programme participants are supposed to search actively while on a programme and be available for work if a job opportunity were to turn up, this is often not the case. This distinction reflects the country's labour market policy, i.e, the active versus the passive line and the implications it may have for the

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4. Annual income includes wage income as well as social security payments (all types of pensions, unemployment benefits and single parent support), but it does include economic assistance and allowances while on military service. Information is taken from Register of Salaries and Social Security Income (see Chapter 3).
  5. This sample is the one used in the analyses of this report and is defined in detail in Chapter 4.

development of the economy.<sup>6</sup>

The unemployment rate has fluctuated considerably the last two decades, with peaks in 1982–84 during the oil crisis and again ten years later, in 1992–94. Yet, while the crisis in the early 80's was short lasting and unemployment reached only slightly over 3 per cent of the labour force, the level of unemployment reached higher levels and remained high for several years during the 90's. In 1993 it reached 6 per cent of the labour force (see figure 2.2), the highest since WW2.

There are two sources usually used to measure unemployment in Norway. The one is the Labour Force Survey of Norway Statistics (LFS), and the other is the Register of Unemployed Persons administered by Directorate of Labour (RUP). These two sources use different criteria to define an unemployed. LFS, which is based on a random sample of the population, defines as unemployed all those who have not had wage income during the week of the survey, and who have actively searched for a paid job the previous four weeks and could have taken a job had there been one in the week of the survey. RUP includes all those registered at the local employment office at the end of each month as searching for a job who have not had a job during the last two weeks. This means that persons who do not register at the local employment office but search for work on their own are included as unemployed in the statistics of LFS, but not of RUP. Also the time span used to define the unemployed is different in the sense that in LFS it is the week of the survey, while in RUP it is the two previous weeks. That is, persons who were in a paid job the week previous to the week of the survey can be included as unemployed according LFS, but not according to RUP. Also, the definition used in LFS includes full-time students seeking a part time job, but not the definition used in RUP. Further, persons in labour market programmes are not included among the unemployed in the statistics from RUP, while persons in labour market programmes may be included among the unemployed according to the definition used in LFS. This is because in LFS it is not asked specifically about programme participation, so that it is up to the participant in a

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6. By “active line” we mean generous labour market programmes and by “passive line” we mean generous unemployment insurance.

labour market programme how he/she defines himself/herself (this has been changed in later years). However, it is likely that participants in employment programmes consider themselves as employed, while participants in vocational and training programmes are more likely to consider themselves as unemployed or being engaged in education (specially those in training programmes).

Usually unemployment is measured relative to the labour force. The LFS unemployment rate and the RUP unemployment rate use the same denominator. Information on the labour force is based on information from LFS. The labour force includes the unemployed (as defined by LFS) and the employed, which are defined according to the ILO convention. As previously mentioned, employed are those who have been paid for at least one hour of work during the week of the survey (includes those on sick leave, on vacation and maternity leave). Conscripts are also included in the labour force. This implies that full-time high school students with part-time jobs, and conscripts who would have been engaged in education otherwise, are included in the labour force. On the other hand, unemployed persons who do not seek work while they participate in vocational and training programmes are excluded from the labour force (this group accounts for a considerable proportion of unemployed youth as shown in the next section).

The differences in definitions affect the measurement of youth unemployment to a greater extent than unemployment in general, and specially for age group 16–19 years old. As can be seen from Figure 2.2 the LFS level of unemployment for youth 16–19 (thin solid line) is much higher than the RUP level of unemployment (thick solid line), during the period 1980–1995. For instance, the LFS unemployment rate in 1991 for age group 16–19 years old was almost three times as high compared to the RUP unemployment rate, about 17.7 per cent and 6.1 per cent respectively. On the other hand, the two measures of the unemployment rate are quite similar for youth 20–24 and for the population at large, although the LFS measure lies over the RUP measure most of the period under consideration. Unemployment among youth 20–24 reached around 12 per cent of the labour force in 1992.

There are several reasons for the observed variations. Firstly, full-time high school students who have part-time jobs and those who

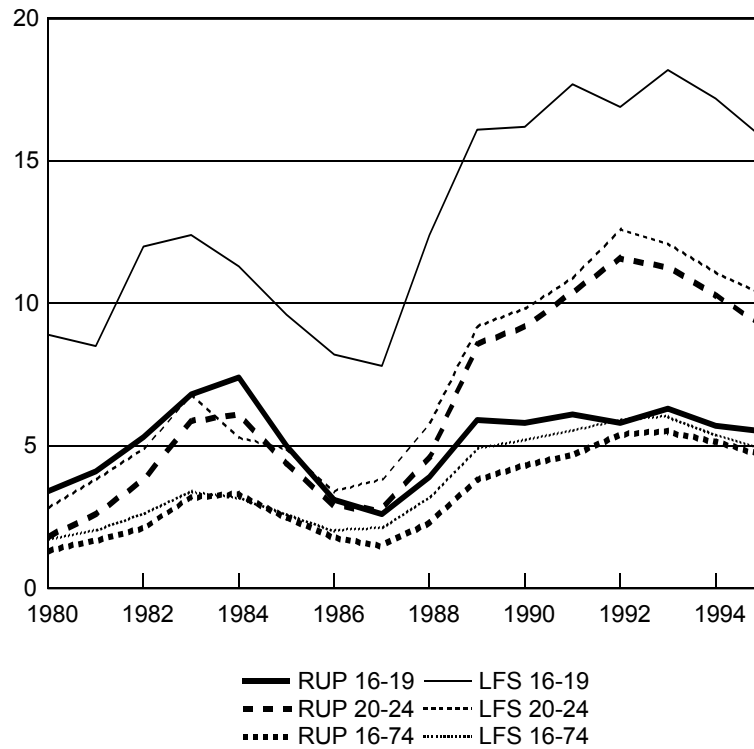
do not have but are looking for a part-time job, are included in the labour force.<sup>7</sup> These two figures vary very much with the labour market situation: in 1987 there were 143,000 persons in the labour force 16–19 years old, while in 1993 there were 83,000 persons in this age group. Such fluctuations in the labour force have obvious repercussions on the unemployment rate, via the denominator. In addition, full-time students who search for a job are included in the unemployed based on LFS (the nominator), but not in the number of RUP unemployed. This partly explains why the unemployment rate based on LFS data is considerably higher for the younger age groups than the unemployment rate based on RUP data, particularly for age-group 16–19.

Fluctuations in the level and distribution of labour market programme participation also have implications for the unemployment rate among youth. This is because, as mentioned above, participants in vocational and training programmes who do not seek for work are excluded from the labour force while participants in employment programmes are not. Also, labour market programme participants are excluded from the numbers of RUP unemployed. Consequently, the measures of LFS and RUP unemployment are affected differently. For instance, an increase in the number of persons participating in training programmes reduces the number of LFS unemployed by the same amount as the labour force, while it reduces the number of RUP unemployed by the total amount. Hence, it reduces the RUP unemployment rate more than LFS unemployment rate. The difference between the LFS unemployment rate and the RUP unemployment rate is even more pronounced when the proportion of participants in

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7. Whether full-time students who have or look for part-time work should be included in the labour force or not is questionable. On the other hand, excluding from the labour force all those with education as their main activity may underestimate the scope of the problem as regards youth unemployment. In the absence of job possibilities many youth choose education rather than unemployment, and are discouraged to search, although they would rather work than study if they had the choice.

Figure 2.2. Unemployed persons according to LFS and RUP in per cent of the labour force, by age group



employment programmes is big. This is another reason for the differences in unemployment rates shown in Figure 2.2.

Thirdly, many youth are not entitled to unemployment benefits and have therefore less incentive to register as unemployed at the local employment office than if they were. Since some of the unregistered unemployed are included in the statistics from LFS, but not in those from RUP, this contributes to the LFS rate of unemployment being higher than the RUP rate of unemployment. Last, but not least, the more youth who would rather work than do something else but are discouraged from searching, the smaller the labour force and the lower

the level of unemployment. According to results from the Youth Survey 1990 about 12 per cent of young people in ages 17–24 had an unsatisfactory situation in the labour market: 4 per cent were unemployed (had searched for work), 4 per cent participated in labour market programmes, 2 per cent considered themselves as unemployed (although they had not searched for work and therefore are not unemployed according to the definition in LFS) and 2 per cent were engaged in education because they could not get a job (Directory of Labour, 1991). If those unregistered unemployed, who are not only excluded from RUP but also from LFS, were to be included in LFS statistics then the differences between LFS and RUP statistics would be even greater.<sup>8</sup>

In short, the more youth in education who search for part-time jobs, the more youth who participate in vocational and training programmes, and the more youth who search on their own (without help from the local employment office), the greater the difference between LFS and RUP statistics ( see also Try 1991).

During the 80's, until unemployment started rising in 1988, the rate of unemployment for age group 16–19 was higher for females than for males. For age group 20–24 the unemployment rate was more often than not higher for males than females. Gender differences were however small. The recession affected young men more than young women, because it was men who worked in the industries mostly hit, like construction and manufacturing. By the 80's and during the first half of the 90's unemployment among young men in both age groups was higher than among women. When the economy started recovering the gender differences started diminishing. By 1994 the situation had changed again: RUP statistics show that the unemployment rate was higher for females than males for age group 16–19, while it was on average roughly the same for both genders in the age group 20–24.

Youth unemployment not only differs from adult unemployment in terms of size, but also as regards the structure of unemployment.

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8. Persons who have no work and would like to have work but do not search actively for work are excluded from both LFS and RUP statistics. These unemployed who do not appear in any statistics are referred to as “hidden” or “disguised” unemployed.

*Table 2.2. Percentage of long term unemployed (26 weeks or more) and average duration of unemployment in weeks for different age groups. January 1991 – January 1996\**

	Jan. 91	Jan. 92	Jan. 93	Jan. 94	Jan. 95	Jan. 96
Age group 16–20:	9.31	8.91	8.9	5.98	5.99	5.88
Long term unemployed (%)	9.3	8.9	8	5.9	5.9	5.8
Average duration (weeks)	10	10	9	8	9	8
Age group 20–24:	21.41	22.82	23.18	15.81	14.71	11.91
	7					2
Long term unemployed (%)	21.4	22.8	23	15.8	14.7	11.9
Average duration (weeks)	17	18	18	14	13	12
Age group 16–74:	29.22	30.52	33.92	26.92	27.52	28.62
			5			2
Long term unemployed (%)	29	30.5	33.9	26.9	27.5	28.6
Average duration (weeks)	22	23	25	22	21	22

\* Unfortunately these figures are not available by age group for the period before 1991. Remark: January is not representative for the whole year.

Source: RUP.

Youth unemployment is characterized by higher frequency but for relatively shorter period of time compared to adult unemployment. However, an increasing proportion of youth, specially among those in age group 20–24, has experienced longer periods of unemployment in the 90's. Data from RUP show that in the period 1991–93 almost one fourth of unemployed youth in age group 20–24 had been unemployed for at least 6 consecutive months (Monthly Statistics, Directorate of Labour). The proportion of long term unemployed (6 months in Norway) was lower for those 16–19 years old: in the order of 10 per cent at the most during the peak years 1991– 93.

As Table 2.2 shows, the proportion of long term unemployed is considerably higher among adults than among youth. Two policies have contributed to holding the average duration of unemployment low among youth: the “youth guarantee” and the expansion of the educational system. Unemployment started decreasing in 1993, and



eventually so did the proportion of long term unemployed, but as Table 2.2 indicates the proportion of long term unemployed decreased relatively faster for young people than for the adult population. Table 2.2 also shows that the duration of unemployment among those aged 16–19 was nearly two and a half months in the early 90's, decreasing to about 2 months in the mid 90's. For age group 20–24 average duration of unemployment was about four and a half months at the beginning of the 90's, decreasing to three months in the mid 90's. As Table 2.2 shows, average duration of unemployment for all age groups has been quite stable at a relatively high level, in spite of the decreasing level of unemployment since 1994. Thus, the figures indicate that young people succeed in getting jobs, starting education or taking part in programmes to a greater extent than adults when the economy starts recovering.

Eligibility to unemployment benefits is based on previous earnings. According to the law of The National Social Security System all persons who meet the minimum of annual income requirements of nearly 30,000 NOK in 1995 (about 5,000 US\$), are eligible for unemployment benefits. Persons who are not eligible for unemployment benefits, and those who are not able to live on the benefits they receive, can apply for economic assistance (see section 2.6). Costs of the unemployment insurance are financed by general taxes. Compensation is in the order of about 65 per cent of previous annual earnings for annual earnings up to a certain level. If previous earnings are higher than 230,000 NOK in 1995, which is equivalent to an industrial worker's earnings, then the compensation level is lower than 65 per cent. From 1984 to 1991 the period of compensation was 2x80 weeks with an interval of 26 weeks without compensation after the first period. In 1991 the interval was reduced to 13 weeks instead of 26 weeks. At present it is 156 weeks, that is 3 years with no interval. Total expenditure on unemployment benefits was four times higher in 1994 than in 1988. In 1994 it was about 12 billion, which amounts to 1.4 per cent of GDP. During the period 1988–94 the average number of recipients increased from 37,000 to 83,000 persons.

As regards recipients of unemployment benefit figures show that on average 64 per cent of the registered unemployed in 1993 were recipients of unemployment benefits (Monthly Statistics, Directorate of

Labour). Further, that unemployment benefits were granted 209,000 times in the course of 1993 (Annual Report, Directorate of Labour). The Directorate of Labour does not publish figures on number of recipients of unemployment benefit by age, nor does Statistics Norway. Based on figures from Skrede (1997) we have calculated the number of women and men in age groups 18–19 and 20–24 who received unemployment benefits in 1993 (figures are not available for other years, nor for those 16 and 17 years old but they are very few). In 1993, an average of 1.9 per cent of the female population in age group 18–19 and 19 percent in age group 20–24 received unemployment benefits. Equivalent figures for males are 3.7 per cent and 33.6 per cent, respectively. That is, a bigger proportion of men than women, in both age groups, were recipients of unemployment benefits in 1993.<sup>9</sup>

## 2.5 Labour market programmes

By European standards, Norway has not experienced high rates of unemployment during the last decade. Yet unemployment three doubled in the period 1987–93, when it reached a peak of 6.1 per cent of the labour force (Quarterly Labour Force Statistics, OECD). As unemployment increased so did participants in and expenditure on labour market programmes. Expenditure on labour market programmes accounted for nearly 0.1 per cent of GNP in 1987, and expenditure on unemployment benefit accounted for 0.35 of GNP in 1987. The equivalent figures for 1993 were 0.9 per cent and 1.4 per cent, respectively. (Statistics Yearbook, Statistics Norway and Monthly Statistics, Directorate of Labour). In 1987, 1.5 per cent of the labour force were registered as openly unemployed and 0.3 per cent of the labour force participated in labour market programmes. By 1993 the figures had risen to 5.5 per cent and 2.7 per cent, respectively. In 1993 there were on average 118,146 registered as openly unemployed and 71,960 registered in labour market programmes – 57,200 in ordinary

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9. The proportion of youth who are recipients of unemployment benefits in the course of a year is necessarily much higher than the average for that group. Since data for the stock of unemployed are not available it is not possible to calculate the proportion of unemployed who are recipients of unemployment benefits.

labour market programmes and 14,700 in rehabilitation programmes (Directorate of Labour).

Norway, like the other Scandinavian countries, has a long tradition in the use of active labour market policies to counteract the negative effects of unemployment. Labour market programmes were introduced in the mid 70's. Much has changed since then. Since the beginning of the 90's there are two groups in particular that are given priority in the assignment of programmes. Young people 16–19 years old who cannot get into the ordinary educational system or an ordinary job are entitled to programme participation, and this opportunity is referred to as the “youth guarantee”. Another group which is given priority in the allocation of labour market programmes are persons for whom unemployment benefits are about to expire (after about 3 years). Labour market programmes are of two types: ordinary labour market programmes and special rehabilitation programmes. This report focuses on ordinary labour market programmes (for simplicity referred to as labour market programmes). Programmes differ in the degree of on-the-job/off-the-job training involved. While some are aimed at maintaining the unemployed's working capacity or giving the unemployed some work experience other are solely classroom courses (acquisition of formal qualifications). Remuneration and duration also vary among programmes. Some programmes are targeted at certain groups with a particularly weak position in the labour market. We have classified programmes according to the purpose of the programmes.

*Employment programmes:* The main purpose is to give unemployed working experience and skills so as to improve their possibility of getting an ordinary job. Since they affect the demand for labour they can be regarded as demand oriented programmes.

*Public employment schemes:* Temporary and extraordinary (to prevent displacement and substitution) employment in the public sector. Maximum duration is 10 months. The employer receives a subsidy with which to cover wages and other costs, and the participant is paid a salary which cannot be higher than 85 per cent of what an ordinary employee would have received for doing that same job. Long term unemployed are given

priority. Not aimed at permanent employment.

*Wage subsidies:* Temporary employment in the private or public sector for several target groups of unemployed: new comers in the labour market, youth, long-term unemployed, immigrants and seniors (over 60 years old). A wage subsidy is granted to the employer with which to cover 50–75 per cent of ordinary wages for a period of maximum 6–12 months, depending on the target group. Aimed at permanent employment.

*Substitution schemes:* Employees who are granted leave to take further education are temporarily substituted by the unemployed. The scheme covers both the public and the private sector. The employer receives a subsidy with which to cover most (or all) of the substitute's wage costs. The employer and the substitute agree on the wage level and working conditions among themselves. The substitute does not necessarily have to take over all the tasks of the person granted leave. Maximum duration is 10 months.

*Vocational Programmes:* The purpose is to give unemployed youth on-the-job and off-the-job training and in that way increase their chances of getting a job on ordinary basis or to take further education.

*Apprenticeship schemes:* Work experience combined with training (either classroom courses or on-the-job training). The scheme covers both the public and the private sector in the period under study (1991–92). Maximum duration is 10 months. The target group is newcomers in the labour market. Rejected applicants to upper secondary education are given priority. The apprenticeship scheme can be combined with education in the ordinary school system. Participants receive a daily allowance. If he/she is eligible for unemployment benefits, he/she can choose between unemployment benefits and daily allowance. Since August 1993, when the sponsorship scheme was introduced, the apprenticeship scheme became mainly targeted towards youth under 20 years old, and for those older than 19 only in the public sector.

*Sponsorship schemes :* A modification of the apprenticeship

scheme introduced in August 1993. Differs from the latter in that the new scheme covers only the private sector and youth 20–24 are given priority.

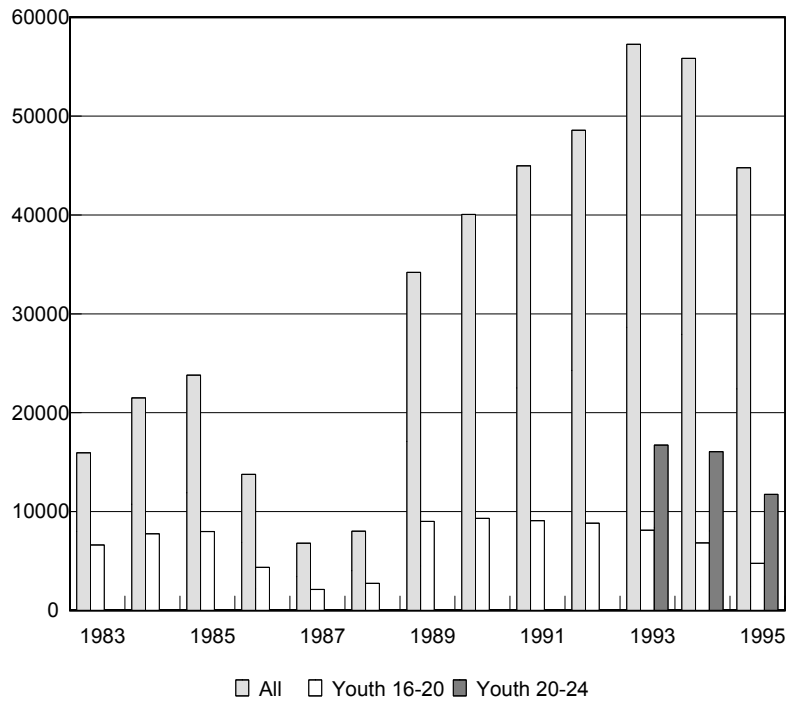
*Training programmes:* The purpose is to qualify unemployed in areas/fields where there is excess demand for labour and in that way increase the participants' chances of getting a job.

*Labour market training:* They are basically classroom courses, some of which (not all) give formal qualifications. Courses vary in duration and the educational prerequisites required to be accepted. Most courses are of short duration, between 5 and 20 weeks. They are administered by the local employment offices, often in cooperation with other public or private educational institutions. The fields covered are very broad: from Norwegian language courses for foreigners to advanced computer programmes. Some courses are not that different from those offered in the ordinary education system, and one fourth of courses even give qualification/credits at a upper secondary school level. While some courses are targeted towards unemployed with low educational attainment others are not. Courses are free of charge. Participants receive a weekly allowance, and if they are eligible for unemployment benefits, which may be higher, they can choose to collect them instead.

Search activity is most often reduced while participating in labour market programmes. Nevertheless, rules are such that if while on a programme the participant is offered an ordinary job in accordance with his/her qualifications and stated interest he/she is expected to interrupt the programme and take the job. If the participant refuses to take the job and receives unemployment benefit he/she runs the risk of losing payments. Furthermore, payments may also be interrupted if the unemployed refuses to accept a relevant offer in a training or vocational programme.

Figure 2.5 shows fluctuations in the total number of labour market programme participants during the period 1983–95 (Monthly Statistics, Directorate of Labour). It also shows the number of

Figure 2.5. Number of participants in labour market programmes 1983–1995



participants 16–19 years old as percentage of all participants in labour market programmes, for the same period, and the number of participants in age group 20–24 for the period 1993–95. Unfortunately figures on labour market programme participation for youth 20–24 are not separated from figures for adults previous to 1993. With the oil crisis in 1983 unemployment rose, and so did the number of participants in labour market programmes. The economy recovered rapidly and the level of unemployment and labour market programmes fell. As unemployment started rising again towards the end of 1988 the authorities intensified active labour market policies. The average number of participants in labour market programmes was three times bigger in 1989 compared to 1988, and continued rising thereafter, reaching a

maximum of nearly 60,000 participants in 1993.

Figure 2.5 also shows that the level of programme participation among youth 16–19 has been relatively more stable than among older age groups during the period under consideration. Further, since the 1980's there has occurred a shift in the type of labour market programmes targeted towards youth less than 20 years old. In 1980, 40 per cent of participants under 20 participated in employment programmes. In 1990 the proportion in employment programmes was only 13 per cent (see Table 6.1 in Try (1992)). Vocational programmes have become *the* youth programme of the 90's.

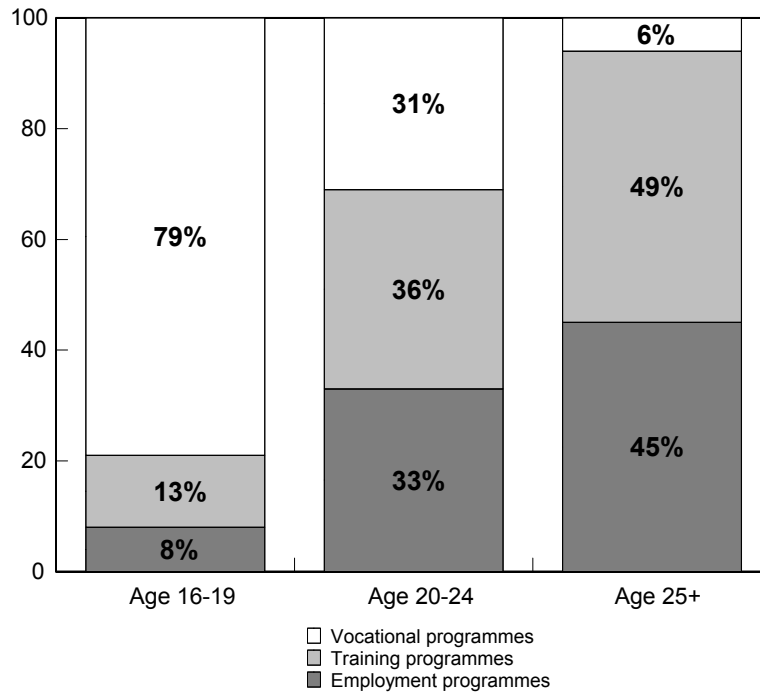
Young people account for an important proportion of programme participants, reflecting that youth is an important target group for the labour market authorities. In 1993, 14 per cent of programme participants were between 16–19 years old and 29 per cent were between 20–24 years old. This means that as much as 43 per cent of programme participants were less than 25 years old in 1993. Equivalent figures for 1994 and 1995 were 41 per cent and 37 per cent, respectively.

Figure 2.6 shows the distribution of youth participants in the different labour market programme categories in 1993 (Monthly Statistics, Directorate of Labour). Nearly 80 per cent of programme participants younger than 20 participate in vocational programmes, and almost exclusively in apprenticeship schemes, while 13 per cent participate in training programmes and the remaining 8 per cent participate in employment programmes. Among youth less than 20 who participate in employment programmes, 49 per cent participate in wage subsidies,<sup>10</sup> 13 per cent participate in substitution schemes and the remaining 37 per cent participate in public employment schemes. Youth 20–24 are more evenly distributed among the programme categories, and among those who participate in employment programmes about

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10. Newcomers to the labour market are one of the target groups of wage subsidies.

Figure 2.6. Labour market programmes in 1993, by age group. In per cent



three out of five participate in public employment schemes.<sup>11</sup> Programme participants over 24 participate mostly in training programmes (49 per cent) and in employment programmes (45 per cent). Among those who participate in employment programmes one out of eight participate in wage subsidies, one out of eight in substitution schemes and the rest participate in public employment schemes. Thus, at one end of the scale we have the very young, mostly participating in vocational programmes, and at the other end we have those over 60 years old, who participate almost exclusively in public employment schemes. Training programmes are dominated by those 20–40 years of age.

11. Long-term unemployed are one of the target groups of public employment schemes.



## 2.6 Education

The school system in Norway in the beginning of the 90s was divided into three levels: 6 years of primary school, 3 years of lower secondary school and 3 years of upper secondary school. Primary and lower secondary school have been compulsory since 1974–75. Children start school at the age of 6–7.<sup>12</sup> This means that a child born in 1976 starts school in the autumn of 1983, finishes compulsory education in the spring of 1989 at the age of 16–17 and upper secondary education at age of 19–20 if he/she follows normal progression (i.e. a year later than in most other European countries).

Upper secondary education is of two basic types, one having general subjects and the other having vocational subjects. Schools providing vocational subjects cover the fields of: trade, crafts and industrial subjects; commercial and business subjects; transport and communications; services; public health; agricultural forestry and fishery subjects and; humanities and aesthetic. Schools providing general subjects cover the following main fields: foreign languages, natural sciences and social sciences.<sup>13</sup> General subjects do not qualify for anything in particular, while vocational subjects qualify for specific skills/trades/occupations. Thus, those finishing upper secondary education of a general type (general subjects) are more likely to continue on to university or college, than those choosing vocational subjects. The proportion of pupils in upper secondary education attending schools with general subjects has been decreasing from the beginning of the 80's to the early 90's, from over 40 percent to close to 35 per cent. This trend was reversed at the end of the 1990's. Further, figures show that men choose vocational subjects more than women (Historical Statistics 1994).

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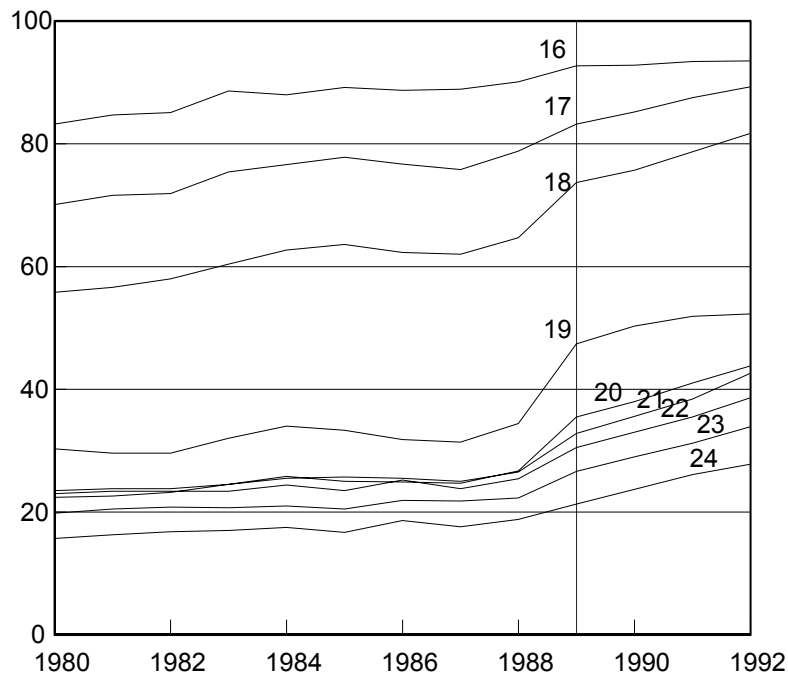
12. In 1995 the school system was extended by one year. Now children start school at the age of 5–6 and since education is compulsory until finished lower secondary education, they now do 10 years instead of 9.

13. The division into the fields of study is intended to produce a few groups composed as homogeneously as possible with respect to the area of application of educational activities in the labour market.

Most pupils follow normal educational progression. The proportion of pupils in education the same year after they finished compulsory education increased from 81 in 1980, to 91 per cent in 1988 and 97 per cent in 1995 (Table 4, Education Statistics). Results from the Youth Survey 1990 show that the main reasons for dropping out of school after compulsory education are “would rather work” and “bored/tired of going to school” (Directorate of Labour 1991). Further, a study by Vibe (1994) indicates that most of those who go on to upper secondary education the same year they finish compulsory education also complete upper secondary education within the next three years. In this study Vibe follows for a 5 year period young people 15–16 of age who finished 9 years of compulsory education in 1988. 80 per cent of these completed secondary education (12 years) by 1991, that is, they completed three years of education in 3 years time. The remaining 20 per cent went in and out of the educational system. *Late start* is illustrated by the fact that 43 per cent of those who did not go on to the 10<sup>th</sup> year immediately after finishing compulsory education in the spring of 1989, appeared as starting the 10<sup>th</sup> year the autumn of 1990. Also, 33 per cent of those outside the educational system in 1990 reentered the educational system in 1991. The same is the case for the 31 per cent who were outside the educational system in 1991. The study also shows that the longer a person is outside the educational system the less are the chances of reentering the system. Further, the Youth Survey 1990 shows that 14 per cent of those aged 17–24 had dropped out of school/education, and that these were more often than not reported their main activity at the time of the survey to be “work at home”.

Figure 2.7 shows that the proportion of youth in the educational system, irrespective of the level of education, in per cent of the population in that age group has been increasing since the late 80's. The rise in the proportion of youth in the educational system is particularly strong for youth age 18 and 19, as Figure 2.7 shows, indicating the considerable rise in the proportion of pupils in upper secondary education. Nevertheless, the sharp rise in 1989 is due to the fact that apprentices were redefined as pupils at the upper secondary level as of

Figure 2.7. Percentage of the age groups following the ordinary educational system

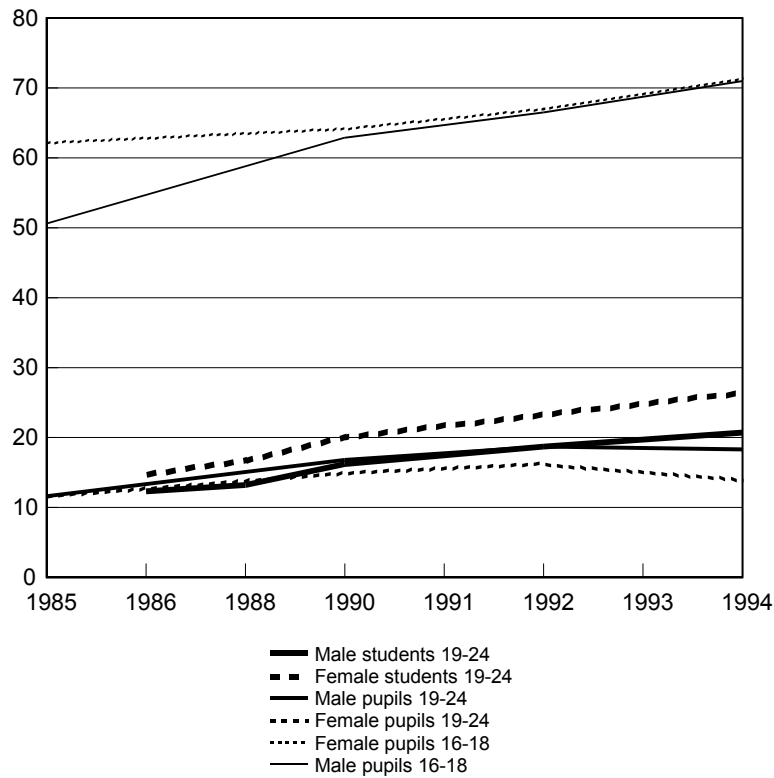


1989 (Historical Statistics 1994). This is marked by the vertical line in Figure 2.7.

A basic goal of the educational policy in Norway has been to give equal opportunity of education irrespective of gender, social or economic background. From 1988 to 1992 the number of students in higher education (colleges and universities) increased with by 50,000, which is an increase of 45 per cent in 4 years. The increase in the proportion of those aged 20–24 in the educational system as shown in Figure 2.7 reflects this strong increase.

Figure 2.8 shows the distribution of pupils aged 16–18, and pupils and students aged 19–24, by gender (Statistics Norway). While the proportion of female pupils aged 16–18 in upper secondary

Figure 2.8. Pupils in upper secondary education and students in higher education in percentage of persons in that age group, by gender



education was higher than for males in 1985, this was no longer the case from 1990 and onwards. Over 70 per cent of both males and females aged 16–18 were engaged in upper secondary education in 1994. Figure 2.8 also shows that the proportion of youth aged 19–24 engaged in upper secondary or higher education has increased during the period 1985–94, from less than 30 per cent in 1986 to about 40 per cent in 1994. Gender difference have also increased during this period. Further, while there have been as nearly as many males 19–24 year olds taking upper secondary education as taking higher education, females are to a larger

extent engaged in higher education. In 1994, over 26 per cent of females aged 19–24 were students while 14 per cent were pupils. The equivalent figures for males are 21 per cent and 18 per cent, respectively.

There are more applications than places available, both at the upper secondary school level and at higher educational levels, and especially in the more popular disciplines. The Youth Survey of 1990 shows that 27 per cent of those aged 17–24 reported that they had applied to one or several schools but were turned down. It is interesting to notice that of those participating in training programmes at the time of the survey 39 per cent applied but was not able to get into any school (Directorate of Labour 1991). Not all pupils are able to take the subjects at the upper secondary school level that they wish to take. A survey study of teenagers aged 16 and 18 carried out in 1991 (Edvardsen 1993) shows that 90 per cent of those who were 16 entered the school they wished to get into, and 84 per cent of those aged 18. The proportion of youth who were satisfied with what they were doing was much higher among youth that got into school than among those who were not in school: about 80 per cent among those in school, 45 per cent among those in full-time or part-time jobs and about 20 per cent among those at home were satisfied with what they were doing.<sup>14</sup> Marks at school are of crucial importance for whether they get into the course of study they wish or not. The study also shows that there is a positive correlation between parents' education and getting into the desired course of study.<sup>15</sup>

Competition for places are particularly strong at the university/college level. For instance, in the autumn of 1993 there were twice as many applications as there were available vacancies. 88 per cent of applicants were qualified for the education they applied for (NOU 1994:3). However, since many apply for several disciplines and institutions at the same time, these figures do not reflect actual demand

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14. The study shows that 4 per cent of those age 16 and 14 per cent of those age 18 in 1991 were not in education.

15. One of the main goals of Reform 94, which was introduced the autumn of 1994, has been to improve the flow of pupils among schools and secure that as many as possible complete secondary education.

for vacancies.

While on education, students can apply for financial support in the form of loan and grants from the State Loan Fund for Education. Student support is conditional on being accepted at an educational institution at the upper secondary school level or higher, that one attends classes and follows normal educational progression (up to one year of additional support for delays is accepted). Norwegians who fulfil these conditions can get support for a total of eleven years (maximum 4 years at the upper secondary level and 7 years at the university/college level). Immigrants who fulfil certain criteria can also get student support. How much one can get in the form of loan and grant depends on whether one is over or under 19 years old, or whether one takes education at the upper secondary level or higher, on the applicants wage income and property/capital, distance to parents' home, if one has responsibility for children or is a refugee, etc.

Figures show that the proportion of youth who receive student grants is decreasing with age: youth aged 18 in 1993 had the highest proportion of 40 per cent, decreasing to about 25 per cent of youth aged 25 in 1993. There are small gender differences. The proportion of youth receiving loans in 1993 was highest for those aged 21–22 and decreases thereafter. Females received more often student loans than males. In 1993, females aged 21 had the highest proportion (42 per cent), while males aged 22 the highest proportion among those who received student loans (34 per cent). Average payments in the school year 1993/94 were on average in the order 45,000 NOK pr recipient (10,000 in the form of grant and 35,000 NOK in the form of loan), and can be regarded as modest taking into consideration that maximum student support was over the double (Skrede et al. 1996). The numbers receiving educational financial support is lower than the number of pupils and students in the age classes, and the average loan support per recipient is far lower than the maximum allowed support. This is at least partly due to the fact that taking up student loans is a long term burden with unfavourable repayment conditions of loans (higher interest rates compared to ordinary bank loans). Thus, many student take part time jobs to finance their studies. Figures from the Youth Survey show that as many as 38 per cent of all pupils/students aged 17–24 worked in addition to

studying, 11 per cent of which worked more than 10 hours a week (Directorate of Labour 1991).

## 2.7 The youth guarantee

The term “youth guarantee” first appeared in official documents in 1979. The main purpose has been to prevent that young people experience unemployment in the transition to adult life. “Youth” in this context are those younger than 20, and the “guarantee”, which is not established by law, points to a guarantee of a meaningful activity. In practice this means that persons younger than 20 with no offer of education or a working place are offered the possibility of participating in a labour market programme. However, it is clearly stated that the “youth guarantee” it is suppose to be a “last resort measure” in the sense that attempts have to be made first to help them get a job or an education (NOU 1994:3). In order to capture youth dropping out of school after compulsory education a stronger link between the school system and the labour market authorities was established. This link-up was formalized in 1993–94 when the “follow up service” (oppfølging-tjeneste) was introduced. The “follow up service”, which is admini-stered at the county level, has the purpose of helping youth who drop out the educational system after compulsory education, i.e. those who do not apply, rejected applicants and those who do not accept an offer.

A survey study of the effect of the “youth guarantee” was carried out, based on persons registered at the “follow-up service” during the spring of 1995 (Egge 1998). It appears that among those who were employed before registering at the “follow-up service” there was a predominance of youth interested in participating in vocational programmes. Many youth who were engaged in education before registering at the “follow-up service” also expressed interest in entering the labour market and a clear wish to participate in a labour market programme. This is viewed as an indication that these youth are more oriented towards the labour market than towards education, and that programme participation gives them a possibility of entering/reentering the labour market (p. 9). A common characteristic is that they wished to be helped. The study concludes that youth who participated in labour

market programmes returned to the educational system to a greater extent than those who chose not to participate. Further, that programme participation did not appear to increase the probability of a permanent attachment to the labour market, nor did it reduce the chances of being unemployed at the time of the evaluation.

The study also points to the fact that there was a group of youth whom the “follow-up service” was not able to help. These were often than in education before registering at the “follow-up service”. There seems to be a positive correlation between feeling a rejection on the part of the educational system and belonging to this group. It appears that these youth were not necessarily less motivated for help, but more demanding or not pleased with the offers provided by the “follow-up service”. Further, this group seemed to be more disillusioned than programme participants. On the one hand, they reported that they wished to have a meaningful activity, and on the other hand that they did not have the energy to do anything.

## 2.8 Compulsory military service

In Norway military service is compulsory for all males. Of the male population liable for military service roughly 70 per cent do the ordinary military service, 10 per cent enrol in the civilian defence, nearly 15 per cent are exempted on medical grounds, and the remaining 5 per cent are conscientious objectors who serve the country as civilians doing the so-called “civilian service” (Grøgaard et al. 1992). The distribution is very much the same from year to year. The average duration is between 12 and 14 months. The great majority, over 90 per cent, do the conscription soon after finishing upper secondary education, that is between the ages of 19 and 21 (ibid). Conscripts receive a weekly allowance to cover costs other than lodging and food while on not duty, and some travel expenditures. Furthermore, having done the military/civilian service entitles them to unemployment benefits for a period of 6 months after completing their duties.

Unemployment among demobilized conscripts was higher than for the average youth population already in the 80's. For instance, in 1985–86 when the unemployment rate for age group 20–24 was low



(3–4 per cent) and decreasing the rate of unemployment among demobilized conscripts was in the order of 10 per cent just after being demobilized (Alsos et al. 1998). This trend was accentuated in the 90's. In the period 1993–97 about 60 per cent of demobilized conscripts were registered as openly unemployed. There are several reasons for the high level of registered unemployment among demobilized conscripts. Clearly the majority need some time to manoeuvre into an ordinary job or education after conscription. In the meantime they can register as unemployed and receive unemployment benefits (during 6 months). Further, conscripts might be a selected group, in the sense that unemployed youth (registered and not registered) might have a higher propensity to register for the service than youth with a feasible project in mind.<sup>16</sup> A survey shows that 5 per cent of recruits, who were demobilized in the period July 96- April 97, entered conscription from either openly unemployment or labour market programmes and 17 per cent had experienced unemployment previous to the draft (Grøgaard 1998<sup>17</sup>).<sup>18</sup> There are some obvious reasons for why doing the military service can be attractive for unemployed youth. Firstly, given that one has to do it sooner or later why not do it when one is unemployed (and specially if one is not entitled to unemployment benefits). Secondly, one is entitled to six months with unemployment benefits after completion of conscription. Thirdly, having done the military service is reckoned as an asset when searching for jobs later.

The high rate of unemployment among demobilized conscripts has been cause for concern for some time. Already in 1985 measures were introduced, such as the possibility of reducing time in the service

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16. For the record, in 1990 the Ministry of Defence challenged unemployed youth to apply for the military service. Also 19 percent of those who started the civilian service in 1990 were unemployed at the time of the draft (this group is clearly more resourceful – in terms of education, intelligence and cognitive aptitudes – than those doing the military service (Grøgaard et al. 1992).

17. The response rate for the survey was 51 per cent. In the study it is pointed out that those with low education have low response rate. Hence, it would not be surprising if actual figures would have been higher if information was available for the whole sample.

18. The unemployment rate at the time was in the order of 3–4 per cent for age group 20–24.

with one month and a half if one could document that he had a job waiting. Further, the unemployment rate among demobilized conscripts would not be so troublesome if it wasn't for the fact that the rate of unemployment among conscripts three months after demobilization remains relatively high. For instance, the study by Grøgaard (1998) shows that in the course of a period of between 8–14 months after demobilization, in 1996–97, 24 percent of conscripts were registered as unemployed for at least 3 months, compared to 17 per cent before the draft. Further, 1.5 per cent of the conscripts were long-term unemployed (unemployed for over 6 months) 8 to 14 months after demobilization. The extent to which this is a consequence of conscription or a consequence of their life situation previous to the draft is not clear. In any case, already in 1991 a co-ordinating committee was formed with representatives from the Ministry of Defence and the Directorate of Labour, with the purpose of “taking action to counteract unemployment among demobilized conscripts”. Incentives to improve formal qualifications while on the service were increased. Job-search courses and guidance assistance as regards both labour market and educational opportunities were intensified, and information and practical help were provided.

An evaluation (Grøgaard 1998) of the opportunities available while on the service of improving formal qualification shows that conscripts are satisfied with the supply of courses. 7 out of 10 participated in at least one course. While some got credits for skills-related courses, others took again exams from secondary school or exams at university level, and yet others chose to get a hunting certificate. There does not appear to be a difference between frequency of courses and highest level of completed education. The study also points out that there are clear indications that past experience affects future performance: those who did well before conscription do also well afterwards. It seems that taking courses does help. Further, it is pointed out that for some reason or other conscription might cause long-term unemployment.

## 2.9 Economic assistance and social security

The purpose of the National Social Security System is to give economic support in case of sickness, bodily defects, disability, birth and maternity, unemployment, old age, death and loss of breadwinner, to all person living in Norway. While support from the Social Security System is based on previous earnings, support in the form of economic assistance is not. Economic assistance is granted to those who do not have the economic means to satisfy basic needs and for some reason or other are either not entitled to social security, or cannot live on what they get from social security alone. Before economic assistance is granted the person must have first tried to provide for himself/herself through his/her own work. Persons who have the capacity to work, but who cannot get enough work must be registered at the local employment office as unemployed searching and available for work, in order to receive economic assistance. Both allowances and loans may be granted. Today's rules replace the original law on "poverty assistance" (Kjønstad et al. 1997). Some of the recipient groups are: youth not entitled to unemployment benefits, alcoholics, drugs abusers, disabled people, elderly and single parents (specially mothers). Economic assistance is financed and administered at the municipal level. The level of economic assistance varies with the resources of each municipality, with a minimum level which has to be sufficient to cover means of subsistence.<sup>19</sup> The Ministry of Social Affairs advises the local authorities to use of the minimum level of support applicable to recipients of social security as the minimum level for economic assistance.

A rough estimate (NOU 1990:16, p. 33) indicates that, in the course of 1988, there were between 60,000 and 80,000 persons who experienced openly unemployment (registered and not registered) and were not entitled to unemployment benefit. At the same time about 13,000 unemployed person had economic assistance as their main income source during 1988. This is interpreted as an indication that less than 20 per cent of the openly unemployed without unemployment

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19. The amount required to cover basic needs (means of subsistence) is, however, not specified in the law and therefore open to individual valuation.

benefits received economic assistance in times of need. It is also pointed out that the family is most probably the main source of economic support for the remaining 80 per cent (*ibid*).

Youth between 20 to 24 years old more often resort to economic assistance than teenagers. In 1987, 3 per cent of youth in age group 16–19 received economic assistance. The proportion increased to nearly 5 per cent in 1991 and remained at that level the two following years (Roalsø 1997, p. 39). In 1991, about 10 per cent of youth in age group 20–24 years old received economic assistance. The proportion in this age group who received economic assistance increased considerably in the period 1987–93, from 7 per cent in 1987 to 11 per cent in 1993. No other age group has received more in economic assistance than the age group 20–24 years old (*ibid*).

The proportion of recipients of economic assistance increased much more in the 80's than in the first half of the 90's, in spite of the increasing unemployment among youth in the early 90's. Two factors might have contributed to this development. Firstly, in 1991, the law on social assistance was changed, so that municipalities could now demand the recipient of economic assistance to do work in exchange for assistance. Secondly, in the early 90's administrative routines were changed in various ways, for instance by a closer follow-up of recipients and by only offering assistance for short periods at a time – often not more than a month (Hanssen 1996). These changes in the rules and regulations have most likely contributed to making it less attractive to apply for economic assistance, and thus resulted in relatively fewer youth applying for economic assistance in the 90's than would have been the case otherwise.

Among youth, single parents who have difficulties in living on “single parent allowance” and youth with a weak attachment to the labour market who have moved away from their parents' home, are among the groups who are most prone to need economic assistance. A closer look at the composition of recipients of economic assistance in 1993 according to age, gender and marital status gives a picture of the situation. About 10 per cent of unmarried youth aged 19 to 25 were recipients of economic assistance in 1993. The proportion is constant across gender and age. Further, the proportion receiving economic

assistance in 1993 is bigger for married youth than for unmarried youth, and even more so for men than for women. The proportion, however, is decreasing with age. For instance 21 per cent of married males 19 years of age received economic assistance in 1993, against 8 per cent of those 25 years old. Equivalent statistics for married females are 14 per cent and less than 3 per cent, respectively (Skrede et al. 1996, Table 8). As regards youth in remaining marital status category "others", which comprises those who are separated, divorced, single parents, etc., the situation is quite different (accounts for less than 0.5 per cent of males and 1 per cent of females in age group 19–25 per 1993). Figures show that 75 per cent of males and 56 per cent of females in the "others" who were 19 years old in 1993 received economic assistance. Equivalent figures for those 20 years of age in 1993 are 50 per cent for males and 68 per cent for females, and for those 21 years of age, 56 and 58 respectively (ibid). For those aged 25 the equivalent figures are 30 per cent for males and 40 per cent for females. In other words, the proportion in this single parent/newly separated group who receives economic assistance is large, decreasing with age but rather slowly. The average amount received per recipient varies with age, gender and marital status, but is in the order of 20,000 NOK annually. It is higher for males than for females and also higher for the married group than the two other groups (ibid).

It is also interesting to look at the distribution of recipients of social assistance according to labour market status<sup>20</sup> at the time they received economic assistance. We have only figures for unmarried persons by age groups (Social Statistics 1993). However this is by far the largest group: unmarried persons 19 years of age or younger account for 87 per cent of recipients of economic assistance in this age group, and 73 per cent of those 20–24 years old. Figures for 1993 show that 53 per cent of unmarried men and 47 per cent of unmarried women in age group 19 years of age or younger were unemployed at the time they received social assistance for the first time in 1993. In addition, 5 per

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20. Labour market status specified: employed, temporary employed, on labour market programme, in education, unemployed (registered and not registered), not in the labour force and unknown.

cent of unmarried men and 5 per cent of unmarried women in this age group were on labour market programmes at the time they received economic assistance. Equivalent figures for those 20–24 years old are, 57 per cent unemployed and 6 per cent on labour market programmes for unmarried males and 48 per cent unemployed and 6 per cent on labour market programmes for unmarried females. Thus, lack of access to the labour market is clearly an important reason for youth being in need of economic assistance.

The Social Security System gives allowances on a long term basis, in the form of pensions. The most important types of pensions relevant for youth which are covered by the Social Security System are disability pension (requires that working capacity is considerably reduced and expected to last for many years to qualify for disability pension), widow pension (for those who have lost their spouses) and child pension (for children who have lost one or both parents). About 2 per cent of unmarried males in age group 18–27 in 1993 received some sort of pension. We observe the same pattern for unmarried females (Skrede et al. 1996, Table 9). Further, married men and women receive pension to a lesser extent than unmarried persons. As regards the category “others” (divorced/separated, with/without children) we observe a different pattern for men than for women. Over 3 per cent of females in “others” in age group 20–27 received a pension in 1993, compared to less than 1 per cent for males (*ibid.*).

The National Social Security System also covers costs of a more temporary character, of which single parent support and sick leave allowance while on rehabilitation are the most important payments for youth in particular. A look at the proportion of youth 18–27 in 1993 (16–25 in 1991) who received social security other than pensions shows that it is mostly women who receive such payments, and specially women in the “others” category. Figures shows that about 60 per cent of divorced/separated women with/without children in ages 20–27 were recipients of social security in 1993, compared to about 6 per cent for males (Skrede et al. 1996, Tables 9 and 11). But also unmarried women were recipients of social security in 1993, roughly 10 per cent, compared to about 1 per cent of unmarried men. Furthermore, the proportion of unmarried women on social security increases with age: while only 4.5

per cent of those aged 20 received social security, over 14 per cent of those aged 27 did so. Presumably, many of these women received single mother support (*ibid*). Another source shows that nearly 10,000 unmarried women and 800 separated/divorced women in age group 20–24 received single mother support in 1993 (Social Security Statistical Yearbook 1994).

## 2.10 Summary and conclusions

Youth wait longer to take adult related decisions, such as moving away from their parents' home, getting married and bearing children, in the mid 90's than in the late 80's. The difficult labour market situation in the 90's, the greater proportion of youth taking further education, and the relatively expensive student loans and housing rents are some of the factors affecting the observed pattern in the 90's.

According to the Labour Force Surveys the proportion of employed youth in age group 16–19 decreased by nearly 17 percentage points from 1988 to 1993, from 47 per cent to 30 per cent. This is the case for both males and females. The proportion of employed youth in age group 20–24 also dropped, and for males more than for females: from 79 per cent to 63 for males and from 68 to 57 for females. Furthermore, many youth have a very unstable relationship to the labour market. This is reflected by the big proportion of youth with very low annual earnings. For instance, among unmarried 20 year old youth who experienced employment in 1993, more than half had annual earnings of less than 40,000 NOK (aprox. US\$ 6,000), and nearly one fourth of unmarried youth 24 years old.

The level of unemployment rose dramatically in the period 1988–1993, and specially among youth. According to figures from LFS the level of unemployment for age group 16–19 rose by nearly 6 percentage points, from 12.4 to 18.2 per cent in the period 1988–93, while for youth aged 20–24 it rose from 5.8 to 12.1 per cent, ie. also by about 6 percentage points. The Directorate of Labour, which publishes figures on the registered unemployed, and separates programme participants from openly unemployed, operates with somewhat different figures from those of LFS: much lower for age group 16–19 and quite

close for age group 20–24. Whichever way unemployment is measured, the level has been higher for the youth population than for the population at large. Furthermore, youth unemployment is characterized by higher frequency and shorter spells, relative to the population at large. Nevertheless, nearly one fourth of registered unemployed 20–24 years old were long-term unemployed in 1993.

Labour market policy and educational policy go hand in hand, specially as regards youth. The proportion of youth in education has increased considerably, specially since the late 80's, reflecting the authorities reactions to the increasing youth unemployment. The proportion of pupils who continued on to ordinary education the same year after they finished compulsory education increased from 91 per cent in 1988 to 97 per cent in 1995. The number of students in colleges and universities increased by about 50,000 in the period 1988–92, equivalent to an increase of 45 per cent in 4 years (Education statistics). In addition, many youth participated in labour market programmes with a qualifying element. The number of participants in labour market programmes in ages 16–19 increased from an annual average of 2,700 in 1988 to 4,700 in 1993, almost exclusively in vocational or training programmes. In 1993, there were in addition on average almost 17,000 youth 20–24 years of age participating in labour market programmes, out of which two thirds had a qualifying element (Monthly statistics, Directorate of Labour).

However, some young people have difficulties in obtaining a foothold in the labour market or in the educational system. An analysis of the employment prospects of youth leaving the educational system in the 1990–1991 (Brinch 1995) shows that those under 20 years old and those who did not complete two years of upper secondary education have little chances of employment. On the other hand, those with long education seem to have no problems in the labour market. Being an immigrant reduces the probability of employment considerably. Further, having children reduces employment prospects for women, but being married increases employment probabilities for both men and women. As regards keeping a foothold in the educational system, a study of youth in upper secondary education in the early 90 (Vibe et al. 1994) shows that about 80 per cent of youth finish upper secondary education



with no delay. The remaining 20 per cent went in and out of the educational system. The analysis suggests that the longer a person stays outside the educational system the lower are the chances of reentering. It appears that teenagers outside the educational system are the least satisfied with their condition of all teenagers. A survey study of 16 and 18 year old youth by Edvardsen (1994) shows that the proportion of youth who were satisfied with what they were doing was much higher among youth that got into school than among those that were not in school: about 80 per cent among those in school, 45 per cent among those in full-time or part-time jobs and about 20 per cent among those at home were satisfied with what they were doing. Marks at school are of crucial importance for whether they get into the education they wish or not. The study also shows that there is a positive correlation between parents' education and getting into the desired education.

Compulsory military service appears to be a temporary solution for some males in the early 20's (90 per cent of conscripts are 19–21 years old). They get a daily allowance, food and lodging, and are entitled to 6 months unemployment benefits after they are demobbed. A survey study by Grøgaard (1998) shows that 5 per cent of conscripts demobilized in 1996–97 entered conscription from unemployment, and that 17 per cent had been unemployed previous to the draft.<sup>21</sup> Further, 24 per cent had been registered as unemployed for at least three months during the period between 8–14 months after demobilization. Moreover, 1.5 per cent of the conscripts were long-term unemployed (unemployed for over 6 months) 8 to 14 months after being demobbed.

Youth outside the labour force who are not in education, or who are in education but are not eligible for student support, as well as unemployed youth – registered and not registered – not entitled to unemployment benefits, have often difficulties in acquiring the economic means to satisfy their basic needs. Eligibility for unemployment benefits is based on previous earnings. To be eligible for student loan/grant requires that one is accepted at an educational institution and that one follows normal educational progression. Figures

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21. The unemployment rate for age group 20–24 years was in the order of 3–4 per cent in 1996–97.

from Skrede (1997) for 1993 show that, 1.9 per cent of the female population in age group 18–19 and 19 percent in age group 20–24 received unemployment benefits. Equivalent figure for males are 3.7 per cent and 33.6 per cent, respectively. The pattern is clear: males receive unemployment benefits more often than women, and those in age group 20–24 more often than teenagers.<sup>22</sup> As regards student support, figures from 1993 show that the proportion of youth who receive student support in form of grant was highest for youth aged 18 (40 per cent), decreasing to about 25 per cent of youth aged 25. There are small gender differences. On the other hand, females more often receive student loans than males. In 1993, females aged 21 was the age group with the highest proportion of loans among women (42 per cent), while males age 22 was the age group with the highest proportion of loans of men (34 per cent).

*Economic support* to youth from the National Social Security System, other than unemployment benefits, is mostly in the form of single parents' support and sick leave allowance while on rehabilitation. Figures shows that about 60 per cent of divorced/separated women in ages 20–27 were recipients of social security in 1993, compared to about 6 per cent for males (Skrede et al. 1996, Tables 9 and 11). But also unmarried women were recipients of social security in 1993, roughly 10 per cent, compared to about 1 per cent of unmarried men.

*Economic assistance* is the last resort for those who are not entitled to social security, or cannot live on what they get on social security alone. Single parents who have difficulties in living on "lone parent support" and unemployed youth not entitled to unemployment benefits, are among the groups who are most in need of economic assistance. Youth between 20 to 24 years old are more often recipients of economic assistance than teenagers. In 1993, 5 per cent of youth in ages 16–19 were recipients of economic assistance, and 11 per cent of those aged 20–24. No other age group has received more economic assistance than the age group 20–24 years old (Roalsø 1997).

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22. The proportion of youth that are recipients of unemployment benefits in the course of a year is necessarily much higher than the average for that group. Since data the stock of unemployed is not available it is not possible to calculate the proportion of unemployed who is recipient of unemployment benefits.

Unemployment reached its highest level in 1993. To judge from figures for 1993 on the proportion of youth who were recipients of unemployment benefits, social security and economic assistance, a considerable number of youth at some point or another during the years had difficulties in making ends meet without public help. Good marks at school seem to be a decisive factor for getting into further education and education seems to be a decisive factor for employment prospects. Youth who drop out of school, young females with children and young immigrants are three groups which are likely to lose in the struggle for a foothold in the labour market. In the analysis of the preceding chapters these groups are represented in so far they register as unemployed (a necessary condition in order to receive economic assistance). The study of Egge (1998) on the "youth guarantee" and the "follow-up service" points to the fact that youth who have greatest problems in finding a track to follow are the ones less likely to look for help and to allow others to help them. One may expect that these youth, who for the most do not feel they fit in educational system and do not want not participate in labour market programmes either, are likely to be among the hidden unemployed, a group which is overseen in this study altogether.

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## The data

The data used to analyse the effects of labour market programmes cover young people between the ages of 16 to 25 per December 1991 (defined as 1991 – year of birth). The initial data set includes all young people who appear in the Register of Unemployed Persons (RUP) as starting a spell of unemployment or programme participation, at the turn of any month in 1991. That is, individuals who entered the register in the course of month  $m$ , and who remained in the register until the end of month  $m$ , are included in the data set. On the other hand, individuals that entered the register in month  $m$  and left the register before the last Wednesday of month  $m$ , are not included.<sup>23</sup> Thus, short durations of unemployment *within* any one month in 1991 are excluded from the data set. Temporary redundant workers are also excluded. The initial data set comprises 127,488 individuals.

The flow sample, which the analyses of the subsequent chapters are based on, is considerably smaller. Firstly, since our main concern is to evaluate the effect of labour market programmes, we removed 12,825 persons whose first appearance in the unemployment register in 1991 was as partly unemployed, because they cannot be regarded as potential programme participants due to the fact that they were partly employed. Also, in order to make the sample as homogenous as possible, we excluded those who were registered in rehabilitation programmes, as well as those who received rehabilitation income or

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23. Disregarding within month unemployment spells gives rise to sample-length bias. However, this is not expected to be important for the analysis since those who register for very short periods of time are most probably not potential programme participants.

disabled pension, at any time during the five-year period. This is because they can be considered to have a disadvantage in the labour market compared to those with no proclaimed physical or mental disabilities.<sup>24</sup> There were 9412 youngsters who participated in rehabilitation programmes during the period 1989–1993, approximately one third of whom had already participated in rehabilitation programmes in 1989–90. In addition there were 994 young people who received disability pensions at some time or other in 1989–1993 who did not participate in rehabilitation programmes. These were also removed. We also removed 5092 persons whose only appearance in the register in 1991 was because they wished to change jobs and 5571 persons whose only appearance in the register in 1991 is as full time students searching for a job during vacations. None of these two groups can be regarded as an appropriate comparison group for programme participants since they were either employed or in education. Thereafter, we removed 458 individuals who entered and left the register of the unemployed the same day, either once or several times during 1991 (that is, these individuals only had records with the same start and stop date in 1991 the last day of a month). Lastly, 86 individuals were removed because they were still participating in the programme to be evaluated at the end of 1993, ie. no time left to evaluate the programme. This results in a sample of 93,050 youngsters which the analyses of the following chapters are based on.

For the 93,000 persons we have panel data on personal characteristics, geographical mobility, education, social insurance, as well as information about employment, unemployment and participation in labour market programmes for the five-year period, from 1.1.89 until 31.12.93. Several registers were merged to provide this information. In the following we introduce the different registers, describe their contents

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24. Obviously, making such restrictions is not unproblematic in that we may disregard individuals whose experience as unemployed may have led to health problems. However, the causal relationship between unemployment and health problems is not easy to detect with the data at hand. For instance, the fact that a person participates in an rehabilitation programme after being unemployed for some time does not necessarily imply that this person did not have problems which caused unemployment in the first place. We have thus chosen to disregard them all.

and assess their reliability. Thereafter we present the criteria by which the registers are matched to provide panel data for the five years under study.

### 3.1 The registers

In 1993 Statistics Norway started the work to establish an integrated register based data system at the individual level. The System of Personal Data (SPD), as it is called, has the aim of building a consistent data system based on several administrative records and registers. It comprises data in the areas of labour market, education, wages, pensions and other types of income, as well as demographic data. The intention is that, for each individual, the SPD allows the identification of the activities or states (open unemployed, employed, student, programme participant, disabled, etc.), the durations in the different activities and the various kinds of income for each activity.

1) *The Central Population Register (CPR)*, administered by Statistics Norway:

The register comprises all persons living in Norway. It provides information on age, gender, country of birth, civil status, number of children and age of children, spouse's income and education, parents' country of birth, education and income, and place of residence. The register is continually updated.

2) *The Register of Unemployed Persons (RUP)* was established in 1988 and is administered by the Directorate of Labour:

The register comprises all persons living in Norway who are registered as seeking work at the Local Employment Offices the last Tuesday of the month (eventually the first Tuesday of the following month, if this is closer to the turn of the month). The most important information this register provides is the start- and end-date, and eventual unemployment benefits received while registered in one of the following categories: full-time

unemployment, part-time unemployment, participation in labour market programmes (the programme is specified). The register is continually updated.

3) *The Register of Salaries and Taxation (RST)* was established in 1987 and is administered by the tax authorities:

The register contains an extract of the payroll for all employers. The units of the register are single jobs. Jobs are identified by a combination of the personal ID-number and the employer ID-number. The main variable is wages per year. It comprises all wage earners with annual earnings of at least 400 NOK per 1991. The register is updated yearly.

4) *The Register of Employees (REM)* was established in 1978 and is administered by the social insurance authorities:

The register comprises all job relations of at least 6 days duration with a minimum 4 hours work a week. Self-employed are not included. Jobs are identified by the personal ID-number, the ID-number of the employer and duration of the job relation. The register provides information on employer and thus sector and geographical position of working place, expected weekly working hours (divided into 3 broad categories: 4–19, 20–29, and 30 or more) and start and stop-date of each relation. The register is continually updated and yearly subject to quality controls.

5) *The Register of Salaries and Social Security Income (RSS)* is administered by the social insurance authorities.

The register comprises all individuals who have either hold a paid job or have received social insurance payments. It provides yearly information on whether the person is self-employed or an employee, as well as earnings, other non-wage incomes, wealth and taxes. For self-employed there is no information on

job duration, only income for the whole year.

6) *The Register of Education (RED)*, administered by Statistics Norway:

The register comprises all persons living in Norway. Education with a stipulated duration of at least 300 hours is registered. Education is registered with a 6-digit code giving the type and stipulated length of the education in years. It provides yearly information as regards highest level of completed education and ongoing education, with start- and stop-dates. The register is yearly updated.

### 3.2 Quality and consistency of information in the different registers

By quality we mean the precision or accuracy of information in the different registers, mainly as regards duration in the different states or categories. By consistency between the registers we mean that linking information from these registers gives a consistent classification of the different states for all persons. For instance, a person that is registered as employed in REM should not be registered as full-time unemployed in RUP and as receiving no wage in RSS, during the same period of time. This is regarded as an inconsistency.

Information from RUP as regards “unemployment states”<sup>25</sup> is very reliable. Start dates for a spell of open unemployment are also registered with great accuracy, but stop dates can be registered with an error margin of up to 30 days (most often no more than 16 days). Thus information is relatively less accurate for spells of short durations than spells of longer duration. Information on duration of participation in labour market programmes, also from RUP, is less precise than for open unemployment spells, the reason being that registration in a programme is based on the “promise” of participation, that is, on the individual

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25. The definition of unemployment as it is used in RUP differs for the ILO definition. The ILO definition comprises all those who seek work, even if they do not register at the Employment Office.



accepting a vacancy being offered to him/her, not on actual participation. A person can notify any change of plans, in which case dates are changed accordingly. Otherwise, the payment routines that apply to the different programmes determine the accuracy of the period reported. Course allowances to participants in labour market training courses and vocational training are paid every 14 days (an attestation of attendance is required). Thus the error margin for training and vocational programmes is of 14 days at the most. Participants in employment programmes receive ordinary wages. After the programme is completed the employer is reimbursed for part of the wage (the subsidy varies with the programme and the industry), if the conditions for the programme have been fulfilled satisfactorily. Since the employment office is informed if there is changes as regards participants in employment programmes, the dates of entry and exit are supposed to be adjusted accordingly, and thus the dates that appear in RUP are in principle correct. Last, but not least, from the data available it is not possible to make a distinction between drop-outs and completed programme participation.

REM is based on job relations, while RST is based on wage relations. In principle all job relations of at least 6 days duration with a minimum of 4 hours work a week should be registered in RST, and all wage payments – except for very small amounts – that appear in RST, should appear in REM.<sup>26</sup> This is however not the case. A study of the quality and consistency of these two registers based on the yearly files for 1990 and 1991, done by Statistics Norway (Utne and Vassnes, 1995), gives some indication of the degree of mismatch. The study shows that 11 percent of all job relations were not found in RST: 3 percent because the person did not appear in RST, and 8 percent because the employer's number was not registered in RST for that person. The study also shows that 43 percent of all wage relations did not have a counterpart in REM: 26 percent because it was not possible to find the person in REM, and 17 percent because the employer's number that

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26. The definition of a job relation in REM differs from ILO's definition. While in REM the lower limit is of four hours a week, ILO suggests that job relations of a minimum duration down to one hour a week be regarded as employment.

appeared in RST, did not appear in REM for the same person. There are at least two reasons why a person may have different employer's number in the two registers. Firstly, many public employers use a different employer's number for payment of salaries from the establishment where the employee works. Secondly, change of ownership and other institutional changes that result in a change of the employer's number are not always immediately updated. Furthermore, the fact that a person may appear in one register and not in the other (specially those that appear in RST and not in REM) can be due to the different rules and administrative regulations that apply to the two registers. For instance, many people with low yearly earnings would not be registered in REM if they work less than the required 4 hours weekly or for a period of less than 6 consecutive days. Nevertheless, some of the differences are no doubt due to errors in registration, either that units are missing, inaccurate or incorrectly registered. RST is specially of poor quality when it comes to durations of the wage relation. In many cases the duration is reported to last the whole year. Furthermore, there are also examples of relatively high yearly earnings that appear in RST and not in REM, in which case it is possible that REM is incorrect, or alternatively that wages are received for work which is not classified as employment in REM.

The most reliable source as regards income is RSS. All person registered in Norway who have received wage income or social security income must fill out a form. This self-reported information is then thoroughly controlled by the authorities. The correct rate of tax payable is assessed every year, and too much or too little tax is reimbursed by one of the parties.

We have used the flow data described in the beginning of this chapter to look at the degree of consistency between information on people with spells of employment registered in REM and/or RST, and information on people with earnings who appear in RSS. Of the 93,050 individuals in the flow sample there were nearly 80,000 individuals with positive earnings in 1993, according to information from RSS (earnings is defined as wage income minus income from unemployment insurance). According to the REM and/or the RST there were 179 individuals who appeared with a period of employment which either

started and/or ended in 1993 who did not appear in RSS as wage earners. On the other hand, 10 percent of those who appear in RSS as wage earners in 1993 were not registered as employed in 1993 according to REM and/or RST. Of these 7876 individuals, 40 percent received earnings of 5000 NOK at the most, 24 percent between 50,00–15000 NOK, 20 percent between 15,000–50,000 NOK and the remaining 15 percent received over 50,000 NOK. Some of the observed differences are surely due to differences in registration routines. However, it is unlikely that those with annual earnings over 50,000 NOK have only had job relations of maximum 4 hours a week which lasted 6 days at the most during 1993, which is what is required to appear in REM.

As regards RED, information is collected once a year, per 1 October of each year. All educational institutions provide information on the number people registered at the time, their names and the level of education. In addition, educational institutions with high school status provide information on ongoing education the autumn and spring semesters. They send also information on completed education the previous educational year, which ended by the spring of that year. RED is maybe the least reliable of all the registers, in so far as ongoing education is concerned. All person who register as students, to follow a course or take an exam for an education stipulated to require at least 300 hours, are included in RED. Yet people who register do not necessarily follow the course or take the exam. And there may be many reasons for that, one of which is that the person actually spends no time on education, in which case the person should not be classified as a student.

### 3.3 Matching the registers

Registers 2) to 6) are used to construct panel information on duration in different states and transitions between states over time. It is not unusual that a person is registered in several states at the same time, for instance as a student, as unemployed and as an employee.

Certain combinations of labour market states or activities are more realistic than others. A person can be in a full time job and take further education at the same time, or partly employed and partly

unemployed. On the other hand, it is not legal for a person to be registered as full time employed and unemployed at the same time. Some combinations of activities, although forbidden by rules and regulations, exist in the real world. For instance, a person may register as unemployed, use time applying for jobs, and also follow a course or/and take an exam to improve qualifications. Since data on ongoing education are yearly and based on registration, not on attendance, while data on unemployment are monthly, this case may be a case of violation of the regulations (not actually available for work because engaged in education), but not necessarily.

To give an indication of the degree of mismatch between the different registers we have looked at all possible activities the 93,050 individuals in the flow data had during the unemployment period which started at the time of the draw. The data shows that 59 percent of the sample appeared only in RUP during that time interval, 35 percent appeared in two activities and 6 percent in at least three activities (one of which was from RUP). For instance, of the 32,612 persons with two activities 59 per cent had the combination full time unemployed and employed, which is not allowed by regulations. A closer look at this group shows that the mismatch is in many cases due to inaccuracy of the dates registered: 40 per cent of those with the combination unemployment and employment had an overlap of less than a month between the two states. In addition 5 per cent of the 32,612 persons in two activities were on sick leave and full time unemployed at the same time, also an impossible combination. Furthermore, 17 percent of the 32,612 person in two activities had a combination of full time unemployment (from RUP) and education (from RED). As previously mentioned, RED are not precise as regards durations.

We have ordered the data such that in cases where an individual is registered both as full time unemployed and employee we have chosen to believe the error is in REM rather than RUP, and have thus changed the stop-date for the job relation to the day before the start date of the unemployment period. This is because data from RUP are pretty accurate. If a person is registered in RUP as participating in employment programmes and in REM as holding a job, we assume that information from both registers is correct and that the person holds a job with

subsidized wages, that is, the person is categorized as an unemployed programme participant rather than employed. Participants in training and vocational programmes should not appear in REM during the same period, since even if they receive on-the-job training they are not wage earners (they receive an allowance from the employment office). In such cases we choose to believe that the registration error lies in REM, since RUP is continuously controlled and updated. Furthermore, as previously mentioned, data from REM as regards job durations are considered more reliable than data from RST, such that data from REM on start and termination of a job relation are preferred to data from RST. However, if data from REM are not available, while the person appears as a wage earner in RST, we have chosen to believe that the job relation which has not been reported in REM actually exists. Last but not least, we have chosen to use information on ongoing education from RED, although the periods covered are very extensive and can thus be misleading. The reason is that it is very difficult to create a rule of thumb which can be applied to all individuals.

Information on duration in the different states is not altogether precise. If information is lacking for less than 16 days between two equal states we have chosen to make a link between the two states and regard it as one. Although it may suppress some relevant information as regards the change of activities of very volatile individuals, it will nevertheless allow us to get an impression of the medium and long term trends of the individuals' labour market situation for the five years period covered by the data.

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## Sample design and descriptive statistics

### 4.1 Sample design

As mentioned in the previous chapter the sample comprises all persons who entered the Register of Unemployed Persons (RUP) in 1991, and for whom there is no evidence of physical or mental disability in the period from 1.1.1989 to 31.12.1993. Those who entered the register as partly unemployed, as employed looking for another job, or as temporary redundant workers are disregarded. The sample comprises 93,050 individuals between the ages of 16 and 25 pr 31.12.91.

The data are non-experimental.<sup>27</sup> All persons in this flow sample may have participated in a programme at one point or another during the five years period covered by the data. Deciding which rule to use to determine how to place individuals in a non-participant and a participant group is not unproblematic.<sup>28</sup> Our point of departure is that we would like the groups to be compared to be as similar as possible as regards characteristics that determine their behaviour. The reason being that although heterogeneity in itself is not a problem, when people act on it, then it becomes a problem. Heterogeneity can give rise to selection bias.

A simple formal exposition of how selection bias can arise can be expressed as follows. Assume that an individual  $i$  can choose between participating in a programme ( $D_i=1$ ) and not participating in any programme ( $D_i=0$ ). Assume also that the utility of programme participation for individual  $i$ ,  $U_i$ , is a linear function of a vector of

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27. Non-experimental data are generated on the basis of actual (non-random) selection of programme participants.

28. In Chapter 6 we present some empirical examples of how different definitions of the two groups to be compared heavily affect the results arrived at.

observable variables  $Z_i$  and unobserved variables  $\varepsilon_i$

$$(4.1) \quad U_i = Z_i \eta + \varepsilon_i$$

Further assume that there is an enrolment rule such that

$$(4.2) \quad \begin{aligned} D_i = 1 & \text{ iff } E(U_i > 0) \\ D_i = 0 & \text{ iff } E(U_i \leq 0) \end{aligned}$$

where the individual participate in a programme ( $D_i=1$ ), if and only if the expected utility of participation is positive ( $E(U_i > 0)$ ) and the individual does not participate ( $D_i=0$ ) if the opposite is the case. Lastly, assume that annual earnings for individual,  $Y_i$ , is a function of a vector of observable variables,  $X_i$ , of programme participation  $D_i$  and a vector of unobserved variables  $v_i$ ,

$$(4.3) \quad Y_i = X_i \beta + D_i \delta + v_i$$

Selection bias occurs *iff*

$$(4.4) \quad \begin{aligned} E(v_i | D_i, X_i) \neq 0 \\ \text{or } E(v_i | D_i = 1, U_i > 0) \neq E(v_i | Z_i \eta + \varepsilon_i > 0) \end{aligned}$$

*Selection on observables* arises if observed determinants of participation (age, nationality) are correlated with the unobserved component of earnings (motivation, cognitive knowledge). Then,

$$(4.5) \quad E(v_i | Z_i \eta + \varepsilon_i > 0) \neq 0$$

*Selection on unobservables* arises if unobserved determinants of

participation (quickness/ability to learn) are correlated with the unobserved component of earnings (productivity). Then,

$$(4.6) \quad E(v_i \varepsilon_i^* U_i > 0) = 0$$

Dealing with selection bias is one of the major challenges in the evaluation of labour market programmes using non-experimental data. Research shows that there are grounds to believe that participants differ from non-participants in a systematic way, and that these differences both affect the participation decision and contribute to subsequent labour market performance. Evaluating youth programmes in Norway using non-experimental data does not make matters easier. Teenagers are covered by the so called “youth guarantee”, which is intended to secure teenagers who cannot get a job or a place in the ordinary educational system, the possibility of participating in a labour market programme (see Chapter 2 for more details). This implies that youth who want to participate in a labour market programmes get the opportunity sooner or later. Thus, in a way one may argue that unemployed non-participants under 20 years of age are a selected group, because if they had wished to participate they would have done so. What type of persons would choose not to participate? Two obvious candidates are those who believe that they will do better on their own (are self-confident, have self-esteem) and passive or disillusioned youth who are discouraged to doing anything (usually youth with integration problems). In other words, the presence of the “youth guarantee” is likely to lead to a polarization within the non-participant group relative to a situation in the absence of the “youth guarantee”. Nevertheless, it should be kept in mind that the decision to participate or not, need not be as clear cut as it may seem. In practice the “youth guarantee” means that teenagers are given priority in the allotment of vacancies. This implies at least two things. Firstly, that there is often some waiting time during which one may find something one would rather do than to start a programme.<sup>29</sup> Secondly,

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29. Youth in general are often more restless than adults. They have often several options (fortsettes...)



there is often some sort of selection to programmes of the type the most qualified get a place (in a training course) or a post (in an employment programme). The opposite might also be the case, ie. that the least qualified are given priority. Thus, there is not necessarily such a systematic difference between participants and non-participants younger than 20 as a result of the “youth guarantee” as it would appear at first sight.

The existence of the “youth guarantee” can also give rise to another source of bias, *contamination bias*. Contamination bias arises when participants and non-participants participate in programmes during the period following the participation or unemployment period being evaluated. The fact that youth are given priority in the active labour market policy means that the chances of *contamination bias* are greater than if they were not. This is because as long as they are not offered an alternative activity they are guaranteed a place in a programme sooner or later, which again means they can participate in labour market programmes on and on again.

In deciding the sample design we have tried to take into account these two potential sources of bias. The problem is obvious. On the one hand, the longer we allow the period during which an individual can start a programme as a criterion to divide the sample into participants and non-participants the greater the chances that the participant groups differ from the comparison group in a systematic way. On the other hand, the shorter the period chosen the greater the chances of contamination bias, i.e. that non-participants participate in programmes and that participants participate in other programmes than the one evaluated. Since these two sources of bias are very difficult to control for successfully we have chosen a compromise between these two “evils”: we have chosen a one year period during which individuals can enter a programme.

We have divided the sample into a participant and a comparison

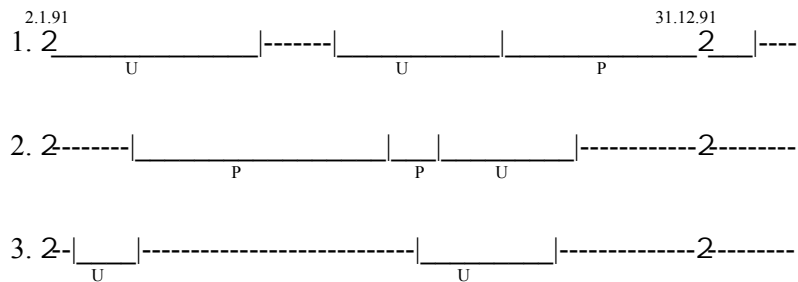
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29. (...fortsatt)

of activities to engage in compared to adults (education, travel, give birth, do the military service). Thus, it is likely that they have less time to wait for a programme offer to turn up than adults have.

group on the basis of their activities during the first year following registration in 1991. The participant group comprises all persons who entered RUP in the course of 1991 and participated in at least one labour market programme in the course of the first year since he/she first registered in 1991, irrespective of whether he/she also registered as unemployed during this period of time. Participation spells with the same start and stop date are disregarded. The comparison group comprises all persons who entered RUP in the course of 1991 as full time unemployed, and who did not participate in any labour market programme which started within the first year since he/she entered the register in 1991. This is the definition which is used in all subsequent chapters.

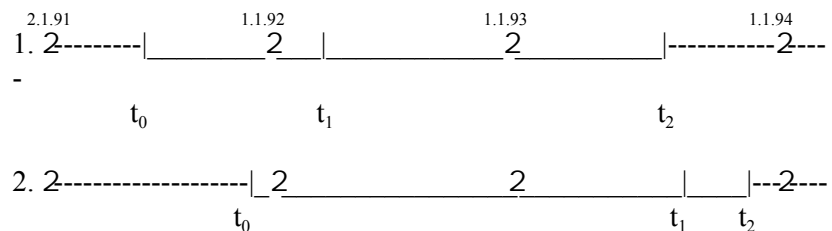
The examples given below show three possible paths.



In the first example the person registers as full time unemployed (U) the first working day of the year, remains there for some time and leaves the register to return after some time again as full time unemployed where she remains until she enters a programme which terminates in the beginning of 1992. This person is included in the participant group. In the second example the person enters the register in 1991 as programme participant, remains there for several months and then changes to another programme which he leaves shortly after and registers as full time unemployed. This person is also included in the participant group. The third person does not participate in any labour market programme in the course of the first year after she first registered as full time unemployed in 1991 and therefore is included in the comparison group.

Furthermore, as exemplified above, individuals can participate in more than one programme during this first year. Participants are placed in one of four broad categories: 1) one or several employment programmes (working practice with subsidized wages in the public and private sector); 2) one or several vocational programmes for youth (mostly working practice but also some formal training); 3) one or several training programmes (classroom courses); 4) various combinations of these three categories of programmes, and other programmes not covered by the three other categories.

The five year period for which we have data are divided in three periods: the background period, the participation period and the result period. The *background period* is the same for all members of the sample, and covers the period 1989–1990. The *participation period* covers the period that participants in the different categories participate in labour market programmes. Since, by definition, members of the comparison group do not enter any programme within the first year following registration in 1991 they do not have a participation period. The *result period* is the period during which the effects of programmes are measured. The start date of the result period is not the same for the participant groups and the comparison group. For the comparison group the result period starts when the person enters the register in 1991. For the participant group the result period starts the day after the participation period ends. For all individuals the result period ends some time in 1993, which varies depending on how the effects of programmes are measured. Thus, for programme participants the duration of both the participation period and the result period varies from person to person. This can be exemplified as follows:



Define  $t_0$  as the date individuals enter the register in 1991,  $t_1$  as the date

the participation period end and the result period starts and  $t_2$  as the date the result period end. In the two examples above  $t_2$  is two years after entering the programme in 1991, i.e.  $t_2 - t_0 = 730$  days for all. Both examples portray members of the participant group because  $t_1 - t_0$  is greater than zero. In the first example the participant has a short participation period and a long result period. In the second example the opposite is the case. For a non-participant  $t_0 = t_1$  (because they have no participation period) and consequently  $t_2 - t_0 = t_2 - t_1 = 730$  days. In Chapter 6, where we evaluate the impact of programmes at a particular point in time, we assume that the result period ends two years after they enter the register in 1991. Thus the two example above refer to the timing pattern used in chapter 6, where  $t_2$  is the time of evaluation. In chapter 7, we evaluate the impact of programmes on annual earnings in 1993, thus the time of evaluation lasts one year, from 1.1.93 to 31.12.93. This implies that, by contrast with the analyses in chapter 6, in Chapter 7 the whole of 1993 is necessarily part of the result period, and individuals still participating in programmes in 1993 need to be removed from the sample.

Below we present descriptive statistics for the different participant categories and the comparison group. First, we give some summary statistics on the main socio-demographic characteristics, such as age, sex, civil status, number of children and immigration background. Thereafter we look at the distribution of highest completed education both in 1991 and in 1993 (two years later), as well as parents' highest completed education. Thereafter, we present descriptive statistics as regards labour market programme participation and unemployment experience for the relevant three periods, i.e. the background period, the participation period and the result period. Lastly, we describe the earnings profile as well as some other employment specific characteristics for the period 1990–1993. We summarize the findings at the end of the chapter.

## 4.2 Sociodemographic characteristics

Table 4.1 shows that the non-participant group accounts for nearly 60 per cent of the sample, while the remaining 41 per cent comprises the

participant groups. Vocational programmes are by far the most popular among young labour market programme participants. The age distribution of the different categories differ: for example, the proportion of participants in vocational and combination programmes 16–19 years old is much higher than equivalent proportion for the three remaining categories. Furthermore, while over 70 per cent of those 16–17 years of age in 1991 participated in vocational programmes, the equivalent proportion among those who were 24–25 in 1991 was less than five per cent. On the other hand, only 22 per cent of those 16–17 years of age were unemployed non-participants, against 73 per cent for the age group 24–25. The results from Table 4.1 indicate that the propensity to participate decreases with age.

Table 4.2 shows the distribution of the comparison group and the different programme categories as regards gender, marital status, number of children and immigrant background. The proportion of women is higher in most participant categories than in the comparison group. Employment programmes are the category with the lowest proportion of females, while vocational programmes have the highest proportion of females. The proportion of unmarried persons and persons

*Table 4.1. Age distribution at the end of 1991*

	Compari- son group	Participant groups:				Total (%)
		Employment	Vocational	Training	Combination	
Ages 16–17	1303	80	4152	69	265	5869 (6)
Ages 18–19	7417	714	7113	1172	1615	18031 (19)
Ages 20–21	16706	2148	4136	2900	1728	27618 (30)
Ages 22–23	16303	2017	1365	2542	945	23172 (25)
Ages 24–25	13395	1388	655	2257	665	18360 (20)
Total	55124	6347	17421	8940	5218	93050 (100)
(%)	(59)	(7)	(19)	(10)	(6)	(100)

Table 4.2. Sex, civil status, and migration status. In per cent

	Comparison	Participant groups:			
	group	Employment	Vocational	Training	Combination
Women	37	30	53	41	45
Unmarried	94	96	98	93	96
No children	86	89	95	84	92
One child	11	8	4	12	6
More than one child	3	3	1	4	2
Total	100	100	100	100	100
Non-immigrant	96	98	95	92	92
Immigrant1*	1	1	1	1	1
Immigrant2*	3	2	4	7	8
Total	100	101	100	100	101

\* *Non-immigrant* comprises all persons living in Norway (born in Norway or abroad) with no immigrant background, while *immigrant* comprises both first and second generation immigrants, adopted from abroad and persons with one foreign parent. *Immigrant1* covers immigrants from Western Europe, USA and Canada. *Immigrant2* covers immigrants from Oceania, Asia, Africa, Eastern Europe and South America.

with no children is higher among programme participants than among the comparison group. However, training programmes have the highest proportion of married persons, and persons with children of all categories. Vocational programmes have the highest proportion of unmarried persons, and persons without children; this is probably related to the fact that participants in vocational programmes are younger on average than participants in other programmes and unemployed (see Table 4.1).

As Table 4.2 shows, there are also some differences among categories as regards immigration background. The proportion of persons with no immigration background is higher for participants in employment programmes than for the other categories. Training programmes and

combination programmes have the greatest proportion of immigrants from non-western countries (immigrant2).

### 4.3 Education

As regards education, Table 4.3 shows no differences in the highest level of completed education between men and women (15 years of completed education). Furthermore, women have a higher proportion with 13–14 years of completed education than men, while men have a higher proportion with 9–10 years of completed education than women. Table 4.3 shows that non-participant men have a higher level of completed education than men who participate in any of the programme categories. This is not the case for women: women who participate in

*Table 4.3. Highest level of completed education by 1.10.91, by gender. In per cent*

	Comparison		Participant groups:		
	group	Employment	Vocational	Training	Combination
<i>Woman:</i>					
9 years education	18	15	31	15	21
10 years education	26	23	26	26	24
11 years education	14	16	14	16	20
12 years education	30	35	14	31	27
13–14 years educ.	6	7	1	5	3
15 years education	1	1	0	1	0
Unknown education	4	3	13	6	5
Total	99	100	99	100	100
<i>Men:</i>					
9 years education	17	16	34	15	20
10 years education	25	26	28	28	33
11 years education	15	21	13	20	19
12 years education	34	30	9	27	18
13–14 years educ.	5	3	1	2	1
15 years education	1	1	0	1	0
Unknown education	4	3	15	7	9
Total	101	100	100	100	100

employment programmes have the biggest proportion with completed high school or higher education (12 years of education) of all five unemployment categories. Furthermore, participants in vocational programmes have the lowest average level of education. This is the case for both men and women, and is partly related to the fact that vocational programmes are specially directed towards unemployed under the age of 20. Vocational programmes are the category having the greatest proportion of participants with unknown education. Otherwise, Table 4.3 shows that participants in employment and training programmes and members of the comparison group have on average a higher level of completed education than the two remaining categories. This is related to the age distribution of the different categories.

*Table 4.4. Field of study of completed education by 1.10.90, by gender. In per cent*

	Comparison group	Participant groups:			
		Employment	Vocational	Training	Combination
<i>Woman:</i>					
General education	39	35	44	37	39
Arts, aesthetic	6	5	4	5	4
Business adm., etc.	26	32	21	29	34
Trade, crafts, etc.	7	8	5	8	5
Services	17	14	24	16	15
Other fields of study*	5	6	3	5	3
Total	100	100	100	100	100
<i>Men:</i>					
General education	33	29	42	28	30
Arts, aesthetic	2	1	1	1	1
Business adm., etc.	10	8	6	9	9
Trade, craft, etc.	42	50	31	47	45
Services	8	6	17	9	12
Other fields of study*	4	6	2	6	3
Total	99	100	99	100	100

\**Other fields of study* include teacher training, transport and communications, public health, and agriculture, forestry and fisheries.



There are clear differences between men and women as to the choice of field of study. While women choose mostly general education men choose the fields of trade, crafts, natural sciences, mathematics and engineering. General education comes second in importance for men, while the field of commerce, business administration, social sciences and law is the second most popular field of study for women. This is the general pattern both for participants and non-participants, as Table 4.4 shows.

There are also differences among programme categories, where participants in vocational programmes stand out from the rest. The proportion of those with general education and service oriented education is particularly high, for both male and female participants in vocational programmes. Participation in the other programme categories and non-participants have pretty much the same distribution in the various to the fields of study. This is the case for both men and women. We have also information about parents' highest level of completed

*Table 4.5. Highest level of parents completed education. In per cent*

	Comparison group	Participant groups:			
		Employment	Vocational	Training	Combination
<i>Mother:</i>					
9 years education	36	40	38	37	38
10 years education	36	37	36	35	35
11–12 years educ.	10	9	11	10	10
13 years educ.	10	7	8	7	7
Unknown education	7	6	7	10	10
Total	99	99	100	99	100
<i>Father:</i>					
9 years education	29	34	31	29	31
10 years education	21	22	22	21	23
11–12 years educ.	23	22	22	22	21
13 years educ.	15	11	12	11	10
Unknown education	12	12	13	17	16
Total	100	101	100	100	101

*Table 4.6. Difference in the highest level of education in the period from 1.10.90 to 1.10.92. In per cent*

	Comparison	Participant groups:			
	group	Employment	Vocational	Training	Combination
No improvement	73	80	62	68	67
Improvement	27	20	38	32	33
Total	100	100	100	100	100

education (per 1.10.92). Table 4.5 shows that the mothers have in general lower education than the fathers. This is the case for all groups. Parents of non-participants have a slightly higher level of education than parents of programme participants. Parents of participants in employment programmes have the lowest level of education. However the differences are very small.

Lastly, we have looked at the change in the highest level of achieved education from the end of 1990 to the end of 1992. It appears that participants in employment programmes choose to take further education to a lesser extent than participants in the other programme categories. Table 4.6 shows that 38 per cent of participants in vocational programmes achieved a higher level of completed education within the two years time interval (recall that apprenticeship schemes can be combined with ordinary education). On the other hand, only 20 per cent of participants in employment programmes improved their level of education in the period 1991–1992.

#### 4.4 Participation in labour market programmes

In this section we look at two aspects of participation experience in the period 1990–93<sup>30</sup>, duration and number of times. For the participant groups we cover the whole period, i.e. the background period, the participation period and result period (the definitions of the periods are

30. Unfortunately, participation in labour market programmes divided by type of programme is not available for 1989.

*Table 4.7. Duration (days) and frequency (per cent) of participation in labour market programmes in 1990 (background period)*

	Comparison		Participant groups:		
	group	Employment	Vocational	Training	Combination
<i>Duration (days)*:</i>					
Mean	12	37	18	22	29
St.dev.	39	70	48	54	61
Maximum	364	364	361	361	361
<i>Frequency :</i>					
No participation	89	70	84	81	75
Once	9	21	13	15	19
Twice	2	7	3	4	5
Three times or more	0	1	0	1	1
Total	100	99	100	101	100
<i>Duration (days)*:</i>					
Mean among partic.	106	125	110	115	117

\* Information on duration of participation in 1990 is on monthly basis so that minimum duration is 27 days.

described at the beginning of this chapter). As regards the comparison group we consider only the background and result period, since by definition this group did not participate in any programme in the participation period.

Table 4.7 shows that average duration of participation previous to 1991 is low for all categories, and specially low for members of the comparison group. Average duration of participation in 1990 is shortest for non-participants (12 days) and longest for participants in employment programmes (37 days). This reflects the fact that most members in all categories did not participate in any programme in 1990. There are, however, clear differences among groups. While 30 per cent of participants in employment programmes and 25 per cent of participants in combination programmes had some programme experience from 1990, only 11 per cent of members in the comparison group had programme experience from 1990. There are also very few

*Table 4.8. Duration (days) and frequency (in per cent) of participation in labour market programmes in the participation period*

	Comparison	Participant groups:			
	group	Employment	Vocational	Training	Combination
<i>Duration (days):</i>					
Mean		121	158	138	231
St.dev		84	94	104	103
Maximum	0	640	710	644	667
<i>Frequency :</i>					
No participation	100	0	0	0	0
Once	0	77	77	77	3
Twice	0	19	20	19	63
Three times or more	0	4	3	4	24
Total	100	100	100	100	100

who participated more than once in the background period, but participants in employment programmes have participated more often than members of the other categories.

As regards the duration of participation in 1990 among those who did participate in 1990, the last row of Table 4.7 shows that average duration varies between 125 days for participants in employment programmes and 106 days for members of the comparison group. Thus members of the comparison group participated less and on average for shorter periods of time in 1990, while participants of employment programmes participated the most and on average longest.

As regard participation in programmes in the participation period, we can see from Table 4.8. that most participants participated only once (the programme categories are described in detail in Chapter 2). Participants in combination programmes are the exception, since this category is meant to capture mainly those who participate in more than

one programme category.<sup>31</sup> Average duration in programmes varies considerably among programme categories. Mean duration is shortest for participants in employment programmes (nearly 4 months) and longest for members of combination programmes (nearly 8 months).

The employment programme category and the combination programme category cover quite different types of programmes. It is therefore interesting to get a more detailed understanding of the types of programmes persons within these two categories participate in as well as the sequence. When it comes to employment programmes 39 per cent participate only in “public employment schemes” and 54 per cent participate only in “wage subsidies” (see chapter 2 for a description of the programmes). The remaining 7 per cent participate in other programmes or in a combination of two above programmes. As regards combination programmes, the most popular sequence of programmes consists of vocational schemes followed by wage subsidies (25 per cent),

*Table 4.9. Duration (days) and frequency (per cent) of participation in labour market programmes in the result period*

	Comparison	Participant groups:			
	group	Employment	Vocational	Training	Combination
<i>Duration (days):</i>					
Mean	16	29	34	43	46
St.dev	49	62	67	75	75
Maximum	361	358	358	358	336
<i>Frequency :</i>					
No participation	85	73	70	66	61
Once	9	16	17	18	22
Twice	5	8	10	12	12
Three times or more	1	3	3	4	5
Total	100	100	100	100	100
Mean among partic.	110	109	116	126	119

31. Combination programmes includes participants not covered by the other three programme categories. This explains why 3 per cent in this category participated only once.

vocational schemes followed by labour market training (19 per cent), labour market training followed by vocational programmes (14 per cent), vocational schemes followed by labour market training (9 per cent) and labour market training followed by wage subsidies (5 per cent). Further, it can be mentioned that for 56 per cent vocational schemes came first in the sequence of programmes.

Table 4.9 shows that a considerable proportion of members in all participant categories also participated in programmes in the post-programme period, that is, in the result period. Members of the comparison group also participated in programmes during the second year after they entered the register in 1991, but relatively less than the participant groups.<sup>32</sup> As the Table shows 27 per cent of participants in employment programmes participated in programmes also in the result period. The equivalent proportions for the vocational, training and combination programmes are 30 per cent, 34 per cent and 39 per cent respectively. On the other hand, only 15 per cent of members in the comparison group participated in programmes in the result period. Thus there seems to be a positive correlation between the number of programmes individuals participated in during participation period and subsequent programme participation (in the result period).

Furthermore, note that for all categories the maximum duration of programmes in the result period was nearly a year. Also bear in mind that persons who started a programme right after the end of the participation period and who participated in a programme for a year or more would have the participation spell in the result period truncated to nearly a year.<sup>33</sup> This has implications for the analysis of Chapter 6.

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32. Table 4.9 gives an indication of the degree of contamination in our sample. Contamination arises when members of the comparison group participate in programmes in the result period, making it difficult to measure the effect of programmes from the participation period.

33. Recall that the participation period and the result period varies from individual to individual. Further that any programme started within the first year after entering the register in 1991 qualifies for the participation period. Thus programmes started in the result period must have started later than a year after entering the register in 1991. Also by definition the result period ends two years after registering in 1991. Thus participation in the result period can last one year at the most, at which point (fortsettes...)

It implies that there are individuals in all categories who spend most of the last year before the end of the result period, when the effect of programmes is evaluated, participating in a programme which is disregarded in the analysis. Also, the last row of Table 4.9 shows that people who participated in programmes in the result period participated on average about one third of the maximum duration of the result period. There is little difference between categories.

A comparison of participation in the background and the result period shows that members of the comparison group participated less, both in the background period and the result period, compared to members of the programme categories. Further, we observe a different participation pattern among programme categories. Members of the employment programme category participated relatively more in the background period than in the result period, while the opposite is the case for members of the other three programme categories. However, the duration of participation for those who participated is very much the same in the background and the result period, for all categories.

## 4.5 Unemployment

We concentrate on three aspects of (open) unemployment experience: duration, frequency (number of unemployment spells) and whether they received unemployment benefits or not. We divide the five years period covered by the data in two periods, which we call the pre-period and post-period. The pre-period covers the two years previous to the date individuals enter the register in 1991. The post-period covers the period from the time the person enters the unemployment register in 1991 and ends two years later, at the end of the result period. That is, the post-period is the same as the result period for the comparison group, while for the participant group it covers both the participation and the result period.

A considerable proportion of members in all categories had not experienced unemployment during the two years previous to entering

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33. (...fortsatt)  
it is truncated.

*Table 4.10. Duration (days) and frequency (per cent) of unemployment in the two years pre-period*

	Comparison group	Participant groups:			
		Employment	Vocational	Training	Combination
<i>Duration (days):</i>					
Mean	36	59	18	40	34
St.dev	70	94	48	71	69
Maximum	605	606	604	633	666
<i>Frequency :</i>					
Not unemployed	62	48	75	57	61
One spell	21	25	16	22	22
Two spells	11	15	6	12	10
Three spells	5	8	2	6	5
Four spells or more	1	4	1	3	2
Total	100	100	100	100	100
Mean among unem.	95	114	74	95	89

the unemployment register in 1991. Table 4.10 shows that the proportion with no unemployment experience is highest for participants in vocational programmes (75 per cent) and lowest for participants in employment programmes (48 per cent). This indicates that many individuals in the sample started their unemployment experience in 1991. From Table 4.10 we can see that participants in vocational training have the shortest average duration of unemployment of all categories (18 days). At the other end of the scale are participants in employment programmes who have the longest duration on average (59 days). Both in terms of average duration and as regards the proportion with no unemployment experience, the comparison group lies in between these two groups. Table 4.10 also shows that 34 per cent of participants in employment programmes had two or more spells of unemployment in the pre-period. This is much higher than for the other three categories. As regards mean duration among those who experienced unemployment in the pre-period, there are also considerable differences among groups, as the last row of Table 4.10 shows. Mean duration varies from an average of two and a half months for



*Table 4.11. Duration (days) and frequency (per cent) of unemployment in the two years post-period (1991–93)*

	Comparison		Participant groups:		
	group	Employment	Vocational	Training	Combination
<i>Duration (days):</i>					
Mean	148	135	87	143	102
St.dev	153	130	105	134	102
Maximum	730	665	645	691	673
<i>Frequency :</i>					
Not unemployed	0	12	21	11	15
One spell	34	24	28	20	26
Two spells	26	22	22	24	25
Three spells	18	18	15	21	18
Four spells	12	13	8	13	10
Five spells or more	10	11	6	11	6
Total	100	100	100	100	100
Mean among unem.	148	154	110	161	119

participants in vocational programmes to about three months and a half for participants in employment programmes.

Table 4.11 shows the equivalent figures for the post-period, which is also a two year period. The categories differ basically as regards the proportion with one or no spell of unemployment, while the proportion with two or several spells of unemployment is similar in all five categories. Further, it is interesting to notice that a considerable proportion of participants in all programme categories did not experience unemployment in the two year period from the time they entered the register in 1991. 11 per cent of participants in training programmes, 21 per cent of participants in vocational programmes, 15 per cent of participant in combination programmes and 12 of participants in employment programmes did not register as unemployed at all in the post-period. These people entered the register of unemployed in 1991 to participate in a programme (or several programmes) and left the register when the programme ended, i.e. they did not register as open unemployed just before participation nor

immediately after participation. Such high figures are unexpected and may indicate that many persons in the sample were actually unemployed sometime during the post-period, but did not bother to register. A reason for not registering can be lack of incentives to do so. For instance, young people who are not entitled to unemployment benefits have less incentive to register than those who are entitled. If in addition they do not believe that the labour market offices are likely to help them get a job, then there is even less point in registering. Another reason for not registering may be that they do not actually want a job. If this is true, it implies that there may be many participants, especially in programmes with an off-the-job training element, whose intention is not to get a job. However, this can be expected since, as mentioned in the introduction, the “youth guarantee” secures all youth who do not get a job or an offer in the ordinary educational system the possibility of participating in a labour market programme. This means that labour market programmes for the youth can be regarded as an alternative means of attaining formal qualifications and/or specific skills. In this respect it can be mentioned that one gets economic compensation while on labour market programmes, but not if one takes ordinary education.

Table 4.11 also shows that participants in vocational programmes have the shortest average duration of unemployment of all categories, less than 3 months on average. On the other hand, participants in employment and training programmes were unemployed on average almost as long as non-programme participants. Furthermore, it is worth noticing that if one looks at average duration of unemployment among those who did experience open unemployment in the post-period, participants in employment programmes and in training programmes were open unemployed longer on average than members of the comparison group. This is shown in the last row of Table 4.11.

A comparison of Table 4.10 and Table 4.11 shows that the average duration of unemployment is much longer in the post-period than in the pre-period, for all categories. It varies between two weeks and two months in the pre-period and between two and a half months and five months in the post-period. Further, while participants in employment programmes had been unemployed longer on average than

*Table 4.12. Unemployment benefits in the pre-period and the post-period. In per cent*

	Comparison group	Participant groups:			
		Employment	Vocational	Training	Combination
<i>Unempl. in pre-period:</i>					
Not unemployed	62	48	76	57	62
With unempl. benefits	12	17	2	12	7
With/without un. benefits	10	15	2	10	7
Without unemp. benefits	16	20	20	21	25
Total	100	100	100	100	101
<i>Unemp. in post-period:</i>					
Not unemployed	0	12	21	11	15
With unempl. benefits	35	37	10	28	20
With/without un. benefits	36	36	18	31	26
Without unemp. benefits	29	15	52	31	40
Total	100	100	101	101	101

participants in training programmes in the pre-period, the opposite is the case in the post-period. The frequency is also higher in the post-period than in the pre-period. Between 30 and 45 per cent of the members in the different categories were unemployed at least three times in the post-period, against 3 to 12 per cent in the pre-period.

Table 4.12 gives information as regards unemployment benefits, in the pre- and post-period. Firstly, it is interesting to note that the proportion of unemployed without unemployment benefit in the pre-period is quite similar for all categories, i.e. more or less 20 per cent in all categories were not entitled to unemployment benefits, as shown in the last row. On the other hand, the proportion who received unemployment benefits at least once varies from group to group. By adding the second and the third row we get the following: while 32 per cent of participants in employment programmes received unemployment benefits, only 4 per cent of those in vocational programmes did so. Furthermore, since the proportion of unemployed without unemployment benefits is very much the same for all categories, this means that the bigger the proportion with benefits the smaller the proportion not

unemployed, and the other way around. This may indicate that participants in vocational programmes, who are often particularly young, register as unemployed to a lesser extent than members of the other categories, precisely because they are not entitled to unemployment benefits.

The proportion of unemployed without unemployment benefits varies much across categories in the post-period, from 15 per cent of participants in employment programmes to 52 per cent of participants of vocational programmes. Furthermore, the difference between the pre- and post-period is especially noticeable for participants in vocational programmes: from 20 per cent to 52 per cent. This may indicate that participants in vocational programmes who did not register as unemployed previous to 1991 did not register because they had actually not experienced unemployment. Alternatively, it could be that these young people registered as unemployed in the period 1991–93 and not before, even though they are not entitled to unemployment benefits in the post-period either, because they wished to participate in a programme and/or because once they had established a relationship to the employment office it became “easier” to register again.

The only group which has a lower proportion of members without unemployment benefits in the post-period relative to the pre-period, are participants of employment programmes. This is obviously related to the fact that being at work while participating in employment programmes gives entitlement to unemployment benefits.<sup>34</sup> On the other hand, participants in vocational and training programmes receive a low “student remuneration” instead of ordinary wages, so that participation does not give the right to receive unemployment benefits afterwards (for details on the compensation system while unemployed, see chapter 2).

Another interesting aspect of unemployment experience in the pre-period is how recent it is. This is measured by the number of days from the date the person left the unemployment register for the last time during the two years pre-period, to the date the person enters the unemployment register for the first time in 1991. Thus, maximum time since last unemployed is 703 days (730–27) and minimum is 27 days.

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34. This rule was later changed but applied during the period under study.

*Table 4.13. Number of days since last experienced unemployment before entering the register in 1991, among those who experienced unemployment*

	Comparison group	Participant groups:			
		Employment	Vocational	Training	Combination
<i>Duration (days):</i>					
Mean	338	300	292	319	289
St.dev	170	175	174	174	174
Maximum	703	701	703	703	703
<i>Distribution (%):</i>					
Less than 3 months	9	12	13	11	13
3–6 months	12	20	21	14	21
6–9 months	14	15	14	16	16
9–12 months	23	16	18	19	15
Over one year	42	36	33	40	34
Total	101	100	100	100	99

We concentrate on those who experienced unemployment in the pre-period, which accounts for less than half of the sample (see Table 4.12). Table 4.13 shows that almost a year went by on average from the last time they left the register in the pre-period to the time they reentered the register in 1991. There are, however, differences among groups. Participants have more recent unemployment experience than non-participants. Over 30 per cent of participants in employment, training and combination programmes were unemployed sometime during the 6 months previous to entering the register in 1991, as opposed to only 21 per cent of non-participants.

## 4.6 Employment and earnings

We have looked at the number of job relations during the two years previous to entering the unemployment register in 1991, i.e. during the pre-period. Information on employment spells is taken from REM and RST (see chapter 3 for details). Table 4.14 shows that nearly half of participants in vocational programmes were not employed at all during

*Table 4.14. Frequency of spells by job during the pre-period per among those with employment experience. In per cent*

	Comparison		Participant groups:		
	Employment group	Vocational group	Training group	Combination group	
None	36	39	33	36	33
One	21	15	29	15	16
Two	30	26	28	13	20
Three	14	24	17	5	27
Four or more	8	11	9	2	12
Total	100	99	101	100	99

the pre-period, compared to 15 per cent of participants in employment programmes and 21 per cent of members of the comparison group. Close to a third of members in each group had one job relation. Furthermore, the proportion with four or more job relations was considerably lower for participants in vocational programmes than in the remaining groups.

As earlier mentioned, participants in vocational programmes are the youngest on average, and participants in combination programmes are second youngest on average. This is reflected in the employment experience, ie. these two groups have the least employment experience. This is, not the case for participants in training programmes. Although the age distribution of participants in training programmes is about the same as the age distribution of non-participants (see Table 4.1), the proportion with no employment experience is 7 percentage points higher for participants in training programmes than for non-participants. Further, participants in employment programmes have the greatest proportion with several spells of employment of all categories although they are younger on average than participants in training programmes and non-participants. This indicates some clear differences in interest and opportunities in the different categories.

It is also interesting to see how recent the employment experience is.<sup>35</sup>

35. We have disregarded information on “time since last had a job” for about 3000 (fortsettes...)

Table 4.15 shows small differences among groups, when we disregard persons who had no employment experience in the pre-period. About one third of those who had employment experience had been employed the month previous to entering the unemployment register in 1991. Further, although participants in vocational programmes are youngest on average they have the biggest proportion with most distant employment experience. This is somehow unexpected. Since they are younger, one would be inclined to believe that if they have any employment experience at all, it would be relatively more recent than for the other groups.

As shown in the previous chapter, data on start and stop dates for employment spells are based on the employers reporting the job relations and are not altogether reliable: there is the problem of lack of dates and the problem of little precision as regards the dates recorded. These problems are accentuated when dealing with data on youth because youth have a more erratic attachment to the labour market than the adult population at large. Thus, it is particularly difficult to measure duration of employment with precision. Hence, annual earnings are likely to be a more reliable indicator of the youth employment situation over time.

Information on annual earnings is taken from RSS, where earnings are recorded together with income from unemployment benefits. Unfortunately information on unemployment benefits is not specified separately from income while on sick leave for 1989 and 1990, making it impossible to subtract unemployment benefits from wage income for these two years. It should also be noted that annual earnings, as specified here, also include also wage income while on employment programmes.

Table 4.16 shows average annual earnings for the period 1991–1993.<sup>36</sup>

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35. (...fortsatt)

persons in sample. One third is due to lack of date for termination of the job relation. The remaining two thirds is due to error of the date recorded, i.e. the date recorded for termination of the job relation is over 5 days after entering the unemployment register.

36. It should be mentioned that about 3 per cent of the sample had negative annual (fortsettes...)

*Table 4.16 Annual earnings in the period 1991–1993. NOK*

	Comparison		Participant groups:		
	group	Employment	Vocational	Training	Combination
<i>1991:</i>					
Average earnings	61,000	70,992	17,900	44,800	33,500
Std. Deviation	58,300	44,800	26,400	52,700	38,200
<i>1992:</i>					
Average earnings	74,700	88,400	32,100	58,200	58,000
Std. Deviation	69,500	57,200	41,900	63,400	50,400
<i>1993:</i>					
Average earnings	89,700	94,600	46,800	81,300	73,400
Std. Deviation	76,500	68,300	53,200	75,000	63,800

There are big differences between the groups. Participants in employment programmes had the highest earnings in 1991, which can be expected since wages while on employment programmes are not deducted. The level of average annual earnings increased considerably from 1991 to 1993. Participants in employment programmes had the highest average earnings in 1993. In spite of this average earnings increased the least for participants in employment programmes, by only 35 per cent. The level of average earnings increased the most for participants in training and combination programmes, with about 36,000 NOK and 39,000 respectively, in the 3 year period. Participants in vocational and combination programmes experienced the highest increase, 161 per cent and 115 per cent, respectively.

Table 4.16 also shows that common for all groups is the situation that, while the average earnings increases over time, the standard deviation becomes smaller. This is partly because the proportion with no earnings decreases over the three years period (see Table 4.17). It can also be mentioned that summary statistics of earnings in 1993 among those with positive earnings shows that participants in

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36. (...fortsatt)

earnings (unemployment benefits were higher than annual earnings). This indicates some degree of inaccuracy as regards data from RUP and/or RSS.



training programmes had 95,000 NOK on average in 1993, while non-participants had 101,000 NOK on average. Equivalent statistics for the three remaining groups are 101,000 NOK for participants in employment programmes, 60,000 for participants in vocational programmes and 84,000 NOK for participants in combination programmes. Therefore, when we disregard those with no earnings in 1993, the differences in average earnings among the different categories become smaller.

Lastly, we show the proportion in each group with no annual earnings for the period 1991–1993. Table 4.17 shows that the proportion with no annual earnings decreased dramatically from 1991 to 1993 for all participant categories except for those in employment programmes; the proportion without earnings was already very low in 1991 (recall also that they were wage earners while in employment programmes). This was not the case for the comparison group. This can be an indication of the success of programmes in increasing the employability of the unemployed.<sup>37</sup>

## 4.7 Summary of descriptive statistics

There are both differences and similarities among the specified groups.

*Table 4.17. Proportion with no annual earnings in the period 1991–1993. In per cent*

	Comparison group	Participant groups:			
		Employment	Vocational	Training	Combination
1991	14	4	34	22	20
1992	13	4	28	19	12
1993	12	6	22	15	12

37. Of the 185 participants in employment programmes with no earnings in 1991 there were 24 persons who participated in employment programmes in 1991 and thus should appear as wage earners in 1991 (0.04 per cent of all members in that group). The rest participated in employment programmes first in 1992, after having experienced open unemployment in 1991.

All in all one can say that the comparison group resembles participants in employment and training programmes, more than participants in the two other categories. Further, there is one group which differs from the others in most ways: participants in vocational programmes are younger and at least partly because of that, have less education, less employment experience and unemployment experience, and lower annual earnings throughout the period under consideration.

Some groups stand out as different in one particular aspect. For instance, non-participants differ from participants in that they participate in programmes less and for shorter periods of time than participants, both in the background and the result period. Parents of the non-participant group have also higher education on average than parents of all the other groups. Male non-participants have a higher level of education than male participants. On the other hand, female participants in employment programmes are the ones with the highest level of education of all groups. Participants in employment programmes have on average more unemployment experience – both open unemployment and participation in labour market programmes – during the two years previous to entering the unemployment register in 1991 than all the other groups. This pattern changes after programme participation: participants in training and vocational programmes participate more in programmes in the result period than all other groups. Participants in training programmes have the greatest proportion of immigrant from non-western countries. Participants in employment programmes have the greatest proportion of males, while vocational programmes have the largest proportion of females.

The comparison group resembles some of the participant groups in some respects and not in others. Non-participants are most alike participants in employment programmes as regards annual earnings during the whole period under study, and relatively quite similar as regards education. However, participants in employment programmes have a greater proportion with employment experience previous to entering the register in 1991, than non-participants. Also, participants in employment programmes have also more occupational related education (manufacturing, engineering, crafts, etc), and partly because of this they have a greater proportion who did not improve their level

of education in the period from 1990 to 1993, compared to non-participants. They also have parents with lower levels of education. Finally, participants in employment programmes have more unemployment experience – both open unemployment and participation in labour market programmes – than non-participants. These differences may indicate fundamental differences as regards the labour market paths of participants in employment programmes and non-participants.

Participants in training programmes is the participant group that is most alike the non-participants as regards age distribution and gender. Female participants in training programmes have very much the same distribution as regards level of education in 1990 as non-participant females. On the other hand, male participants have relatively lower education previous to entering the register in 1991 than the comparison group. Yet they have a higher proportion who improved their level of education in the period 1990–93, relative to non-participants. Participants in training programmes have parents with lower education than non-participants, and have a greater proportion of immigrants from non-western countries than non-participants. Further, participants in training programmes participated more in programmes both in the pre-period and in the result period, compared to non-participants. They also experienced open unemployment to a greater extent than the non-participant group. Lastly, participants in training programmes had lower average earnings than non-participants during the whole period under study.

There are more differences than similarities between participants in combination programmes and non-participants. However the differences are not as accentuated as when it comes to participants in vocational programmes. Participants in combination programmes are on average younger than non-participants, but not as young as participants in vocational programmes. The pattern we observe as regards all human capital characteristics reflects the age distribution.

As regards participation in labour market programmes it can be mentioned that 14 per cent of all participants participated at least twice in the programme period. While 39 per cent of those in the employment programme category participate only in public employment schemes, 54 per cent participate only in wage subsidies. The remaining 7 per cent

participate in other programmes or in a combination of two above programmes. Of combination programmes the most popular sequence of programmes consists of vocational schemes followed by employment programme “wage subsidies” (25 per cent), vocational schemes followed by labour market training (19 per cent), labour market training followed by vocational programmes (14 per cent), vocational schemes followed by vocational schemes (9 per cent) and labour market training followed by employment programme “wage subsidies” (5 per cent). Further, it can be mentioned that for 56 per cent, vocational schemes came first in the sequence of programmes. Average duration of participation in the programme period varies among groups: from about 4 months for participants in employment and training programmes to about 6 months for participants in combination programmes. Many participated in programmes in the result period as well: 38 per cent of participants in combination programmes, 32 per cent of participants in training programmes, 31 per cent of participants in vocational programmes and 28 per cent of participants in employment programmes participated in programmes at least once in the result period. Only 16 per cent of members in the comparison group participated in programmes in the result period. Furthermore, participants in combination programmes, who for the most participated in programmes several times in the participation period, also participated more often in the subsequent period (the result period).

All in all we can conclude that non-participants are most alike participants in employment and training programmes, and less alike participants in vocational and combination programmes. Gender and age are important variables in explaining the observed differences. For this reason in all the following chapters, where we study what affects participation and labour market success, we carry out separate analyses for male and females divided by a younger age group (16–20 years old) and an older age group (21–25 years old).

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## Who participates in which programme?

### 5.1 Introduction

The population which the analyses of this chapter are based on comprises 93,050 young people between the ages of 16 and 25 who entered the Register of the Unemployed in 1991 as open unemployed or labour market programme participants (see chapter 3 for details). Over 40 per cent participated in one of several programmes within the first year after entering the register. The remaining 60 per cent did not participate in any programme in the course of the first year after registering as unemployed.

As in the previous chapter, the following rule is used to place individuals in one of five possible unemployment categories. If a person did not participate in any programme within the first year after registering as unemployed in 1991, he/she is placed in the *comparison group* (55,124 individuals). If the person participated in one or several employment programmes, he/she is defined as *employment programme* participant (6,347 individuals). If he/she only participated in vocational programmes, he/she is placed in the *vocational programme* category (17,421), and in the *training programme* category if he/she participated only in training programme(s) (8,940 individuals). Lastly, if a person participated in more than one of the above programme categories, he/she is placed in the *combination programme* category (5,218).

In this chapter we study how individual and local labour market characteristics affect or are correlated with the probability of participation in programmes. Unfortunately, we do not have information on whether participation is a consequence of choice and/or opportunities. That is, a person might wish to participate in an employment programme

but does not get the opportunity, or she/he might wish to participate in one particular training programme but there is no vacancy or she/he does not have the (right) qualifications. However, we have information on individual characteristics which enables us to describe what affects the probability of being a member of one of the different categories specified in the previous paragraph. The model applied is the Multinomial Logit Model.

First, we present the model. Thereafter, we exemplify the results from the Multinomial Logit Model by presenting estimated probabilities of being in the five categories for individuals with different individual characteristics. We carry out separate analyses for 4 subgroups of individuals: females 16–20 years old (16,701 individuals); males 16–20 years old (20,180 individuals); females 21–25 years old (21,080 individuals) and; males 21–25 years old (35,089 individuals). Lastly, we summarize the results.

## 5.2 The model

We are concerned with what affects participation in labour market programmes. We observe that individuals enter the unemployment register in 1991 and in the course of the first year they can be in one of five mutually exclusive categories: unemployed non-participant, employment programme participant, vocational programme participant, training programme participant or combination programme participant. Thus, our response or dependent variable ( $\theta$ ) is qualitative or discrete and can assume five values, i.e. it is a multinomial variable.

Statistically a multinomial model is represented by probabilities,  $P_j$ ,  $j=1,\dots,5$ , where  $P_j$  is the probability of being in unemployment category  $j$  (for simplicity we suppress individual indexation).<sup>38</sup> Let  $\theta_j$  be the response variable, which assumes the value of 1 if  $j$  occurs and zero otherwise. The expectation of  $\theta_j$  is

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38. The presentation of the model is mostly based on Dagsvik (1997). Maddala(1983) or Green(1990) also provide an introduction of discrete choice models.

$$(5.1) \quad E(\theta_j' P(\theta_j' - 1) - P(\theta_j' - 1)) = 0 \quad (0' P(\theta_j' - 1)' P_j$$

Further we have that

$$(5.2) \quad \theta_j' P_j \varepsilon_j$$

where  $\varepsilon_j$  is a stochastic error term. It is however problematic to estimate this model by linear regression. Estimating  $P_j$  as a linear function of the explanatory variables does not necessarily satisfy the constraints that probabilities  $P_j$ , for  $j=1, \dots, 5$ , have to be between 0 and 1 ( $0 \leq P_j \leq 1$ ) and that the sum of probabilities are equal to 1 ( $\sum_j P_j = 1$ ).

One of the most often used specifications is the Multinomial Logit Model. It is convenient in that many statistical packages have it, and it is fairly easy to interpret. Assuming the logistic distribution we get

$$(5.3) \quad P_j = \frac{\exp(X\beta_j)}{\sum_{k=1}^5 \exp(X\beta_k)}$$

where  $X$  is a vector of explanatory variables and  $\beta_j$ , for  $j=1, \dots, 5$ , are the corresponding vector of coefficients. From (5.3) it follows that

$$(5.4) \quad \ln \frac{P_j}{P_5} = X(\beta_j - \beta_5)$$

which means that we at most can identify  $\beta_j - \beta_5$ , for  $j=1, \dots, 4$ . Without loss of generality we can put  $\beta_5=1$  so that

$$(5.5) \quad P_5' H_5(X)' = \frac{1}{1 + \sum_{k=1}^4 \exp(X\beta_k)}$$

and

$$(5.6) \quad P_j' H_j(X)' = \frac{\exp(X\beta_j)}{1 + \sum_{k=1}^4 \exp(X\beta_k)} \quad \text{for } j' = 1, \dots, 4$$

In the analyses that follow we specify  $P_5$  as the probability of being in the category unemployed non-participant (reference category), and  $P_j$  for  $j=1, \dots, 4$  as the probability of being in one of the four programme categories.

The method used to estimate equations (5.5) and (5.6) is maximum likelihood (ML). The likelihood function  $L$  for the multinomial Logit in log form can be written as

$$(5.7) \quad \log L' = \sum_{i=1}^n \sum_{k=1}^5 \theta_{ki} \log H_k(X_i)$$

where  $n$  is the sample size. Deriving (5.7) by  $\beta_k$  and putting the expression equal to zero gives the first order conditions which maximize the likelihood function with respect to the unknown parameters. The solution is unique. The equations to solve for obtaining the ML estimates are

$$(5.8) \quad \sum_{i=1}^n (\theta_{ik} - P_{ik}) X_i' = 0 \quad \text{for } k' = 1, \dots, 4$$

Thus for each explanatory variable in the model we obtain one  $\beta$  for each of the programme categories. Assuming that functional form is correctly specified and the stochastic error terms  $e_{ij}$  have zero mean and



constant variance, then the estimates are BLUE (Best Linear Unbiased Estimates) and consistent (least variance when the sample size is big).

### 5.3 The results

As mentioned in the introduction we carry out parallel analyses for four subgroups: women aged 16–20, men aged 16–20, women aged 21–25 and men aged 21–25. That is, we estimate marginal effects within subgroup. Thus, we use the same model and the same model specification (same explanatory and response variables) for all subgroups. The estimated ML coefficients from the application of the Multinomial Logit Model cannot be interpreted directly, and are therefore included in the appendix to chapter 5.<sup>39</sup> However, the estimates of Tables 5.A– 5.D in the appendix to Chapter 5 are used to calculate the probabilities of being in the different unemployment categories for individuals with different characteristics. These estimated probabilities are calculated using equations (5.5) and (5.6). Below we concentrate the discussion on some examples presented in Tables 5.1 to 5.4. The first

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39. Coefficient  $\beta_r$  expresses the isolated effect of a marginal increase in variable  $X_r$ , for  $r=1, \dots, R$ , on probability of being in category  $j$ , for  $j=1, \dots, 4$ , relative to the probability of being in category 5 (the reference category), in log form, when the other variables in the model are held constant. This is obtained by deriving the the log odds-ratio, expressed in equation (5.4) by  $X_r$ . The estimated coefficients cannot be interpreted as the marginal effect on the probability of being in the different unemployment categories, because the Logit model is not linear in the parameters. The marginal effect on the probability of being in the different unemployment categories must be calculated. Further, when the response variable is binary, the sign of the estimated coefficient indicates whether the explanatory variable has a positive or negative effect on the probability of being in the one unemployment category relative to the other unemployment category. When the one probability increases as a consequence of a marginal change in the explanatory variable the other probability must necessarily decrease, since the sum of the probabilities is equal to one. Thus the sign of the estimated coefficient gives us direct information as to effect on the probabilities. This is not necessarily so when the response variable assumes more than two values (as is the case here). For instance, an explanatory variable might have a positive effect on probability of being in a vocational programme, but if the effect on the probability of being unemployed is relatively greater, then the effect on the log-odds ratio will be negative.

row of each table presents the probabilities of being in each of the unemployment categories for a reference person. In the rows that follow we show how the probabilities change when we change the value of one explanatory variable at a time. That is, the second row shows the probability of being in the different unemployment categories for a person with the same characteristics as the reference person except for being two years older, the third row for immigrant instead of a Norwegian, and so on.

Table 5.1 shows estimated probabilities for young women 16–20 years of age calculated from Table 5.A in the appendix to Chapter 5. The first row shows the estimated probabilities of being in the different categories for a girl who in 1991 is 18 years old, Norwegian with no children, no unemployment experience and no employment experience, has completed 10 years of education of a general type, and has parents with 11 years of education at the most. She lives in a county where 4.8 per cent of the labour force is open unemployed in 1991 and 2.5 per cent is in labour market programmes. A girl with such characteristics has 60 per cent probability of being in the vocational programme category, 2 per cent probability of being in the training programme category, 4 per cent probability of being in the combination programme category, 1 per cent probability of being in the employment programme category and 32 per cent probability of not participating in any programme.

Table 5.1 also shows that if this girl is 20 years old, instead of 18, and has otherwise the same characteristics, her probability of being a non-participant increases by nearly 10 per cent point and her probability of being on a training programme increases by nearly 7 per cent, while her probability of being in the vocational programme category is reduced by almost 20 per cent point. We observe the same pattern when comparing a migrant from a non-western country relative to a Norwegian with otherwise the same characteristics, as for a 20 year old relative to a 18 year old.

Having children and employment experience are the two single explanatory variables that increase the probability of not participating the most. On the other hand, higher education and unemployment experience increase the probability of programme participation, but the

*Table 5.1. Estimated probabilities of being in the various unemployment categories. The sample comprises women 16–20 years of age in 1991*

	P(employ)	P(vocational)	P(training)	P(combi)	P(non-partic)
<i>Reference person*</i>	0.012	0.604	0.020	0.043	0.322
20 years old	0.012	0.425	0.087	0.066	0.410
Children	0.010	0.425	0.024	0.025	0.515
Immigrant	0.005	0.426	0.074	0.070	0.424
12 years of education	0.019	0.584	0.026	0.063	0.307
Parents educ.: high	0.011	0.576	0.018	0.034	0.361
Unemploy. experience**:	0.013	0.634	0.021	0.056	0.276
Unemployment and participation experience**	0.013	0.641	0.021	0.058	0.266
Employment experience**	0.022	0.427	0.015	0.031	0.504

\* The *reference person* is female; 18 years old; immigrant=0; children=0; unemployment experience=0; earnings in 1990=very low; level of education= 10 years; type of education: of a general type; parents education: medium. Local labour market: average values for the subgroup.

\*\* *Unemployment experience* : 14 days during the last two years (average value of the subgroup), and her last unemployment experience ended two months before she entered the unemployment register in 1991. She did not receive unemployment benefits while unemployed. *Participation experience*: 13 days during the last two years (average value for the subgroup). *Employment experience*: one employment spell during the last two years which ended 4 months before entering the register in 1991, and having had earnings of between 30,000 and 70,000 NOK in 1990.

effect is much more modest compared to the effect of having children and employment experience.

Table 5.2 presents equivalent statistics as those of Table 5.1, but for males. The probabilities are calculated from Table 5.A in the appendix to Chapter 5. Notice firstly that the reference male has a relatively lower probability of participating in a vocational programme and higher probability of participating in training or combination programmes than the reference female. Most variables affect the probabilities of being in the different unemployment categories in much the same way. Worth mentioning, however, is that age has a stronger

*Table 5.2. Estimated probabilities of being in the various unemployment categories. The sample comprises men 16–20 years of age in 1991*

	P(employ)	P(vocational)	P(training)	P(combi)	P(non-partic)
<i>Reference person*</i>	0.015	0.528	0.037	0.081	0.339
20 years old	0.029	0.258	0.092	0.069	0.551
Children	0.019	0.343	0.053	0.090	0.494
Immigrant	0.007	0.396	0.088	0.116	0.392
12 years of education	0.026	0.444	0.036	0.063	0.429
Parents with higher educ.	0.013	0.485	0.033	0.067	0.400
Unemploy. experience**	0.014	0.588	0.042	0.103	0.252
Unemployment and participation experience**	0.015	0.598	0.042	0.108	0.236
Employment experience**	0.033	0.315	0.036	0.061	0.554

Note: The *reference person* has the same characteristics as that of Table 5.1 except for being a man instead of a woman. *Unemployment experience*: 21 days during the last two years (average value of the subgroup), and his last unemployment experience ended two months before he entered the unemployment register in 1991. He did not receive unemployment benefits while unemployed. *Participation experience*: 16 days during the last two years (average value for the subgroup). *Employment experience*: same as in Table 5.1

impact on the probability of being on vocational (negative impact) and on the probability of not participating in programmes (positive) for males than for females. Further, unemployment experience affects males more than females, in that the increase in the probability of participation in vocational programmes and the drop in the probability of non-participation are more pronounced for males than for females. On the other hand, having children, as opposed to not having, has less of an impact for men than for women.

Table 5.3 shows the equivalent estimated probabilities as in the two previous tables, but for females 21–25 years old. The estimated probabilities are calculated from Table 5.B in the appendix to this chapter. Except for some small changes due to differences in the average values of the subgroup, the reference person of Table 5.3 has the same

*Table 5.3. Estimated probabilities of being in the various unemployment categories. The sample comprises women 21–25 years of age in 1991*

	P(employ)	P(vocational)	P(training)	P(combi)	P(non-partic)
<i>Reference person*</i>	0.022	0.197	0.143	0.053	0.584
24 years old	0.025	0.140	0.167	0.054	0.614
Children	0.018	0.134	0.158	0.031	0.658
Immigrant	0.015	0.232	0.205	0.157	0.390
12 years of education	0.029	0.168	0.137	0.070	0.594
Parents with higher educ.	0.020	0.203	0.133	0.036	0.607
Unemploy. experience**	0.027	0.243	0.166	0.083	0.480
Unemployment and participation experience**	0.031	0.250	0.172	0.090	0.456
Employment experience**	0.048	0.117	0.103	0.037	0.694

Note: The *reference person*: female; Age=22 years old; immigrant=0; children=0; unemployment experience=0; earnings in 1990= very low; level of education=10 years; type of education= of a general type; parents education=medium. Local labour market= average values for the subgroup.

\*\* *Unemployment experience*: 56 days during the last two years (average values of the subgroup), and her last unemployment experience ended two months before she entered the unemployment register in 1991. She did not receive unemployment benefits while unemployed. *Participation experience*: 20 days during the last two years (average value for the subgroup). *Employment experience*: one employment spell during the last two years which ended 4 months before entering the register in 1991 having had earnings of between 30,000 and 70,000 NOK in 1990.

characteristics as that of the two previous tables. A comparison of Table 5.1 and 5.3 indicates that the distribution of the probabilities is quite different for the reference females in the two age groups. Older females participate in programmes to a much lesser extent than younger females: the probability of non-participation is 32 per cent for a woman of 18 and almost the double for a woman of 22. Further the probability of participating in the different programmes is more evenly distributed among programmes for older females than for younger ones: older females participate relatively more in training programmes and less in vocational programmes than younger females. Notice that this is the

same trend we observed in Table 5.1 when looking at the impact of being 20 as compared to being 18 years old. Taking into account the different points of departure of females in the two age groups (differences in the two reference categories), individual characteristics affect the probability of being in the different unemployment categories pretty much in the same way (per cent point changes are very much the same in Table 5.1 and 5.3). There are, however, a few differences worth mentioning. An interesting result is that in spite of the different points of departures immigrant females have roughly the same probability of being open unemployed, irrespective of age group.

Table 5.4 shows the estimated probabilities just like those of Table 5.3, but for males instead of females. For the most, changes in single explanatory variables do not lead to substantial changes in the probabilities relative to the reference male. There are, however two exceptions. Having some employment experience increases the probability of not participating with 10 per cent point, and reduces the probability of participating in programmes with a training element in the same order. Perhaps, the most striking result of Table 5.4 is the polarization of the probabilities as regard immigrants with otherwise the same characteristics as the reference male. Being an immigrant is the single characteristic among those presented in Table 5.4 which gives the highest probability of participating in programmes with a training element, that is, vocational, training and combination programmes.

Compared to women with the same characteristics (Table 5.3), males 21–25 years old have a greater probability of not participating in any programme than females in the same age group. As regards the probability of participation the model predicts that the probability of being in the combination programme category is stable across gender, while men have a higher probability of participating in employment programmes and a smaller probability of participating in vocational programmes, relative to females in the same age group. Further, as is the case for immigrant women over 20, immigrant men over 20 also have a greater probability of participating than non-immigrants. This is not the case for the younger age groups, as Table 5.1. and Table 5.2 show. It is also worth noticing that, compared to males younger than 21 years old (Table 5.2), the probability of not participating does not increase

*Table 5.4. Estimated probabilities of being in the various unemployment categories. The sample comprises men 21–25 years of age in 1991*

	P(employ)	P(vocational)	P(training)	P(combi)	P(non-partic)
<i>Reference person*</i>	0.066	0.086	0.100	0.043	0.703
24 years old	0.063	0.058	0.123	0.049	0.706
Children	0.070	0.072	0.097	0.042	0.718
Immigrant	0.035	0.174	0.179	0.095	0.516
12 years of education	0.071	0.067	0.086	0.034	0.740
Parents with higher educ.	0.046	0.088	0.093	0.036	0.736
Unemployment experience	0.085	0.130	0.106	0.067	0.612
Unemployment and participation experience	0.092	0.135	0.110	0.072	0.590
Employment experience	0.075	0.048	0.073	0.028	0.775

\* The *reference person* has the same characteristics as that of Table 5.3 except for being a man instead of a woman.

\*\**Unemployment experience*: 67 days during the last two years (average values of the subgroup), and his last unemployment experience ended two months before he entered the unemployment register in 1991. He did not receive unemployment benefits while unemployed. *Participation experience*: 14 days during the last two years (average value for the subgroup). *Employment experience*: as in Table 5.3.

with age for men 21 and over.

## 5.4 Summary

A comparison of the reference persons of Tables 5.1 to 5.4 shows that young people between 16–20 years old have a greater probability of participating in programmes than being open unemployed compared to people 21–25 years old. Of all programme categories, vocational programmes are the most “popular” for the younger age group, while training programmes are just as “popular” as vocational programmes for those over 20. In this respect it should be mentioned that the implementation of the “youth guarantee” might have led to some

pressure from the local labour market offices on the younger among the youth age group to participate in programmes, particularly vocational programmes. In other words, what was meant to be a *guarantee* of having a “meaningful activity” may be conceived of by youth more as an imposed activity. Furthermore, females in their 20s are more likely to participate in programmes than men, while there appears to be no gender differences among the youngest participants.

The probability of programme participation is lower for females with children than for those with no children. This is also the case for men under 21, but not for men 21–25 years old. As regards immigrants we observe very much the same pattern across gender, but not across age groups. While immigrants in the younger age groups have a higher probability of being open unemployed relative to non-immigrants, the opposite is the case for immigrants in the older age groups. Common to all four subgroups is the findings that immigrants have a lower probability of participating in employment programmes, and higher probability of participating in training programmes, compared to non-immigrants. This illustrates that the labour market authorities give priority to immigrant groups in the type of programmes which can give them some formal qualifications, specially language courses. Furthermore, first generation immigrant with no command of Norwegian have to attend language courses (a training programme) before they can participate in employment programmes. This may also indicate that immigrants have a special position in the labour market, in the way that they have greater difficulties than other groups in getting a job<sup>40</sup> (with or without wage subsidies) and therefore choose to a greater extent than other groups to qualify themselves.

When it comes to human capital variables, employment and unemployment experience both seem to play a more decisive role than education. Having 12 years of completed education relative to having 10 years of education affects men more than women: it has almost no effect on women and reduces the probability of participating in programmes for men in both age groups. Common to all four subgroups

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40. This view is in accordance with findings of Hardoy (1993) concerning employers preferences when recruiting new employees.



is that those who have parents with higher education have a lower probability of participation than those who have parents with lower education. Further, parents' education does not seem to affect the decision regarding choice of programme. Unemployment experience is important in that it reduces the probability of not participating and increases the probability of participating – in particular in vocational programmes – both for females and males, and for both age groups. Previous participation in labour market programmes seems to matter little. Employment experience, on the other hand, increases the probability of not participating in any programme, irrespective of gender and age group.

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## Impact of programmes on the probability of job, education and unemployment

This chapter presents two types of analyses. In the first part we discuss one aspect of sample design: the sample selection rules chosen by the researcher. We do this by imposing restrictions on the data which determine whether or not an observation is to be included in the sample, and if it is included, whether it is to be included in the participant or the comparison group. We study the impact of programmes on the probability of holding a job two years after entering the unemployment register in 1991. Thus, the response variable is specified as binary variable (job/no job) and we apply a Binary Logit Model. We apply the same model specification to different samples which differ as regards the selection rule adopted and show how different sample selection rules affect the results.

The purpose of the second part of this chapter is to study whether labour market programmes fulfil the desired intention, which is basically to improve the labour market prospects of the youth. We estimate the impact of programmes on the probability of being in different states two years after entering the register in 1991. The states considered are part time employment, full time employment, unemployment, participation in labour market programmes, education, on social security, and an unknown state which is residually determined. The method applied is the Multinomial Logit Model. Parallel analyses are done for four subgroups: women 16–20 years old, men 16–20 years old, women 21–25 years old and men 21–25 years old.

The data cover all young people between the ages of 16 and 25 who entered the unemployment register in the course of 1991, as full time unemployed or labour market participant (see chapter 3 for more details). The data comprises 93,050 individuals.

## 6.1 Alternative sample selection rules

We construct different samples based on various sample selection rules and study the effect of programme on outcomes two years after entering the register in 1991. Let  $t_0$  indicate the point in time an individual enters the unemployment register in 1991. Then  $t_2$ , which is defined as  $t_0 + 730$ , is the time of evaluation, and a date in 1993 (see Chapter 4.1 for more details). Irrespective of the sample selection rule applied, the time of evaluation remains unchanged.

Firstly we apply the following sample selection rule to divide the sample into a participant and a comparison group (same as in the previous chapters). We have that  $t_0$  is the point in time an individual enters the unemployment register. Then  $t_1$  is defined as  $t_0 + 365$ , that is, one year later.<sup>41</sup> For all individuals  $t_0$  is a date in 1991 and  $t_1$  is a date in 1992. Starting a programme within the period  $t_0$  to  $t_1$  qualifies the person for the participant group, while those who do not start a programme within this lapse of time are members of the comparison group. Both members of the comparison and participant group may have participated in a programme after  $t_1$ , but this does not affect their group membership.<sup>42</sup> The participant group is further divided into four categories: those participating in one or several employment programmes (*emplpr*), those participating in youth training programmes (*vocapr*), those participating in one or several of the other training programmes (*trainpr*) and those participating in more than one of the above categories (*combpr*). This sample is referred to as the base sample, or Sample 1.

The participant group of Sample 1 includes both participants who were open unemployed immediately previous to participation and those who entered a programme from other states than unemployment. In Sample 2 and Sample 3 we alter this condition. In Sample 2 we include in the participant group only those with transition from open

41. Notice that here  $t_1$  is defined as  $t_0 + 365$  days, while in Chapter 4  $t_1$  was defined as the time the programme ended, i.e. the participation period ended.

42. This rule differs from that usually applied in evaluations of labour market. Most studies evaluate the effect of the one programme starting at  $t_0$ , while we consider all programmes starting within  $t_0$  and  $t_1$ , be that one or several programmes.

unemployment, while in Sample 3 we consider the remaining individuals of the participant group (i.e. those who enter the unemployment register as programme participants). Of the 37,926 individuals in the participant group in Sample 1, 23,512 were registered as open unemployed before starting a programme while the remaining 14,414 were not. In Sample 4 we condition membership in the participant group on termination of the programme(s) to be evaluated at least a year before the time of evaluation. That is, the participant group in Sample 4 has started and terminated within the lapse of time between  $t_0$  and  $t_1$ . This reduces the participant group with 9000 individuals.<sup>43</sup>

In Sample 5 we introduce a restriction which reduces both the participant and the comparison group compared to Sample 1; we exclude all individuals who participated in a programme starting after  $t_1$ , i.e. during the year previous to the time of evaluation. As expected, this reduces the participant group by much more than the non-participant group (11,163 and 7407 respectively). In Sample 6 the total number of individuals in the sample is the same as in the base sample, but group membership is altered. The comparison group in Sample 6 consists of individuals who registered as unemployed sometime in 1991 and who did not participate in any programme during  $t_0$  to  $t_2$ , while the participant group consists of persons who participated in one or several programmes during the same two years' time span. The programme evaluated is the *last* one starting during  $t_0$  to  $t_2$ . Thus, information on previous participation – for individuals who participated in more than one programme in the two years period- is suppressed in this model. With this specification the comparison group has 7320 individuals less than the base sample, while the participation group increases with the same amount. Lastly, the sample selection rule of Sample 7 is that membership in the sample is conditional on a total duration of unemployment and participation of at least 45 days. Obviously, this

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43. In this respect it can be mentioned that only 462 individuals were still participating in a programme less than 6 months before  $t_2$ . This means that in Sample 1 programmes are for the most evaluated at least 6 months after termination of the programme to be evaluated.

model specification affects the comparison group to a greater extent than the participant group since programme participation is often of longer duration than 45 days. The comparison group is reduced by about 17,000 individuals while the participant group is reduced by 1600, compared to Sample 1.

We use the Binomial Logit Model (described in some detail in chapter 5 for the multinomial case) to estimate the following relationship, referred to as the logarithm of odds-relation

$$(6.1) \quad \ln \frac{P(Y=1)}{1-P(Y=1)} = \gamma + \beta X + \alpha D$$

where  $Y=1$  if the person is in a full-time, part-time job or self employed and  $Y=0$  otherwise.  $D$  is an unordered categorical variable with five levels, where each of the four broad categories of programmes (*emplpr*, *vocapr*, *trainpr*, and *combipr*) are seen in relation to the reference category of non-participants unemployed.  $X$  is a vector of explanatory variables.

Table 6.1 shows the estimated parameters of the Logit Model applied to the seven different samples based on alternative sampling rules. The last column in Table 6.1 shows how the size of the participant and comparison groups vary with changes in the sample selection rule adopted.

As mentioned in the previous chapter the estimated parameters of the Logit Model cannot be interpreted directly as effects on probabilities.<sup>44</sup> However, when the response variable is binary, as is the case here, the estimated parameters indicate the sign of the marginal effect of that

44. The estimated parameter of a given variable expresses the marginal change of that variable on the logarithm of the odds-relation, which in this case is the relative probability of having a full time job to not having a full time job. The odds-ratios are obtained by taking the antilogarithm of the estimated coefficient. For instance, the odds-ratio for a participant in a training programme expresses the relative probability of having a full job to not having a full time job for a participant in a training programme compared to a non-participant.

variable on the probability of employment relative to non-employment. Since the purpose of this section is to get an impression of how estimated parameters are affected by the sample selection rule applied, we refrain from calculating probabilities.

Sample 1 to Sample 7 have the same explanatory variables, specified in the same way. None of the coefficients for the explanatory variables included in vector X (intended to control for individual heterogeneity and labour market related characteristics) are presented in the table below.<sup>45</sup> The reason for this is that we are concerned with the way the sample selection rule adopted influences the estimated effects of programme participation on employment.

The first row in Table 6.1 shows the results for the base sample. It shows that participation in employment programmes and in combination programmes has a positive effect on the probability of employment, whereas vocational programmes and training programmes have no significant effect on employment. Further, it shows that combination programmes have a more positive effect than employment programmes.

The selection rule applied in Sample 2 is inspired by an assumption that is often used when deciding the data base for an evaluation, that is, the condition that all individuals in the sample start unemployment with open unemployment. This is believed to be a way of increasing the homogeneity of the sample: all are alike to start with, then some choose to participate in a programme while others choose other paths. Since a great proportion of participants entered programmes in 1991 directly (*direct participation* = 1), that is without being unemployed first, we have done a separate analysis for this group. The results are presented in the third row.<sup>46</sup> A comparison of Sample 2 and Sample 3 in Table 6.1 shows that, when the subsample of participants is specified as in Sample

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45. Table A, in the appendix to chapter 6, contains estimated parameters for the full version of Sample 1, referred to as Model 1A. The full versions of the remaining models are not included in the appendix, but are available at request from the author.

46. To be accurate, these individuals might have been open unemployed during the month we first capture them since flows are registered at the end of each month, but they were not unemployed at the end of the previous month. That is, they can have been unemployed at the most one month.

2, the effects of programmes are more positive (less negative) than when the subsample is specified as in Sample 3.<sup>47</sup> This may indicate that individuals who start programmes straight away, without registering as unemployed first, have on average a weaker position in the labour market than those who participate in programmes after having been unemployed for some time, i.e. more oriented towards education than work. Descriptive statistics show that those who start a programme straight away (Sample 3) are on average younger but have more education compared to those who are unemployed previous to starting a programme. If effects of programmes on employment are increasing with age and decreasing with education, then it is reasonable that the average effects in Sample 3 are less positive than those of Sample 2.

The motivation for the specification of Sample 4 is that most evaluations allow for some time to go by before the effect of the programme is evaluated, at  $t_2$ . In Sample 4 we have restricted the participant group to include only individuals who completed the programme(s) to be evaluated at least one year before  $t_2$ , which accounts for over four-fifths of the participant group of the base sample. In Sample 1 individuals that started a programme before  $t_1$  might have completed the programme just before the time of evaluation. What type of participants are we leaving out when using this selection rule? If individuals who finish a programme sooner rather than later do so because they have sorted out their labour market situation then the participant group in Sample 4 is bound to be “more successful” compared to that of the base sample. On the other hand, if persons who finish sooner rather than later have a greater propensity to participate in a new programme later, then the participant group of Sample 4 is not necessarily more successful than the one of Sample 1. The results of Sample 4 show less positive effects of programmes compared to the

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47. Notice that this is in accordance with the results of model 1A, in the appendix, where the estimated coefficient for the variable *direct participation=1* indicates that individuals who start a programme immediately after registering as unemployed have on average a lower probability of employment than those who are open unemployed for some time first.

*Table 6.1. Estimated coefficients of programme effects on the probability of employment. Different samples represent various sample selection rules. Logistic regression. Standard error in parenthesis*

	Employpr	Vocpr	Trainpr	Combpr	Samples
<b>Sample 1:</b>	<b>0.136</b>	-0.054	-0.009	<b>0.249</b>	C=55124
<b>Base sample</b>	(0.047)	(0.046)	(0.046)	(0.057)	P=37926
<b>Sample 2:</b>	<b>0.151</b>	-0.0005	-0.012	<b>0.289</b>	C=55124
<b>Not direct participation</b>	(0.067)	(0.064)	(0.066)	(0.077)	P=23512
<b>Sample 3:</b>	<b>0.126</b>	<b>-0.126</b>	-0.022	<b>0.182</b>	C=55124
<b>Direct participation</b>	(0.062)	(0.053)	(0.058)	(0.074)	P=14414
<b>Sample 4:</b>	0.077	<b>-0.105</b>	-0.018	<b>0.177</b>	C=55124
<b>Search time \$ 365 days</b>	(0.058)	(0.056)	(0.055)	(0.070)	P=30072
<b>Sample 5:</b>	<b>0.228</b>	-0.024	0.069	<b>0.360</b>	C=47717
<b>No contamination bias</b>	(0.054)	(0.052)	(0.053)	(0.067)	P=26763
<b>Sample 6:</b>	<b>0.327</b>	<b>-0.122</b>	<b>-0.095</b>	-	C=47804
<b>Last program. evaluated</b>	(0.043)	(0.041)	(0.041)		P=45246
<b>Sample 7:</b>	<b>0.079</b>	<b>-0.103</b>	-0.061	<b>0.188</b>	C=38059
<b>Unemployed \$ 45 days</b>	(0.045)	(0.042)	(0.043)	(0.052)	P=36309

Note: Estimates in bold letters are significant at the 10 percent level. Number of observations in the samples: the participant group (P) and the comparison group (C).

results of Sample 1. There are at least two factors which may affect the observed results. Recall that programme participation starting after  $t_1$  is not taken into account in either Sample 1 or Sample 4. If individuals who finish a programme before  $t_1$  have a greater propensity to participate in programmes during  $t_1$  to  $t_2$ , then the group which is left out in Sample 4 might be relatively more successful than the one included. Furthermore, if the effect of programmes is decreasing over time, then the effect should be less positive a year after termination of the programme than shortly after termination of the programme.

Another potential source of bias, which is overseen in the samples presented so far, is that participation in programmes initiated after  $t_1$  is disregarded. The question is, how can we convincingly argue that the estimated probability of employment is affected by participation initiated more than a year before evaluation (between  $t_0$  and  $t_1$ ), and not



by participation initiated after the first year (between  $t_1$  and  $t_2$ )? This type of bias is referred in the literature as contamination bias.<sup>48</sup> Sample 5 presents a variant of Sample 1 where individuals who participated in a programme which started after  $t_1$  and ended before  $t_2$  are excluded.<sup>49</sup> That is, youth who participated in programmes the first year and continued to participate in programmes starting the second year, are removed from both the participant and the comparison group. This reduces both the participant and the comparison group, but the participant group more than the comparison group. If participation in several consecutive programmes reflects difficulties in the labour market, then Sample 5 should consist of relatively more successful individuals compared to the base sample, and participants more than non-participants. We would therefore expect more positive effects of programmes in Sample 5 compared to Sample 1. The results for Sample 5 confirm this.

An alternative way of avoiding the problem of contamination bias is to apply a selection rule such that unemployed who participated in a programme during the period from  $t_0$  to  $t_2$  – instead of  $t_0$  to  $t_1$  as in all previous models – are included in the participant group. The comparison group consists of unemployed who did not participate in any programme during the period from  $t_0$  to  $t_2$ . We evaluate solely the effect of the last programme. This is done in Sample 6. This selection rule may affect the results in several ways. Firstly, it changes the composition of the comparison group and the participant group compared to Sample 1, since individuals in the comparison group who participated in programmes during the second year (between  $t_1$  and  $t_2$ ) are members of the participant group in Sample 6. Hence, the comparison group of Sample 6 is likely to consist of unemployed who have relatively fewer difficulties in the labour market than the comparison group of Sample 1. Secondly, since we evaluate the last programme, instead of

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48. See, for example, Bassi (1983) for a more in depth discussion of contamination bias. Heckman and Robb (1985) present some alternative methods developed to control for this type of bias.

49. This sample has some resemblance to samples based on controlled experiments, where the participant group is not entitled to participate in any programme during the post-programme period.

programmes starting the first year, the average search time for the participant group is much shorter compared to all previous models. Table 6.1 shows that participants in employment programmes do better, compared to non-participants, in Sample 6 than in Sample 1. Participants in vocational and training programmes, on the contrary, do relatively worse in Sample 6 than in Sample 1. One possible explanation is related to the character of the programme. Employment programmes have a positive effect in the short run, either because participants remain in the firm, or through contacts or references manage to get a job elsewhere. On the other hand, participants in training and vocational programmes need time to search for a job after termination of the programme. Hence, average effects of training and vocational programmes are more negative than average effects of employment programmes when we estimate the effect of the last programme, instead of programmes started the first year, as in Sample 1. Thirdly, the comparison group of Sample 6 is likely to include a relatively larger proportion of individuals who leave the labour force in order to take up formal education compared to Sample 1, reducing the employment probability of the comparison group of Sample 6 compared to Sample 1.

In Sample 7 we restrict Sample 1 by including only persons who have experienced at least 45 days of unemployment (open unemployment plus programme participation) during the first year, that is, from  $t_0$  to  $t_1$ . This affects mostly the comparison group. The individuals who are left out from the comparison group of Sample 7 can be of at least two types: persons who got a job pretty easily and persons who are not strictly members of the labour force (students, conscripts, mothers, etc.). The results from Table 6.1 show that participants in Sample 7 have a weaker performance in the labour market relative to non-participants, than with the sample specification of Sample 1. One plausible explanation is that with this sample selection rule we exclude from the comparison group mainly non-members of the labour force, rather than those who easily find a job.

All in all we can assert that the selection rule adopted to determine membership in the comparison and participant group clearly affects the results. The composition of the comparison and the participants groups are altered and hence the average effects estimated. For instance, the

estimated parameters, intended to capture the effect of employment programmes, vary between an upper limit of 0.33 and a lower limit which is not significantly different from zero at the 10 per cent level. The estimated effects of training programmes vary between an upper limit which is not significantly different from zero at the 10 per cent level and a lower limit of  $-0.13$ . Thus the results illustrate that estimates are sensitive with regards to the sample scheme chosen. However the overall impression is that employment and combination programmes have a positive effect on employment, while training programmes have most likely no effect on employment and vocational programmes may have a negative effect on employment prospects.

## 6.2 Effect on outcomes two years later

In this section we analyse the effects of labour market programmes on the probability of being in different states two years after registering as unemployed in 1991. As mentioned earlier the states considered are part-time employment, full time employment, open unemployment, participation in labour market programmes, education, on social security, and an unknown state which is residually determined. We use the same division of labour market programmes as previously. The state “full-time employment” covers those employed more than 30 hours a week as well as self-employed. The state “part-time employment” covers those employed up to 30 hours a week as well as those who are registered as partly unemployed (by definition they have to be partly employed). The state “education” includes individuals who are solely engaged with education as well as those who have paid jobs in addition to education. Most persons in the category “social security” are single mothers with welfare support. The residual category “unknown state” comprises, among others, persons engaged in unpaid household work (mostly females) and conscripts doing the compulsory military service (only males).

The analyses of this section differ from those presented in section 6.1. In this section we study the effect of programmes on several outcomes, rather than two outcomes (job/no job) as in the previous section. We use the sample selection rule of Sample 1, since it is the

least restrictive of all the sample selection rules specified in the previous section.<sup>50</sup> Further, Sample 1 is subdivided into four subgroups: women 16–20 years old, men 16–20 years old, women 21–25 years old and men 21–25 years old. Parallel analyses are done for these four subgroups, while the model is the same all along.

Effects are measured two years after entering the register in 1991. The lapse of time from termination of the programme(s) to be evaluated to the time of evaluation (*time to search*) gives an indication of whether the effects measured are long- or short-term effects. *Time to search* is on average nearly 18 months for participants in employment, vocational and training programmes, 14 months for participants in combination programmes and 24 months (by definition) for non-participants. Thus, it is the rather long-term effects of programmes which are the focus of the analyses that follow.

The method applied is the Multinomial Logit model, which was described in some detail in Chapter 5. The estimated coefficients indicate the marginal effect of having a given characteristic  $X_r$  relative to not having it on the logarithm of the odds for being in category  $j$  relative to being in category 7, when the other variables in the model are held constant. We have that (indexation of the agent is suppressed)

$$(6.2) \quad \ln\left(\frac{P_j}{P_7}\right) = \alpha_j + \sum_r \beta_{jr} X_r$$

Derivation of (6.2) by  $X_r$  gives

$$(6.3) \quad \frac{\delta \ln(P_j/P_7)}{\delta X_r} = \beta_{jr} \quad \text{for } j = 1, \dots, 6, r = 1, \dots, R$$

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50. Sample 1, also referred to as the base sample, is the sample which the descriptive statistics of Chapter 4 are based on, as well as the sample used in the analyses of Chapter 5.

where  $P_j = P(Y=j)$  is the probability of outcome  $j$  at the time of evaluation. The reference category of the response variable is open unemployed,  $Y=7$ , so that all the other  $j$  states, for  $j=1,..6$  are compared to the open unemployed state. For instance, let  $X_r$  assume the value of zero if female and the value of one if male, then the odds-ratio of full time job for a man relative to a woman is the chance of holding a full time job relative to being open unemployed for a man compared to a woman. Thus, an odds ratio of 2.00 of full time job expresses that men have twice as high probability relative to women of being in a full time job relative to being open unemployed. Now, if women have equal probability of being in both states (for example: 20, 20), it implies that men have twice as high probability of holding a job relative to being unemployed (for example: 40, 20). However if women have half the probability of holding a job relative to being unemployed (for example: 20, 40), then an odds-ratio of 2.00 gives men equal probability in the two states (for example 20, 20). Hence, as the example above shows, the estimated coefficients of the Multinomial Logit express the relationship between relative probabilities. Estimated coefficients do not measure differences in effects on the probabilities. In fact, as mentioned in chapter 5, they do not even necessarily reflect whether the partial effect of an explanatory variable on an outcome probability is positive or negative. The estimated coefficients of the Multinomial Logit are included in the appendix to chapter 6.

Tables 6.2–6.5 show observed and predicted distributions of the outcome variable for the four subgroups: females 16–20 years old, males 16–20 years old, females 21–25 years old and males 21–25 years old. The distributions of the observed outcome states reflect differences in composition of the different groups/categories. Thus, observed differences in outcome state  $k$  between non-participants and participants in programme  $j$  may be due to the effect of programmes, but also due to observed differences in individual characteristics. The lower part of Tables 6.2–6.5 show the estimated probabilities of being in the various outcome states for a reference person with identical characteristics calculated from the results of the Multinomial Logit model. By comparing the estimated probabilities of a non-participant and a programme participant with otherwise exactly the same observed

individual characteristics we get an indication of the effect of the programme.<sup>51</sup>

The Multinomial Logit model includes many explanatory variables (individual characteristics as well as local labour market characteristics) in addition to labour market programme related characteristics. These variables affect the seven outcome states in different ways. For this reason, we concentrate mainly on the effects of labour market programme related characteristics, i.e. four dummies for programme categories and the effect of direct participation and time to search (no interaction terms considered), and refrain from commenting on the effects of most of the individual characteristics and local labour market characteristics. Further, we comment on only estimated coefficients (odds-ratios) which are significant at the 10 percent level. After discussing the effect of programmes in terms of the odds-ratios we present estimated outcome probabilities calculated for a reference person, as well as for persons who depart from the reference person in one single respect (lower part of the tables). The reference person is chosen such that she/he is a “typical” member of the subgroup.<sup>52</sup> We repeat the same procedure for each of the four subgroups.

The results of Table 6.b in the appendix refer to females between 16 and 20 years old. The table shows that a participant in an *employment programme* has a higher probability than a non-participant of holding a full time job ( $Y_3$ ) and of being on social security ( $Y_4$ ), and a lower probability of being on education ( $Y_5$ ), than of being open unemployed two years after registering as unemployed in 1991.<sup>53</sup> Participants in

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51. The estimated probabilities of Tables 6.2 to 6.5 are calculated from Tables 6.b to 6.e, using equations (5.5) and (5.6).

52. The reference person is born the year when most people in that subgroup are born, has the education and earnings that most in the subgroup have, and so on. Local labour market values and time to search values are average values for the subgroup. The reference person differs from an average person in the subgroup in the way that he/she has no unemployment experience while an average person in the sample has experienced a short period of unemployment almost a year before entering the unemployment register in 1991 (which has little effect for the estimated probabilities).

53. The odds-ratios are 1.46, 1.67 and 0.53 respectively, where for example  
(fortsettes...)

*vocational programmes* have a higher probability than non-participants of being on social security ( $Y_4$ ) relative to being open unemployed ( $Y_7$ ) at the time of evaluation  $t_2$ . Participants in *training programmes* have a higher probability than non-participants of participating in a labour market programme ( $Y_1$ ), and a lower probability of being on education ( $Y_5$ ) relative to being open unemployed at  $t_2$ . Participants in *combination programmes* have a higher probability than non-participants of holding a full time job ( $Y_3$ ) and of being on social security ( $Y_4$ ), and a lower probability of being in education ( $Y_5$ ) relative to being open unemployed at  $t_2$ . Furthermore those who enter the unemployment register in 1991 as labour market participants (*direct participation=1*) have a higher probability, compared to those who enter the register as open unemployed, of being in all states relative to being open unemployed. It is interesting to notice that this group has a more than twice as high probability, compared to those who enter the register as open unemployed, of being in education relative to being open unemployed. *Time to search* is intended to capture the time dependence of the programme effect.<sup>54</sup> It appears that it matters little on average how long time individuals have had to search for transitions to most states.

The estimated probabilities in the lower part of Table 6.2 are calculated using equations (5.5) and (5.6). The reference female is Norwegian, and in 1991 was 20 years old and had no children. She entered the register of unemployed in 1991 and did not participate in any programme within the first year after registration. The time of evaluation is 82 weeks after she entered the unemployment register in 1991 (average value for the subgroup). She has not been unemployed in 1989–90 and has hardly any recent employment experience (“productive” earnings less than 5000 NOK in 1990<sup>55</sup>). She has completed 10 years of education of a general type, and her parents have 11 years of completed education at the most. She lives in a county

53. (...fortsatt)

1.46 =  $e^{0.3823}$  (see first column, second line in Table 6.b)

54. The model specification presupposes that the estimated time dependence of transition is common for participants and non-participants, i.e. no interaction terms.

55. “Productive” earnings = earnings minus unemployment benefits minus sick leave allowance.

Table 6.2. Observed shares in the different states and estimated probabilities of being in the various states. The sample comprises females 16–20 years of age in 1991.  $Y_1$  = programme participation;  $Y_2$  = part-time employment and/or part-time unemployment;  $Y_3$  = full time employment and self employment,  $Y_4$  = social security;  $Y_5$  = education;  $Y_6$  = unknown states;  $Y_7$  = open unemployment

Observed shares	$Y_1$	$Y_2$	$Y_3$	$Y_4$	$Y_5$	$Y_6$	$Y_7$
Non-participant:	0.05	0.17	0.31	0.08	0.12	0.16	0.10
Participants:							
Employ. Programme	0.08	0.17	0.40	0.07	0.08	0.11	0.09
Vocation. Programme	0.08	0.15	0.26	0.06	0.16	0.19	0.09
Training Programme	0.11	0.17	0.29	0.06	0.11	0.14	0.11
Combin. Programme	0.12	0.08	0.35	0.05	0.09	0.14	0.09
Estimated probabilities	$P(Y_1=1)$	$P(Y_2=1)$	$P(Y_3=1)$	$P(Y_4=1)$	$P(Y_5=1)$	$P(Y_6=1)$	$P(Y_7=1)$
Non-participant*:	0.09	0.13	0.24	0.06	0.10	0.21	0.17
Participants:							
Employ. Programme	0.10	0.12	0.31	0.08	0.04	0.20	0.14
Vocation. Programme	0.09	0.13	0.23	0.08	0.07	0.26	0.14
Training Programme	0.12	0.13	0.23	0.07	0.06	0.23	0.15
Combin. Programme	0.10	0.13	0.28	0.09	0.04	0.23	0.13
Percentage point change							
Direct participation=1	0	0	0	-1	+4	-1	-3
Search time=40 weeks	+6	-2	-3	-3	0	-2	+4
Unempl. experience	+2	-4	-10	+6	-1	+5	+3
Earnings 1990: medium	-4	+9	+18	-4	-1	-13	-5

\* *Non-participant* (reference category): Female, 20 years old in 1991, Norwegian, no children; time to search: 86 weeks (average value for the subgroup); unemployment experience: 0; earnings 1990: very low; level of education: 10 years; type of education: of a general type; parents education: medium; local labour market variable: average for subgroup. The rows below the dotted line refer to the per cent point difference in estimated probabilities for a person who differs from the reference person as regards the specified characteristic.

where open unemployment in 1993 and the increase since 1990 are slightly above average values for Norway (average values for the subgroup).

The first row in the lower part of Table 6.2 shows the probability of



being in the different states at the time of evaluation for the non-participant reference person described above. She has 37 per cent probability of holding a job (13+24), 10 per cent probability of being on education, 26 per cent probability of being unemployed (9+17) and 27 per cent probability of being on social security (mostly mother support) or in the unknown category. The effect of programmes are changes in the probabilities which result from changing from being in the non-participant category to being in the programme categories. A female with the same characteristics as the reference person who participates in an employment programme instead of being open unemployed, increases her probability of holding a full time job by 22 per cent or 7 percentage points (from 24 to 31 per cent), while her probability of being open unemployed and of being on education decreases by 3 and 6 percentage points respectively. Participating in vocational programmes decreases the probability of being on education and of being open unemployed, relative to a non-participant. But contrary to employment programmes it increases the probability of being in the unknown category. In other words, vocational programmes do not seem to have any of the desired effects for women 16–20 years old. Training programmes do not seem to have any positive effects either. In fact, it has hardly any effect whatsoever, i.e. the probabilities for a non-participant and a participant in training programmes are almost the same. Participating in combination programmes has the same type of effect as employment programmes, i.e. the probability of employment increases while the probability of being open unemployed and on education decreases.

The rows below the dotted line in Table 6.2 show the percentage point changes in probabilities which result from differing in a single characteristic from those of the reference person. Thus, the first row below the dotted line shows the per cent point difference in estimated probabilities for a female who entered the unemployment register as programme participant (*direct participation*=1) compared to a female who first registered as unemployed and later started a programme (*direct*

*participation=0*).<sup>56</sup> From Table 6.2 we can see that starting a programme straight away, compared to starting a programme after being open unemployed, affects primarily the estimated probability of being on education. Females who enter the register as programme participants have about 5 percent point higher probability of being on education, compared to those who enter the register as open unemployed and thereafter start a programme. The second row below the dotted line shows the effect of having 40 weeks to sort out their labour market situation relative to having 82 weeks (average value for the subgroup). Having less time to search reduces employment probabilities (both Y2 and Y3) and increases unemployment probabilities (both Y1 and Y7, and specially Y1 which is the probability of programme participation). Notice that this is an average effect of search duration, ie. it does not capture possible variations among programme categories. The third row below the dotted line shows the effect of having experienced a spell of open unemployment for a period of a 100 days which ended 2 months before registering as unemployed in 1991, during which she did not receive unemployment benefits. A female with such unemployment experience has lower probability of being employed and higher probability of being unemployed, on social security or in the unknown category, compared to the reference female, who has not experienced open unemployment during the last two years but has otherwise the same characteristics. The last row of Table 6.2 shows the effect of having had one job relation during the two years before  $t_1$ , and having earned between 30,000 and 70,000 NOK during that time, relative to not having been employed during the last two years previous to entering the unemployment register in 1991. A young woman with such job experience increases her subsequent employment probabilities by 27 percentage points, while the probability of her being in the unknown category is reduced by 13 percentage points.

Before we go on to discuss the results for young men between 16 and

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56. The estimated probabilities must not be confused with marginal effects of direct participation for the different programme categories, in which case we would get different estimated coefficients for the different programme categories instead of just one coefficient (see Table 6.b in the appendix).

20 years old, we would like to make sure that the relationship between odds-ratio, their significant levels and estimated probabilities are clear. Let us take the third cell of the second row in Table 6.b in the appendix, which gives an odds-ratio of 1.46 for full time job. This means that an average participant in employment programmes has 46 per cent higher chances of being in a full time job relative to being open unemployed, compared to a non-participant. Turn now to the estimated probabilities of Table 6.2. The first row shows that an average non-participant has nearly 50 per cent higher chances of being in a full time job compared to being open unemployed ( $24/17=1.41$ ). The second row shows that an average participant in employment programmes has over double as high probability of being in a full time job compared to being open unemployed ( $31/14=2.21$ ). We have thus that  $2.21/1.41 = 1.57$ . This is close to 1.46, which is the odds-ratio. It is the odds-ratio, i.e. the relationship between these relative probabilities, 2.2 and 1.4, which is significantly different from 1.00 at the 10 per cent level, as Table 6.b shows. That is, the odds-ratio does not reflect whether the relative probability of being in a full time employment for an employment programme participant compared to a non-participant (i.e. 24 per cent in relation to 31 per cent) is significant or not. Furthermore, an odds-ratio might be significant while at the same time the marginal change in the success indicator which results from participating in a programme might be so small that the effect might be uninteresting. Actually, the effect on the success indicator might even be zero or negative, although the odds-ratio is significantly positive.

Table 6.c in the appendix shows equivalent statistics to those of Table 6.b, but for males instead of females. Table 6.c shows no significantly positive effects of programmes for men between 16 and 20 years old, and some negative effects. Men in this age group who participate in any of the labour market programme categories have a lower probability of being engaged in education than of being open unemployed at the time of evaluation, compared to non-participants. Further, participants in *employment programmes* have a lower probability of participating in programmes at  $t_2$ , while participants in training programmes have a lower probability of holding a part-time job,

compared to non-participants. As regards the effect of entering the unemployment register as programme participant rather than as open unemployed (*direct participation=1*), Table 6.c shows that it increases the probability of being full time employed, labour market programme participant, in education and in the unknown category, relative to being open unemployed two years later. Furthermore, the longer the time one has had to search (*time to search*) the greater is the probability of being employed and in the unknown category relative to being open

*Table 6.3. Observed shares in the different states and estimated probabilities of being in the various states. The sample comprises males 16–20 years of age in 1991.  $Y_1$  = programme participation;  $Y_2$  = part-time employment and/or part-time unemployment;  $Y_3$  = full time employment and self employment,  $Y_4$  = social security;  $Y_5$  = education;  $Y_6$  = unknown states;  $Y_7$  = open unemployment*

Observed shares	$Y_1$	$Y_2$	$Y_3$	$Y_4$	$Y_5$	$Y_6$	$Y_7$
Non-participant:	0.06	0.11	0.39	0.01	0.12	0.18	0.13
Participants:							
Employ. Programme	0.07	0.09	0.43	0.01	0.07	0.17	0.16
Vocation. Programme	0.11	0.07	0.28	0	0.14	0.26	0.14
Training Programme	0.10	0.07	0.36	0.01	0.08	0.21	0.17
Combin. Programme	0.12	0.08	0.34	0.01	0.08	0.24	0.13
Estimated probabilities	$P(Y_1=1)$	$P(Y_2=1)$	$P(Y_3=1)$	$P(Y_4=1)$	$P(Y_5=1)$	$P(Y_6=1)$	$P(Y_7=1)$
Non-participant*:	0.11	0.07	0.24	0	0.1	0.23	0.24
Participants:							
Employ. Programme	0.09	0.07	0.28	0.01	0.06	0.23	0.26
Vocation. Programme	0.14	0.06	0.21	0.01	0.07	0.27	0.23
Training Programme	0.12	0.06	0.24	0.01	0.06	0.26	0.25
Combin. Programme	0.12	0.07	0.27	0	0.06	0.26	0.21
Percentage point change							
Direct participation=1	0	-1	4	0	3	-2	-4
Search time=40 weeks	3	-1	-5	0	-1	1	1
Unempl. experience	1	-2	-11	0	-3	11	5
Earnings 1990: medium	-3	4	23	0	-3	-11	-10

\* As in table 6.2 except for the difference in gender.

unemployed.

The first row in the lower part of Table 6.3 shows the estimated probabilities of being in the different states at the time of evaluation for a reference male in this subgroup. The reference male is Norwegian, 20 years old in 1991 and with no children at the time. He entered the register of unemployed in 1991 and did not participate in any programme within the first year after registration. The time of evaluation is 86 weeks after he entered the unemployment register in 1991 (average value for the subgroup). He has not been unemployed in 1989–90 and has hardly any recent employment experience (“productive” earnings less than 5000 NOK in 1990). He has completed 10 years of education of a general type, and neither of his parents have more than 11 years of completed education. He lives in a county where open unemployment in 1993 and the increase since 1990 are slightly above average values for Norway (average values for the subgroup).

The first row shows that a male with these characteristics has 31 per cent probability of being employed ( $Y_2+Y_3$ ), 35 per cent probability of being unemployed ( $Y_1+Y_7$ ), 10 per cent probability of being engaged in education ( $Y_5$ ), nil per cent probability of being on social security ( $Y_4$ ) and 23 per cent probability of being in the unknown category ( $Y_6$ ). The four rows below show the probabilities of being in different outcome states for programme participants with otherwise the same characteristics as non-participants. We observe, for the most, small changes in probabilities. Worth mentioning is that probability of being engaged in education is between 33 and 40 per cent lower for participants relative to non-participants. Further, a comparison between men and women in the same age group shows that women have a higher estimated probability of being in a part-time job and on social security and a lower probability of being open unemployed, relative to men.

The rows below the dotted line in Table 6.3 show percentage point differences which result from single changes in characteristics relative to the reference person. A young man who enters the register of the unemployed as programme participant rather than as open unemployed (*direct participation*=1), has 4 percentage points higher probability of being in a full time job and 3 percentage points higher probability of being engaged in education. A reduction in time to search from 86 to 40

weeks reduces the probability of being in a full time job by 5 percentage points, while the probability of being in a programme increase by 3 percentage points. Unemployment and employment experience have strong and opposite effects. Unemployment experience increases the probability of being in the unknown category and of being unemployed and reduces the probability of being employed. With job experience it is the other way around.

As regards the effects of labour market programmes for females between 21–25 years of age Table 6.d in the appendix shows few significant log odds-ratios, and none for participants in *employment programmes* and in *training programmes*. Females in this age group who participate in *vocational programmes* have a great probability of being on education and of being in the unknown category, relative to being open unemployed, compared to non-participants women with otherwise the same characteristics. Participants in *combination programmes*, relative to non-participants, have a greater probability of full time employment and of being engaged in education than of being open unemployed. Those who enter the unemployment register as programme participants (*direct participation*=1) have a greater probability of being in most of the outcome categories (and specially education) relative to being unemployed, compared to those who enter the unemployment register as open unemployed (*direct participation*=0). Also, the longer the time one has to search the greater is the probability of being engaged in education at the time of evaluation relative to being unemployed. This effect is increasing (*(time to search – average time to search)*<sup>2</sup> is positive).

The lower part of Table 6.4 shows the estimated probabilities of being in the different states, calculated from Table 6.d. A reference person, described in the note to Table 6.4, has 70 per cent employment probability ( $Y_2+Y_3$ ), 12 per cent unemployment probability ( $Y_1+Y_7$ ), 7 per cent probability of being engaged in education ( $Y_5$ ) and 9 per cent

Table 6.4. Observed shares in the different states and estimated probabilities of being in the various states. The sample comprises females 21–25 years of age in 1991.  $Y_1$  = programme participation;  $Y_2$  = part-time employment and/or part-time unemployment;  $Y_3$  = full time employment and self employment,  $Y_4$  = social security;  $Y_5$  = education;  $Y_6$  = unknown states;  $Y_7$  = open unemployment

Observed shares	$y_1$	$y_2$	$y_3$	$y_4$	$y_5$	$y_6$	$y_7$
Non-participant:	0.06	0.19	0.34	0.09	0.09	0.12	0.11
Participants:							
Employ. Programme	0.08	0.19	0.35	0.10	0.07	0.08	0.13
Vocation. Programme	0.09	0.17	0.29	0.09	0.10	0.16	0.09
Training Programme	0.11	0.18	0.28	0.11	0.07	0.13	0.12
Combin. Programme	0.14	0.15	0.34	0.08	0.08	0.12	0.09
Estimated probabilities	$P(Y_1)$	$P(Y_2)$	$P(Y_3)$	$P(Y_4)$	$P(Y_5)$	$P(Y_6)$	$P(Y_7)$
Non-participant*:	0.04	0.22	0.48	0.04	0.07	0.05	0.08
Participants:							
Employ. Programme	0.04	0.20	0.52	0.04	0.07	0.04	0.07
Vocation. Programme	0.04	0.20	0.49	0.04	0.10	0.06	0.06
Training Programme	0.04	0.20	0.49	0.04	0.08	0.06	0.08
Combin. Programme	0.04	0.16	0.59	0.03	0.07	0.05	0.05
Percentage point change							
Direct participation=1	0	0	-1	0	+2	0	0
Search time=40 weeks	+4	+2	-7	+1	-4	-1	+5
Unempl. experience	+2	0	-7	+2	-1	+2	+3
Earnings 1990:							
very low	0	-9	-23	+2	+11	+18	+3

\* Reference person = *non-participant*. Female, 21 years old in 1991, Norwegian, no children. Time to search: 92 weeks (average value for the subgroup). Unemployment experience: 0 Earnings 1990: high. Level of education: 12 years. Type of education: general type. Parents education: medium. Local labour market: average values for the subgroup.

probability of being in states other than those already mentioned ( $Y_4+Y_6$ ). Participating in a programme rather than being open unemployed does not change these probabilities much. Worth mentioning is that participation in vocational programmes increases the probability of education by 33 per cent, from 7 to 10, relative to a non-

participant. Participants in combination programmes have 11 percentage points or nearly 20 per cent greater probability of being in full time employment, compared to non-participants with otherwise the same characteristics.

Persons who enter the unemployment register as programme participants (*direct participation*=1) have a bigger probability of being on education, compared to those who are open unemployed previous to starting a programme (*direct participation*=0). On the other hand, having 40 weeks to search, instead of 92 weeks (*time to search* for the reference person), increases the probability of unemployment (both  $Y_1$  and  $Y_7$  increase) and the probability of part-time employment, while it reduces the probability of full time employment and education. Lastly, as we observed for males and females in the younger age groups, having no job experience affects the outcome probabilities in much the same way as unemployment experience.

There still remains one group to be mentioned: males between the ages of 21 and 25. The estimated coefficients of Table 6.e in the appendix refer to this subgroup. Table 6.e shows how participation affects the odds-ratios. The log odds-ratios for full time employment are positive and significant for the four programme categories, indicating a positive effect of programmes on full time employment. We observe positive effects on education for all programme categories other than employment programmes. Thus we can say that, all in all, labour market programmes seem to be most in accordance with their intentions for males in age group 21–25 years old. Entering the unemployment register as programme participant (*direct participation*=1), compared to entering the register as open unemployed (*direct participation*=0), increases the probability of being on part-time employment and in the unknown category relative to being open unemployed. The longer the time which has gone by since termination of the programme to be evaluated (*time to search*) the greater the probability of full-time employment and education relative to being open unemployed.

The first row of the lower part of Table 6.5 shows the estimated probabilities of being in the different states for a reference person of the subgroup of men between 21 and 25 years old. The reference person is male and in 1991 is 21 years old, he is Norwegian and has no children.



94 weeks have gone by since he entered the unemployment register in 1991 (average value for the subgroup). He has not been unemployed in 1989–90 and has some employment experience (“productive” earnings over 70,000 NOK in 1990 for two job relations). He has completed 12 years of education of a general type, and neither of his parents have more than 11 years of completed education. He lives in a county where open unemployment in 1993 and the increase since 1990 are slightly above average values for Norway (average values for the subgroup). A person with such characteristics has 75 per cent employment probability ( $Y_2+Y_3$ ), 15 per cent unemployment probability ( $Y_1+Y_7$ ), 6 per cent probability of being on education ( $Y_5$ ) and 5 per cent probability of being in other states ( $Y_4+Y_6$ ).

Changes in probabilities which result from participation in programmes relative to non-participation have very much the same pattern irrespective of programme category. Participation in labour market programmes increases his probability of full time employment while his probability of part-time employment decreases. His probability of being on education remains almost unchanged, but since his probability of being open unemployed decreases, the effect of participation on education is positive and significant (see Table 6.e in the appendix). The first row below the dotted line in Table 6.5 shows that there is little difference in the estimated probabilities between persons who entered the unemployment register in 1991 as programme participants (*direct participation*=1) and as open unemployed (*direct participation*=0). On the other hand, reducing the time to search from 94 to 40 weeks does effect the distribution of the probabilities: while the probabilities of full time employment and education decrease, the probabilities of open unemployment, programme participation and part-time employment increase. The changes in probabilities which result from changes in human capital variables are very much the same as for the other three subgroups.

The estimated probabilities of Tables 6.2 to 6.5 are not directly comparable. Standard deviations and thus error bounds for the estimated probabilities vary from one analysis to the other. Furthermore, the reference persons of Table 6.2 and Table 6.3 (between 16 and 20 years

*Table 6.5. Observed shares in the different states and estimated probabilities of being in the various states. The sample comprises males 21–25 years of age in 1991.  $Y_1$  = programme participation;  $Y_2$  = part-time employment and/or part-time unemployment;  $Y_3$  = full time employment and self employment,  $Y_4$  = social security;  $Y_5$  = education;  $Y_6$  = unknown states;  $Y_7$  = open unemployment*

Observed shares	$Y_1$	$Y_2$	$Y_3$	$Y_4$	$Y_5$	$Y_6$	$Y_7$
Non-participant:	0.06	0.10	0.51	0.01	0.09	0.10	0.12
Participants:							
Employ. Programme	0.09	0.09	0.47	0.01	0.06	0.11	0.15
Vocation. Programme	0.14	0.09	0.38	0	0.07	0.20	0.12
Training Programme	0.12	0.09	0.46	0.01	0.06	0.12	0.15
Combin. Programme	0.14	0.09	0.42	0.01	0.06	0.13	0.14
Estimated probabilities	$P(Y_1)$	$P(Y_2)$	$P(Y_3)$	$P(Y_4)$	$P(Y_5)$	$P(Y_6)$	$P(Y_7)$
Non-participant:	0.04	0.13	0.62	0	0.06	0.05	0.09
Participants:							
Employ. Programme	0.03	0.10	0.70	0	0.06	0.03	0.07
Vocation. Programme	0.04	0.10	0.68	0	0.07	0.05	0.06
Training Programme	0.04	0.09	0.69	0	0.07	0.03	0.07
Combin. Programme	0.03	0.08	0.73	0	0.07	0.03	0.05
Percentage point change							
Direct participation=1	0	+1	-1	0	0	+1	-1
Search time=40 weeks	+4	+3	-12	+1	-3	+2	+5
Unempl. experience	+2	-1	-12	+1	0	+4	+5
Earnings 1990: very low	+2	+1	-26	0	+14	+9	+4

Note: As in table 6.4 except for the difference in gender.

old) have different individual characteristics compared to the reference persons of Table 6.4 and Table 6.5. (between 21 and 25 years old). The reason for this is that the reference persons are chosen such that they are representative for their subgroup. Thus, the reference persons of the older age groups have higher education and more employment experience than the reference persons of the younger age groups. Both these characteristics contribute positively to increasing employment and education probabilities. Thus, even if we disregard differences in error

*Table 6.6. Percentage point differences in estimated probabilities of being in the various outcome states for participants relative to non-participants by age groups and gender.  $Y_1$  = programme participation;  $Y_2$  = part-time employment and/or part-time unemployment;  $Y_3$  = full time employment and self employment,  $Y_4$  = social security;  $Y_5$  = education;  $Y_6$  = unknown states;  $Y_7$  = open unemployment*

	P( $Y_1$ )	P( $Y_2$ )	P( $Y_3$ )	P( $Y_4$ )	P( $Y_5$ )	P( $Y_6$ )	P( $Y_7$ )
<i>Employ. Programme:</i>							
Female, 16–20 years old	+1	+1	+7	+2	-6	-1	-3
Male, 16–20 years old	-2	0	+4	+1	-4	0	+2
Female, 21–25 years old	0	-2	+4	0	0	-1	-1
Male, 21–25 years old	-1	-3	+8	0	0	-2	-2
<i>Vocation. Programme:</i>							
Female, 16–20 years old	0	0	-1	+2	-3	+5	-3
Male, 16–20 years old	+3	-1	-3	+1	-3	+4	-1
Female, 21–25 years old	0	-2	+1	0	+3	+1	-2
Male, 21–25 years old	0	-3	+6	0	+1	0	-3
<i>Training Programme:</i>							
Female, 16–20 years old	+3	0	-1	+1	-4	+2	-2
Male, 16–20 years old	+1	-1	-0	+1	-4	+3	+1
Female, 21–25 years old	0	-2	+1	0	+1	+1	0
Male, 21–25 years old	0	-4	+7	0	+1	-2	-2
<i>Combin. Programme:</i>							
Female, 16–20 years old	+1	0	+4	+3	-6	+2	-4
Male, 16–20 years old	+1	0	+3	0	-4	+3	-3
Female, 21–25 years old	0	-6	+11	-1	0	0	-3
Male, 21–25 years old	-1	-5	+11	0	+1	-2	-4

bounds, the level of the estimated probabilities between the younger and the older age groups are not comparable. However, by comparing percentage point changes in probabilities between non-participants and programme participants with otherwise the same characteristics across tables we get an indication of differences in effects of programmes across age groups and gender. Table 6.6 summarizes the main results,

calculated from the estimated probabilities of Tables 6.2 to 6.5.<sup>57</sup>

A comparison of effects of employment programmes across subgroups shows increased probability of full time employment for all subgroups and decreased probability of education for those less than 21 years old. For the most, employment programmes decrease the probability of being unemployed (both open unemployed and programme participation) and of being in the unknown category.

We observe pretty much the same pattern for participants in vocational and training programmes. The two most predominant effects for the younger age groups are increased probability of being in the unknown category and decreased probability of being in education. Participation in these programmes hardly affects the labour market outcomes of women 21–25 years old. As regards men in the older age group, participation in vocational and training programmes mainly increases full time employment probabilities.

Participation in combination programmes increases the probability of full time employment for all four subgroups, and more for those 21 and older than for the younger age groups. Further, for the younger age groups it reduces the probability of being on education, while for the older age groups it reduces the probability of being open unemployed and part-time employed.

In some respects the pattern is very much the same across programme categories. From Table 6.6 we can see that for the most, participation in any one of the programme categories reduces open unemployment probabilities. Programme participation increases the full-time employment probabilities for men over 20 years old, irrespective of which programme one participates in. Further, programme participation reduces the probability of education for youth up to 20, but not for the older age groups.

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57. For example, the first row of Table 6.6 is calculated by taking the difference between a non-participant and an employment programme participant of Table 6.2.

### 6.3 Effects on outcomes: Summary and concluding remarks

The overall intention of labour market programmes is to improve the labour market prospects of the unemployed youth. Thus, being full time employed is a measure of success. Being part-time employed, irrespective of whether or not one is also partly open unemployed, can also be considered an improvement relative to being full-time open unemployed. Being engaged in education is also considered a measure of success, as acquiring formal competence may facilitate working prospects. Hence, increased probability of employment and/or education are considered positive effects of programmes. Transitions to social security and the unknown state are perhaps not so positive, although not necessarily negative. Social security recipients are for the most single mothers who receive financial support, and many males in the younger age group who are in the unknown category two years later are likely to be conscripts doing the compulsory military service (90 per cent of conscripts are between 19 and 21 years old). Thus, it is likely that many youth in these two categories experience a situation which prevents them from actively searching for work. When it comes to programme participation, although this is not a measure of success, it is not necessarily a measure of failure either. Some youth do participate in several programmes after each other, partly or wholly as a consequence of a scheme planned by programme administrators. However, the lack of programmes (specially training programmes) at a particular point in time may delay the planned programme scheme. Further, a two years period is long if the person participates in programmes most of that time, but not if programme participation starts first at the end of the first year. Lastly, being open unemployed is clearly an undesired effect of labour market programmes.

From the results of the application of the Multinomial Logit model we can conclude that participation in labour market programmes seems, for the most, to improve the labour market prospects of young people two years after entering the register in 1991. We observe several positive effects and few not so positive effects or negative effects on outcome probabilities. Employment programmes and combination programmes

have on average positive effects on full-time employment, for the four subgroups considered. Vocational and training programmes have on average positive effects on full-time employment for men 21–25 years old, but not for the other subgroups. On the other hand, programme participation seems to have no positive effect on part-time employment. However, where we observe a negative effect, the increase in full-time employment more than compensates for the reduction in part-time employment. Contrary to the intention of labour market programmes we observe no positive effects on the probability of education, and for the younger age groups programmes seem to reduce the probability of being engaged in education. In addition, participation in vocational, training and combination programmes seem to increase the probability of being in the unknown category for the younger age groups. Programme participation seems also to increase the probability of being on social security for females 16–19, but not for older females or for males. Last, but not least, we do not observe negative effects in terms of increased unemployment probabilities of participants relative to non-participants, and for some subgroups programme participation seems to contribute to reducing unemployment probabilities. This seems to be the case for males 21–25 years old in all programme categories as well as for participants in vocational and combination programmes irrespective of age and gender.

As mentioned above, participation in programme categories other than employment programme seems to increase the probability of being in the unknown category for the younger age groups. Young men aged 16–20 in 1991 are 18–22 in 1993 and in the prime age for doing compulsory military service. This most probably explains why so many males in this age group have a high propensity to be in the unknown category. However, it does not explain why participants in vocational, training and combination programmes are more likely to do military service than non-participants with otherwise the same characteristics. Thus, we cannot disregard the possibility that these participants choose to do military service because of lack of better alternatives. When it comes to young females in the unknown category, it is not so clear what they may be engaged in. Descriptive statistics show that they are more often married, have more often children, have less education and are

more often immigrants from non-western countries, than young females in the other outcome categories. But even when we control for individual characteristics the analysis shows that participants in vocational, training and combination programmes have higher probability of being in the unknown category than non-participants. This clearly indicates average negative effects of these programmes for young females.

It should not be left unmentioned that the estimated effects of programmes may be subject to bias caused by unobserved heterogeneity, since we have only conditioned on observed individuals characteristics and labour market characteristics. No attempt is made to control for selection to programmes in this chapter. Furthermore, we have not included interaction terms even though it is plausible that effects of participation in the different programmes vary with programme related characteristics (duration, sector, etc.) as well as with individual characteristics (duration of previous unemployment, immigration background, place of residence, etc.). Average effects for more detailed subgroups could also give a somewhat different picture of the situation than the one described above.

The effects of individual characteristics on outcome probabilities are as expected. Two of the variables which have a particularly strong effect on subsequent outcomes are unemployment and employment experience. The pattern is the very similar for all four subgroups. Unemployment experience reduces the chances of being employed and increases the chances of being unemployed and in the unknown category. The higher wage income from productive work (i.e. sick leave allowance not included) the greater the chances of employment and the lower the chances of unemployment and of being in the unknown category (in addition, for youth 21–25 years old the higher wage income the lower the probability of being in education).

These results are based on samples of youth drawn from flows into unemployment in 1991. We use register data to measure the long-term effects of programmes (average time since termination of the programme evaluated is close to one year and a half for most programmes). Other evaluations of labour market programmes in Norway have been carried out in the 90's. As follows, we make a short reference to those studies

which shed light as to the impact of programmes for youth in particular and where effects are measured in terms of outcome probabilities:

- Try (1993) evaluated the effect of the vocational programmes in November 1991. His analysis is based on survey data from the stock of participants and non-participant unemployed one year before the time of evaluation, November 1990. All individuals in the sample are less than 25 years of age. The results show positive effects of the programme on employment and on education. Further, effects vary with the duration of the programme (greatest probability of employment when duration in the programme is of about 6 months) as well as other programme specific characteristics, such as sector and degree of off-the-job training.
- Hardoy (1994) evaluated the effect of “wage subsidies”, an employment programme mainly used in the private sector which has youth as one of the target groups. Survey data of the flow of participants in 1989–90 and the stock of unemployed non-participants at three different points in time in 1989–90, were collected for the purpose. Effects were evaluated in November 1991, between six months and nearly two and a half years after completed participation. The results show that programme participants in the youth target group (63 per cent 20–24 years old and 32 per cent 16–19 years old) do not have higher probability of employment than non-participants (of all ages), but a higher probability of success when success is measured in terms of both education and employment.
- Eldring et al. (1996) collected survey data on a stock of participants in vocational programmes in the private sector 20–24 years old (sponsorship schemes), a stock of participants of vocational programmes employed in the public sector 16–24 years old, and a comparison group of non-participants 20–24 years of age per April 1994 (apprenticeship scheme). Effects of programmes were evaluated in May 1995, between 7 and 12 months after completed participation. Their analyses show positive effects on employment, but not on education, of programmes in the private sector for both men and women 20–24 years of age. As regards programmes in the public sector for youth 16–24 years old they observe positive effects



on employment or education for women, but not for men. They find also that the effects vary with duration of the programmes: for participants in the private sector the chances of success are greatest after 6–8 months of participation, while for participants in the public sector the effect of participation is greatest after 3–6 months.

- Moe (1996) studied the employment effect of participation in training programmes for the population at large, using the KIRUT-database (register data). In one of the analyses, where youth aged less than 25 are considered in interaction with programme participation, he shows that this group has a significantly higher employment probability relative to non-employment, compared to non-participants. The sample is drawn from the stock of unemployed and the effect mentioned above is measured two years later.
- Lund et al. (1997) used register data to study the effect of programmes in general six months after completed participation in May 1996. Participants are compared to open unemployed non-participants at the time. They find that participation has a positive effect on employment for the population at large, which varies with programme type. Further, the effect is significantly lower for participants in age group 16–19 than for older participants. In fact, judging from the results presented, the employment effect for youth 16–19 years old does not appear to be significantly different from zero.
- Landfalt et al. (1998) have carried out an equivalent analysis to Lund et al (1997) one year later (with a new sample) and arrive at similar conclusions. They show that programme participation has a significantly positive effect on employment for the population at large. The results also show that participation in labour market programmes does not have a significantly positive effect on employment for youth 16–20 years old, while the employment effect is significantly positive but lower for youth 20–24 years old than for participants 25 years old and older.

There are differences and similarities among the studies mentioned above. While some use register data others use survey data (with varying rates of response). They differ as regards the sample selection rule

adopted: some use stock sampling while other use flow sampling (either flows in or flows out), and others use a combination of both. The timing is also different, both in terms of whether the effects measured are short- or long-term effects and as regards the point in time the effects are evaluated (between 1993 and 1998). Common for all the studies is that effects are measured in terms of outcome probabilities and that all studies use the Logit model (either multinomial or binomial). In all cases the sample design is non-experimental and none of the studies use statistical models especially designed to control for unobserved heterogeneity (selection bias).

The overall conclusion from these evaluations is that labour market programmes have on average a positive effect on the probability of employment and on employment or education for youth 16–25 years old. However, a different picture of the situation emerges when the youth population is subdivided into an older and a younger age group, as we do in this report. The results from this report suggest that it is the older age group among the youth which drives the average effect of programmes on employment and education up. That is, older youth seem to increase their probability of employment and of employment or education by participating in programmes. Whether programmes have a positive effect on the employment or education probability of teenagers is more doubtful.

The results of this analysis as regards teenagers give grounds for concern. That participation in employment and combination programmes has a positive effect on employment and a negative effect on education is not surprising. Participants in these programme categories are likely to be oriented towards work and not education. However, that training and vocational programmes have no apparent effect on employment and a negative effect on education is alarming. It indicates that programmes with a qualifying element do not even motivate or /and do not make it easier for youth to return to the ordinary educational system. Nevertheless, since no attempt is made to control for selection to programmes we cannot exclude the possibility that many in the non-participant group chose not to participate in programmes because their intention was to go back to education. If there is negative selection of participants vocational and training programmes then the effects on

education are underestimated. In other words, participation in vocational and training programmes might have motivated teenagers to go back to education, it is just that we compare them with teenagers who were, on average, more motivated in the first place. It may also be the case that the estimated positive effects of employment and combination programmes on employment are upwards biased, i.e. that they overestimate the actual effects.

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# Impact of programmes on annual earnings

## 7.1 Introduction

This chapter deals with the effects of labour market programmes on subsequent annual earnings. We utilize the same data as in the previous chapter, with the exception that we have removed individuals with no earnings in 1993. Thus, the effects of programmes on earnings in 1993 are estimated only for individuals who achieved positive earnings that year.

As mentioned earlier, the main purpose of labour market programmes for youth is to stimulate and make it easier for unemployed youth to find an adequate job, or an education that improves subsequent job prospects. In this context it may seem irrelevant to study the impact of programmes on earnings. However, annual earnings is an interesting and relevant measure of success for several reasons.

First of all it must be emphasized that, while hourly wages are a measure of the individual's labour market value (capability or productivity) exclusively, annual earnings are a measure of the individual's labour market attachment in general. Annual earnings are a measure of productivity in combination with job stability (duration of employment) and working hours (part time, full time, etc). Thus, annual earnings embrace a broader concept than wages, and captures some of the intentions of labour market programmes. But, if it is job stability which is the relevant measure of the effects of programmes, why not use data on employment duration instead of earnings? Data uncertainty as regards employment spells combined with youth's volatile labour market situation results in a high frequency of inaccurate occurrences for many youth. This is not the case with data on earnings. The Register

of Salaries and Social Security Income is very reliable, and is the basis for the assessment of income tax in Norway.

There are also reasons of another nature. Numerous studies have shown that effects of programmes are measured with error if selection on unobservables (characteristics not observed by the researcher) is not controlled for. Well established methodology can be applied to control for selection bias in studies of the effects of programmes on a continuous outcome variable such as earnings, but not for categorical variables. Furthermore, more empirical research has been done on the impact of programmes on earnings than on other measures of success. Hence, the impact on earnings is interesting for comparative reasons.

Last, but not least, the results of Chapter 6 suggest that labour market programmes seem to have no positive effect on education (recall that education covered both those solely in education as well as those in education in addition to employment). The results also indicate that labour market programmes appear to have a positive effect on the probability of employment, particularly for those over 20. Yet, in the analyses of chapter 6 the bias caused by unobserved heterogeneity is overlooked. Within this context it is pertinent to investigate the effects of programmes on annual earnings as an expression of the labour market attachment – not only on employment probability – particularly when we are able to use well established methodology to control for unobserved heterogeneity and thus get an indication of the direction of eventual selection bias.

In spite of the arguments outlined above for why the analyses of this chapter are interesting and relevant the results must be interpreted with some caution. We know for a fact that many young people have education as their main activity and often work for longer or shorter periods of time during the year. In fact, figures from the Youth Survey 1990 show that as many as 38 per cent of all pupils/students aged 17–24 worked in addition to studying, 11 per cent of which worked more than 10 hours a week (Directorate of Labour 1991). This means that many students/pupils with positive earnings in 1993 are included in the analyses, while youth solely engaged in education are not. Furthermore there are reasons other than education for why young people have no earnings in the course of a year. For instance, they might be doing the

military service, or be at home engaged in childcare, or unemployed.

How does the fact that many students/pupils work affect the estimation of the effects of programmes on earnings? We know that youth who are mainly engaged in education are likely to have lower earnings than those whose main activity is employment. Thus, when success is measured in terms of earnings, students/pupils are likely to have a less positive effect on earnings compared to those who have employment as their main activity. Furthermore, youth who were engaged in education most of the time in the result period are also likely to have had less time to get a foothold in the labour market. Thus, we can say that the greater the tendency for non-participants with positive earnings in 1993 to be engaged in education as their main activity in the period 1991–93 relative to participants, the more positive the estimated effects of programmes on annual earnings are likely to be. However, such effects would be misleading. They would reflect the fact that the time of evaluation non-participants do not participate in programmes because they reenter the ordinary educational system, which is also the reason why we do not observe positive effects on subsequent earnings. In other words, positive selection to education of non-participants would lead to an overvaluation of true effect of programmes on earnings for participants.

Censuring the data to include in the analysis only individuals with positive earnings can also affect the results. How? It depends in the way the composition of the participant and non-participant groups is altered as a result of introducing this condition. Are those with no earnings in the labour force or not and how are they distributed among participants relative to non-participants? Participants with no earnings who are mostly unemployed (registered and unregistered) would, holding everything else unchanged, lead us to believe that programmes has a more positive effect than it actually have. On the other hand, participants with no earnings engaged in full time education, doing the military service or at home engaged in childcare would not alter the results, because they are not in the labour force.

As in the previous chapters, the sample comprises all young people who *entered the unemployment register* in the course of 1991, either as full time unemployed or as participants in an ordinary labour market

programme.<sup>58</sup> The participant group consists of all those who participated in at least one ordinary labour market programme which started within the first year after their first appearance in the register in 1991, irrespective of whether they were also registered as unemployed during this first year (see chapter 4 for more details). The comparison group includes all individuals who have experienced open unemployment, but have not participated in programmes, during the first year since they entered the register in 1991. Individuals in the sample may have been registered as unemployed and/or participated in programmes previous to 1991. They may also have started a programme or a spell of unemployment after the first year since they entered the register in 1991.

Also, as in the previous chapters, the participant group is divided into four categories: those participating in one or several employment programmes, those participating in one or several vocational youth programmes, those participating in one or several training programmes and those participating in more than one of these three programme categories. Employment programmes cover programmes intended to provide with working experience in either the public or private sector. Vocational programmes are specially targeted at young people, and are a combination of on-the-job and off-the-job training. Lastly, training programmes are basically classroom courses (see chapter 2 for more details).

The effects of programmes are measured in terms of annual earnings in 1993. Information on earnings is extracted from the Register of Salaries and Social Security Income (RSS). As mentioned in chapter 3, the register comprises all individuals who have either hold a paid job or have received social security payments. It provides annual information on whether the person is self-employed or employee, as well as earnings, other non-wage incomes, wealth and taxes. To get an estimate of earnings we have subtracted unemployment benefits in 1993 from taxable wage income that same year. Both these figures are very reliable.

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58. Those who entered the register in 1991 as partly unemployed, employed wishing to change jobs, temporarily redundant or participants in programmes for the disabled are not included in the sample (see chapter 3 for more details).

In addition, we have subtracted wage income while in employment programmes, for those who participated in such programmes in 1993. Since such information is not available, we calculated income from employment programmes based on information on the number of weeks of participation and an average income while in employment programmes of 2,000 NOK a week.<sup>59</sup> This is referred to as earnings in 1993.

In the analysis that follows the sample is divided into four subgroups: males and females from 16 to 20 years of age, and males and females between 21 and 25 years old. We carry out separate analyses for these four subgroups. The reason for doing separate analyses for men and women is that previous research indicates that men and women have different earnings profiles. They also have different preferences and thus react and are affected differently by changes in the labour market. Youth up to 20 years of age are considered separately from those over 20 years old, because teenagers are mostly identified with school rather than work. After presenting descriptive statistics and specifying the model and methods to be applied we proceed to analyse the data.

## 7.2 Descriptive statistics

Table 7.1 shows the distribution of individuals in the four subgroups, according to group membership and to whether they had positive earnings in 1993 or not. Of the sample of 93,050 individuals there were 79,656 with positive earnings in 1993. As Table 7.1 shows, the proportion with no earnings in 1993 is bigger for those 20 years of age and younger than for those over 20 years old (per 1991). This general pattern may be an indication that teenagers, most of whom have not completed secondary education when they registered as unemployed, have a greater tendency to take up education again, than those over 20 years of age. Descriptive statistics in chapter 6 (upper part of Tables 6.2

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59. Wage earnings while in employment programmes = number of weeks in the programme multiplied with weekly earnings. Average weekly earnings for participants in employment programmes were approx. 2,750 NOK in 1993. However since the sample includes only youth we have reduced the amount to 2,000 NOK weekly.



–6.5) suggest this. There are also differences among categories and across gender, as shown in Table 7.1. For instance, females 16–20 years old (per 1991) who participate in employment or in combination programmes have a greater proportion with earnings in 1993 relative to females over 20. This is not the case for males. A possible explanation can be that women in their 20's are in their most fertile years, they bear children, and are most often the ones staying at home with the new born child or children. This is not so much the case for women in their teens. In several categories the proportion of teenage girls with earnings is also greater than the proportion of teenage boys with earnings. This might be an indication that, either women who leave school before finishing secondary education return to school to a lesser extent than men do, or that young women more than young men work in addition to going to school (as mentioned in Chapter 2 studies show that women move more often away from home and become independent at an earlier age than men).

As regards group membership we observe that the proportion with no earnings in 1993 is greatest for participants in vocational programmes, followed by participants in training programmes. Nearly all participants in employment programmes had some earnings in 1993. Some previous results can give an impression of why this may be the case. Results from Chapter 5 suggest that the younger one is and the less education one has, the greater is the propensity to participate in vocational programmes, while results from Chapter 6 indicate that the probability of employment is increasing with age. Thus, one would expect the observed results.

One possible reason for having no earnings or very low earnings is that one is engaged in education. The first line in Table 7.2 shows that participants in vocational programmes have a greater proportion in education in 1993, than any of the other categories. Further, that the proportion with no earnings who are engaged in education is greater than the proportion with earnings. Table 7.2 also shows that participants with and without earnings are quite alike as regards gender and age. There are, however, some differences as regards age and gender when

*Table 7.1. Distribution of the comparison and participant group according to whether they had earnings or not in 1993*

	Comparison	Participant			Groups	N
	group	Employ.	Vocational	Training		
<i>Female, age 16–20</i>						
– Earnings in 1993 (%)	82	93	76	81	88	13389
– No earnings in 1993 (%)	18	7	24	19	12	3312
N	6495	539	7298	1043	1326	16701
<i>Male, age 16–20</i>						
– Earnings in 1993(%)	86	91	75	82	84	16546
– No earnings in 1993 (%)	14	9	25	18	16	3634
N	9560	1029	6609	1506	1476	20180
<i>Female, age 21–25</i>						
– Earnings in 1993(%)	86	91	82	81	84	17904
– No earnings in 1993 (%)	14	9	18	19	16	3176
N	14118	1395	1905	2658	1004	21080
<i>Male, age 21–25</i>						
– Earnings in 1993(%)	92	92	81	88	89	31817
– No earnings in 1993 (%)	8	8	19	12	11	3272
N	24951	3384	1609	3733	1412	35089

it comes to the comparison group: Non-participant with earnings seem to be relatively older and to have a relatively greater proportion of males compared to those with no earnings. In addition, male non-participants with no earnings in both age groups are twice as often engaged in education as females.

It is also interesting to get an impression of how many were engaged in education the years previous to 1993, when earnings are measured. Table 4.6 shows that a greater proportion of participants in vocational, training and combination programmes reached higher levels of completed education in the course of 1991–1992, than non-participants and participants in employment programmes. This may indicate that young people who participate in programmes with a considerable amount of off-the-job training are more likely to pursue further education after completion of the programme than those who choose a non-education/non-training path, as is the case for participants in

*Table 7.2. Percentage in education in 1993, by age group and gender according to whether they had earnings in 1993 (Yes) or not (No)*

Earnings	Comparison g.		Employment p.		Vocational p.		Training p.		Combination p.	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
	All	9	18	6	11	12	21	6	13	7
Female 16–20	11	14	9	5	14	23	10	14	9	11
Male 16–20	10	22	7	6	12	22	7	14	7	14
Female 21–25	8	13	7	11	10	13	6	13	7	12
Male 21–25	8	21	6	13	6	12	6	13	6	13

employment programmes at least. Alternatively, it may reflect that participants in vocational and training programmes achieve higher education while in the programmes. However, do not seem to be engaged in education for long. The results of Table 7.2 indicate that non-participants are more often in education in 1993 than participants in all programmes but vocational programmes.

Figures of individual characteristic other than gender and age show that there are relatively more persons with no children and non-immigrant background, with more education and more employment experience and less unemployment experience, in the group with earnings than in the group with no earnings in 1993 (see Table 7.a in the appendix to Chapter 7). The same pattern is observed for the participant groups and the comparison group.

Young people with and without earnings in 1993 differ also in other respects. Two years after entering the Register of Unemployed Persons (RUP) in 1991, about 41 percent of those with no earnings in 1993 were in the unknown state category, compared to 10 per cent of those with earnings. There are small differences across categories. The proportion unemployed – either openly unemployed or participant in labour market programmes – is also much bigger for the those without earnings relative to those with earnings, 29 per cent and 18 per cent respectively. There

are small differences among categories for those with earnings but clear differences when it comes to those with no earnings. The proportion openly unemployed was greatest for participants in employment programmes (26 per cent) and lowest for participants in vocational and combination programmes (15 per cent). When it comes to programme participation, the percentage was greater for participants than non-participants.

Can this information help us to say anything about the direction of the bias of the effects of programmes on earnings when persons with no earnings are disregarded? It is difficult to make inferences from the information provided above. We have information as to whether a person is *registered* as being in education per October 1., but not whether the person was *actually engaged* in education or how much of the year. We have information as to the labour market state individuals were engaged in at *one* point in time in 1993, i.e. two years after entering RUP in 1991. Thus, we know if a person had earnings or not, but not if employment is the only activity the person was engaged in during the course of the year. Given the limitations we can say that there seems to be a tendency whereby non-participants with no earnings, particularly males, are more likely to be outside the labour force and engaged in education than is the case for participants with no earnings. It seems also to be the case among those with earnings that non-participants have a greater propensity to be engaged in education in 1993 than participants in most of the programme categories (all except for participants in vocational programmes). If both these observations are correct then their isolated effect on the estimates of this chapter would be to somehow overestimate the true effects of all programmes, except for vocational programmes. On the other hand, improving the level of education obviously presupposes that one is engaged in education – more so than being registered as being in education. Figures show that participants in all programmes but employment programmes were more often engaged in education previous to 1993 than non-participants. The partial effect of this would be to drive the effect of programmes down, since it may indicate that participants have had less time to sort out their labour market situation than non-participants. Thus, the total effect of excluding individuals with non-earnings is rather

ambiguous.

The sample of 79,655 individuals is divided as follows: 16,546 are males aged 16–20 in 1991, 13,388 are females aged 16–20, 31,817 are males aged 21–25 in 1991 and 17,904 are females aged 21–25. Table 7.3 shows descriptive statistics for youth between 16 and 20 years of age, divided by gender. Table 7.4 shows equivalent statistics for youth between 21 and 25, also divided by gender. The variables included in Table 7.3 and Table 7.4 are those used in the empirical analysis of the effect of programmes on earnings in 1993.

As can be seen from Table 7.3 there are relatively fewer women than men among unemployed youth 16–20 years of age in the comparison group. There are also relatively fewer women than men among participants in employment and training programmes, while there are relatively more women than men among participants in vocational programmes. In all programme categories and the comparison group, women have on average lower earnings than men. Also, there are relatively more women with children than men with children, while there are relatively more immigrant men than immigrant women, among unemployed 16–20 years old.

Women differ from men as regards human capital variables like education, job experience and unemployment experience. Although the age distribution is pretty much the same for men and women, there is a larger proportion of women than of men with 12 years of education. As regards type of education there are clear differences between men and women. Women choose mostly humanities, administration, economics and natural sciences, and health and services, while men are choose more often manufacturing but also the humanities. Furthermore, the majority of youth 16–20 years of age have had low or very low annual earnings in 1990 (of 30,000 NOK or less). However, is a larger proportion of men than women had earnings in 1990 of 70,000 NOK

*Table 7.3. Descriptive statistics of individual characteristics for the four programme categories and the comparison group, in age group 16–20, by gender*

	Comparison g.		Employ. p.		Vocational p.		Training Prog.		Combin. p.	
	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men
N	5330	8190	500	935	5544	4942	848	1233	1166	1246
<i>Earnings 93 (NOK):</i>										
Mean	65652	78689	72874	83377	52020	54329	63733	76508	66820	67346
St. error	51555	64952	52435	60220	45819	53141	52221	66250	48602	57441
Age: 16–17 years (%)	8	6	5	5	23	29	2	3	6	12
18 years old (%)	13	14	13	12	18	25	5	10	13	24
19 years old (%)	32	32	34	33	33	31	33	38	41	36
20 years old (%)	47	48	48	50	26	16	60	49	40	28
Children (%)	7	1	7	1	3	0	7	1	4	0
Immigrant (%)	2	2	1	1	1	2	3	4	2	3
Completed education:										
9 years (%)	28	27	28	25	34	37	22	22	29	27
10 years (%)	30	33	27	31	28	32	24	34	25	39
11 years (%)	17	21	22	26	16	15	26	28	23	22
12 years or more (%)	19	15	21	15	11	4	25	12	18	5
Unknown educ. (%)	4	3	3	2	11	12	3	4	3	6
Type education:										
Humanities (%)	48	39	45	34	48	43	44	30	44	33
Adm., eco., nat.sc. (%)	26	8	31	5	23	6	31	9	35	6
Manufacturing (%)	6	42	8	51	5	33	9	49	5	50
Transp., agricult. (%)	1	4	2	4	1	2	3	6	2	3
Health, Services (%)	17	6	14	5	22	15	12	7	13	8

(continued)

Table 7.3. continued

	Comparison g.		Employ. p.		Vocational p.		Training Prog.		Combin. p.	
	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men
Earnings in 1990:										
Very low (%)	30	27	29	26	50	51	32	31	37	44
Low (%)	38	31	41	35	39	37	45	35	48	36
Middles (%)	24	23	24	27	10	9	19	20	13	13
Higher (%)	8	20	6	12	1	3	5	14	1	6
Particip. experience	11	13	25	31	13	18	17	22	18	28
Unempl. experience	14	21	22	33	9	13	15	25	14	20
Not unemploy. 90 (%)	79	71	72	60	84	78	76	65	77	70
Unemployed with unempl. benefit 90 (%)	3	9	5	10	1	2	3	7	3	4
Unemployed without unempl. benefit 90 (%)	18	20	23	29	15	19	21	27	20	26
Parents education:										
Low (%)	53	52	54	60	56	56	52	58	57	59
Medium (%)	28	29	29	26	28	28	31	27	28	27
High (%)	19	19	17	14	17	16	17	15	15	14
Particip. Duration	0	0	119	103	175	153	101	96	209	189
Partic. Frequency:										
Once (%)	0	0	81	78	77	78	80	78	0	1
Twice (%)	0	0	16	18	21	20	17	18	69	64
Three or more (%)	0	0	2	3	3	2	3	3	30	34
Direct participat. (%)	0	0	41	31	47	45	34	33	47	47

Note: Variables are defined in appendix A

or more. Both men and women had, on average, little unemployment and programme participation experience previous to entering the unemployment register in 1991, and women less than men. About three quarters or more had not been unemployed at all during the two years previous to entering the unemployment register in 1991, the proportion is higher for women than for men. Among those who did experience unemployment there are more who did not receive unemployment benefits, than those who did.

There are also clear differences among the five unemployment categories. Participants in training programmes are the oldest on average and have most education. Participants in employment programmes have more unemployment experience (both open unemployment and participation in labour market programmes) than any of the other categories. Participants in vocational programmes have the highest proportion of women, are by far the youngest, and have the least education, employment and unemployment experience. Non-participants are the ones with the highest average earnings in 1990 and have parents with most education. The participant group which resembles the non-participant group the most, to judge from the observed characteristics, seems to be participants in employment programmes, except for the fact that they have more unemployment experience than non-participants. The participant group that resembles non-participants the least are participants in vocational programmes.

As regards programme related variables (at the end of Table 7.3) we observe that the majority in programme categories, other than the combination programmes category, participated in only one programme which started within the first year from the time they entered the register in 1991. Yet, there is also a considerable amount who participated in more than one programme. We do not observe gender differences as regards spells of programme participation (*frequency of participation*), but women participate on average relatively longer than men. Further, it is interesting to notice that the proportion of participants in employment programmes, vocational programmes and combination programmes who were not unemployed previous to entering a programme in 1991 (*direct participation=1*) is much higher than for participants in training programmes. This is maybe related to the fact



that there is excess demand for “popular” training courses such as in computers, and to be included in the waiting list people are required to be registered as unemployed in the meantime (implies among other things that if a person wishes to participate in a particular course, he/she would be reluctant to take any job while waiting for a vacancy so as not to lose his/her place in the queue).

Table 7.4 shows the same descriptive statistics as Table 7.3, but for youth who were between 21 and 25 years of age at the time of the draw, in 1991. The pattern is very much the same as that of Table 7.3, as regards gender differences. Vocational programmes is the only category with a greater proportion of women than of men. For all five categories we observe also that there is a higher proportion of women with children than of men with children. Women have also higher education than men. The choice of education is also very much the same as that of youth under 21: women engage more often than men in education of a general type, economy, administration, etc., and of the type that qualifies them to work in the health or service sector, and less in manufacturing. Women had lower annual earnings in 1990 than men, and had on average less unemployment and programme participation experience during the two years previous to entering the register in 1991, than men. Further, as regards the programme(s) to be evaluated in terms of their effect on earnings in 1993, women participated on average longer, but in fewer programmes, than men. Also the proportion of women who started a programme without being previously unemployed is larger than for men.

As regards differences between categories, Table 7.4 shows that participants in vocational programmes are younger, have less education, and less employment and unemployment experience than all other categories. Participants in combination programmes have the greatest proportion of immigrants, while participants in training programmes and non-participants are on average older and have more often children than the remaining three categories. As regards human capital variables, non-participants have the highest education and annual earnings in 1990 on average, and the lowest proportion with unemployment experience, than the four participant categories. Parents' education gives an indication of differences in social background among the different categories. It

*Table 7.4. Descriptive statistics of individual characteristics for the four programme categories and the comparison group, in age group 21–25, by gender*

	Comparison g.		Employ. p.		Vocational p.		Training p.		Combin. p.	
	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men
N	12076	22836	1271	3121	1556	1297	2153	3300	848	1263
Earnings 93 (NOK):										
Mean	88636	120771	89819	107546	65538	88078	77156	115620	79750	102694
St. error	64148	81356	63732	71894	54293	69270	60620	81755	57629	73604
Age:										
21 years old (%)	22	25	24	31	46	42	26	25	35	33
22 years old (%)	23	23	24	24	23	24	22	21	23	22
23 years old (%)	20	19	21	18	14	16	19	19	17	16
24 years old (%)	18	17	18	15	10	10	17	17	14	16
25 years old (%)	17	16	13	12	7	8	16	18	10	13
Children (%)	31	8	28	7	22	4	34	8	21	6
Immigrant (%)	2	2	2	2	5	10	4	6	8	10
Completed education:										
9 years (%)	10	11	9	12	10	12	11	11	7	12
10 years (%)	22	21	20	25	23	22	24	25	20	26
11 years (%)	14	14	15	20	15	18	13	18	16	18
12 years (%)	39	42	43	36	38	35	39	36	44	31
13 or more years (%)	12	8	11	5	8	4	8	4	8	3
Unknown educ. (%)	2	3	2	2	5	8	4	5	4	8
Type education:										
Humanities (%)	44	33	39	27	46	35	41	27	39	27
Adm., eco., nat. sc. (%)	28	11	34	9	28	11	30	10	37	12
Industry (%)	7	44	7	51	6	36	8	50	6	44
Transp., agricult. (%)	4	4	4	6	3	4	4	5	5	5

Table 7.4. continued

	Comparison g.		Employ. p.		Vocational p.		Training p.		Combin. p.	
	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men
Health, Services (%)	17	8	15	6	17	14	16	8	13	12
Earnings in 1990:										
Very low (%)	15	16	17	23	32	37	24	22	30	33
Low (%)	23	21	31	26	36	29	27	22	32	26
Medium (%)	26	19	30	23	22	18	22	16	22	18
Higher (%)	36	44	22	27	11	16	26	39	16	22
Particip. experience	13	9	55	33	26	22	26	20	38	32
Unempl. experience	37	43	58	69	34	50	38	52	42	60
Not unemploy. 90 (%)	62	56	47	42	62	52	58	49	55	45
Unemployed with unempl. benefit 90 (%)	23	32	32	43	11	25	21	35	19	32
Unemployed without unempl. benefit 90 (%)	15	12	21	15	27	22	21	15	26	22
Parents' education:										
Low (%)	54	53	57	62	54	55	56	58	62	63
Medium (%)	26	26	26	24	25	25	27	26	24	23
High (%)	20	21	17	14	21	20	17	16	14	14
Particip. Duration 91	0	0	130	120	141	132	135	118	186	152
Partic. Frequency 91:										
Once (%)	0	0	79	76	81	81	74	77	2	8
Twice (%)	0	0	17	20	17	16	21	19	64	56
Three or more (%)	0	0	3	4	2	3	4	4	34	36
Direct participat. (%)	0	0	33	24	37	23	31	26	42	36

Note: definition of variables in appendix A.

appears that although non-participants and participants in vocational programmes resemble the least as regards most personal characteristics they are most alike as regards parents' education, having the highest proportion who have at least one parent with 13 years of education or more.

A comparison of Table 7.3. and 7.4 shows that there are clear differences between the two age groups. As expected, youth over 20 had higher average annual earnings in 1993 and in 1990, and higher education, than youth 16–20 years old. Also as expected, the proportion of women with children is higher for age group 21–25. The older age group has experienced longer unemployment on average and a higher proportion of immigrants than the younger age group. As regards programme related variables, youth over 20 participated in training and combination programmes longer than teenagers, while teenagers participated longer in employment and vocational programmes relative to those over 20. Furthermore, there is a relatively larger proportion of youth 21–25 years of age who were unemployed before they started a programme (*direct participation* = 0), compared to youth under 21 years old. Lastly, while average earnings in 1993 (ie. our response variable as the measure of success of the programmes) are highest for participants in employment programmes for youth up to 20 and females over 20, non-participants males have the highest earnings among males over 20.

### 7.3 The model and estimation methods

In this section we specify a model and discuss estimation methods for the effect of labour market programmes on subsequent earnings. The methods used to control for selection bias are proposed by Dubin and McFadden (1984), and are adapted from Heckman (1978).

Consider a sample of  $N$  individuals, all of which appeared in the unemployment register in 1991 in one of  $m$  possible categories. The  $m$  possible categories are: employment programmes, vocational programmes for the youth, training programmes and open unemployed (reference category). We assume the following linear relationship for individual  $i$

$$(7.1) \quad Y_i = X_i \beta + \sum_{j=1}^m \delta_j \theta_{ij} + \eta_{1i} \quad i = 1, \dots, N \quad j = 1, \dots, m+1,$$

where  $Y_i$  is earnings in 1993 for individual  $i$ ,  $X_i$  is a vector of exogenous variables which are expected to affect income (both observed individual characteristics as well as variables which capture the local labour market situation). Furthermore,  $\theta_{ij}$  assumes the value of 1 if individual  $i$  is in unemployment category  $j$  in 1991, and zero otherwise, for  $j=1,2,3,4$ . Lastly,  $\eta_{1i}$  is a random variable with zero mean and variance  $\sigma$ , and represents unobserved individual characteristics which affect  $Y_i$ .

Not all individuals who enter the unemployment register participate in programmes. There is a selection rule which determines which of the  $m$  unemployment category the individual falls into. By design, individuals are placed in the different categories according to their unemployment experience during the course of a year. Further, the “youth guarantee” implies that youth are given priority into programmes. This means that in the course of a year those who wish to participate in a programme are most likely to get the opportunity. Therefore youth who do not participate in any programme are most likely youth who do want to do so. At the same time it is reasonable to believe that youth have preference as regards which type of programme they want to participate in. That is, they choose between on-the-job and off-the-job programmes, or a combination of them. However, the particular programme they actually participate in is not a free choice for many. In other words, one can have preferences for training programmes, but not for a particular training course which starts a particular date. Thus, we can think of the decision process as an maximization of preferences as regards the programme category, but not the as a unrestricted choice.

The individual decision process can now be formalized. Categories are “aggregate categories” in the sense that there are, within each category, several opportunities the individual can choose from. The set of opportunities is not the same for all. Let  $B_{ij}$  be the set of opportunities within category  $j$  which are feasible for individual  $i$ . Let  $U_{ijr}$  denote the

utility of opportunity  $r$ , within state  $j$ . To the analyst the choice within  $B_{ij}$  is not observable. He/she only observes which category is chosen. Define

$$(7.2) \quad U_{ij} = \max_{r \in B_{ij}} U_{ijr}$$

The function  $U_{ij}$  is analogous to a conditional indirect utility in the sense that it is the highest expected utility the individual can achieve, conditional on category  $j$ . We realize that  $U_{ij}$  depends on preferences as well as the set of opportunities  $B_{ij}$ . The opportunity set is affected by the labour market situation. For example during times with increasing unemployment the opportunity sets tend to be increasing as the supply of programmes increase. Clearly, it follows that category  $j$  is chosen if

$$(7.3) \quad U_{ij} = \max_k U_{ik}$$

We assume that

$$(7.4) \quad U_{ij} = Z_i \gamma_j + \varepsilon_{ij}$$

where  $Z_i$  is a vector of exogenous variables (both observed individual characteristics as well as variables which capture the local labour market situation) and  $\varepsilon_{ij}$  are random variables that are supposed to capture unobserved individual characteristics as well as unobserved attributes which characterize the respective categories. We assume that  $\varepsilon_{ij}$  are independent and extreme value distributed with zero mean and variance  $\tau^2/2$ . From these assumptions it follows that

$$(7.5) \quad P_{ij} = P(U_{ij} = \max_k U_{ik}) = \frac{e^{Z_i \gamma_j}}{\sum_{k=1}^m e^{Z_i \gamma_k}}$$

where  $P_{ij}$  is the probability that individual  $i$  “chooses” to be in category  $j$ .

There are reasons to believe that unobserved characteristics, such as motivation and self-confidence, which affect the utility of category  $j$  in 1991, also affect later performance in the labour market, in this case annual earnings in 1993. If this is the case then  $\eta_{1i}$  is correlated with  $\varepsilon_{i1}, \varepsilon_{i2}, \dots, \varepsilon_{im}$ . To account for this correlation we assume that

$$(7.6) \quad E(\eta_{1i} | \varepsilon_{i1}, \varepsilon_{i2}, \dots, \varepsilon_{im}) = \sqrt{2} \frac{\sigma}{\tau} \sum_{k=1}^m R_k \varepsilon_{ik}, \quad \sum_{k=1}^m R_k = 0,$$

$$(7.7) \quad \text{var}(\eta_{1i} | \varepsilon_{i1}, \varepsilon_{i2}, \dots, \varepsilon_{im}) = \sigma^2 (1 - \sum_{k=1}^m R_k^2)$$

where  $R_k$  is the correlation between  $\eta_{1i}$  and  $\varepsilon_{ik}$ . Note that (7.6) implies that  $E(\eta_{1i}) = 0$ . These type of assumptions were proposed by Dubin and McFadden (1984).

Furthermore it can be shown (see Dubin and McFadden)

$$(7.8) \quad E(\eta_{1i} | U_{ij}, \max_k U_{ik}) = \sigma \frac{\sqrt{2}}{\tau} \sum_{k=1}^m R_k E(\varepsilon_{ik} | U_{ij}, \max_k U_{ik}) \\ + \sigma \frac{\sqrt{6}}{\pi} \sum_{k,j} R_k \left( \frac{P_{ik} \ln P_{ik}}{1 + P_{ik}} \ln P_{ij} \right)$$

In the absence of correlation between  $\eta_{1i}$  and  $\theta_{ij}$  one could estimate (7.1) by ordinary least squares and obtain consistent estimates of  $\delta_j$  for  $j=1, \dots, m$ . If, on the other hand, there is correlation between  $\eta_{1i}$  and  $\theta_{ij}$  OLS will give biased results. However, one can use an alternative method proposed by Dubin and McFadden, which gives consistent estimates:

i) *Conditional Expectation Correction Method*: First estimate the

probabilities in (7.5). Then, apply ordinary least square to equation

$$(7.9) \quad Y_i = \sum_{j=1}^m X_{ij} \beta_j + \sum_{k,j} \theta_{ij} \delta_{k,j} + \lambda_k \left( \frac{\hat{P}_{ik} \ln \hat{P}_{ik}}{1 + \hat{P}_{ik}} \ln \hat{P}_{ij} \right) + \eta_{3i}$$

where the term in parentheses is calculated using the estimated probabilities from (7.5).<sup>60</sup> The random term  $\eta_{3i}$  with zero mean is uncorrelated with the explanatory variables in (7.9) and  $\lambda_k = [\sigma(6)^{1/2}/\pi] R_k$ .

Before we proceed to present the results from the empirical analysis

60. The correction terms of the different programmes  $j=1,2,3$  is calculated relative to the reference category  $j=4$ . We have that

$$Z_{ikj} = \frac{\hat{P}_{ik} \ln \hat{P}_{ik}}{1 + \hat{P}_{ik}} \ln \hat{P}_{ij}$$

If the individual is open unemployed,  $j=4$ , then

$$\sum_{k=1}^m \lambda_k Z_{ik4} = \lambda_1 Z_{i14} + \lambda_2 Z_{i24} + \lambda_3 Z_{i34}$$

While, for instance, if the individual participates in an employment programme,  $j=1$  and since  $\lambda_1 + \dots + \lambda_m = 0$ , then

$$\sum_{k=1}^m \lambda_k Z_{ik1} = (\lambda_1 + \lambda_2 + \lambda_3) Z_{i41} + \lambda_2 Z_{i21} + \lambda_3 Z_{i31} = \lambda_1 Z_{i41} + \lambda_2 (Z_{i21} + Z_{i41}) + \lambda_3 (Z_{i31} + Z_{i41})$$



it should be mentioned that there are other possible sources of bias, other than selection bias, which are disregarded in this chapter. One such bias may arise from what we may call the sample scheme effect. For instance, it has been shown that there are clear differences between estimates based on the stock of unemployed and estimates based on the flow of unemployed (Hardoy 1999). Thus, how the sample is drawn, but also the rules by which individuals are placed into the participant and the non-participant group (see section 6.1 in this report) affect the results and can be a source of bias. The analysis may also be subject to contamination bias because the sample is not restricted to individuals who do not participate in programmes in the result period (ie. the period where the programmes are evaluated): as shown in Table 4.9 over a third of the sample participated in programmes in the result period.

## 7.4 Empirical results

As follows we present the results from the application of the Conditional Expectation Correction (CEC) Method for the four subgroups. The first column refers to women 16–20 years old, the second column refers to men 16–20 years old, the third refers to women 21–25 years old and the fourth column refers to men 21–25 years. The response variable is annual earnings in 1993 and is measured in 1000 NOK.<sup>61</sup> The effect of participation is measured in terms of duration in programme  $\theta_j$  for  $j=1,2,3,4$ . Duration in programme  $j$  is divided into five time intervals: less than 3 months, 3 to 6 months, 6–9 months, 9–12 months and over 1 year (very few observations make standard errors particularly big). The reference category is non-participation, ie. no time spent in programme  $j$ . The same model specification is applied to the four subgroups, i.e. the response and the explanatory variables used are the same. The model specification presented in Table 7.5 is the one that best captures the effect of programmes. The appendix to chapter 7 shows the results from OLS and CEC methods for two alternative model

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61. We have not used a log transformation of earnings, nor a Cox-Box transformation because *annual earnings* is the specification which approximated a normal distribution the most.

specifications: the one includes solely a categorical variable for programmes participation (4 levels) and the other a categorical variable (4 levels) in addition to a continuous variable for the effect of duration in each of the programme categories.

As mentioned in the previous section the CEC method requires that we first estimate the individual probabilities of being in the various unemployment categories in 1991, i.e. employment programmes, vocational programmes, training programmes, combination programmes and open unemployed. We have done separate analyses for each of the subgroups. The explanatory variables included in the Multinomial Logit model in stage one are: civil status (married or not married), immigration background (immigrant from non-western country, immigrant from western country or Norwegian), highest completed education (type and number of years), unemployment experience measured in terms of time since last unemployed from the time unemployment/participation starts in 1991 (*last unemployed*) and in terms of whether or not the person received unemployment benefit while unemployed the two previous years (*unemployment benefits*), labour market programme experience (frequency and number of days), employment experience measured by frequency of jobs the last two years, number of months since last had a job previous to entering the unemployment register and earnings in 1990. In addition we have included the level of unemployment (1991) and labour market programme participation (1991) in per cent of the labour force at the county level.

In the second stage we apply the OLS method to estimate annual earnings and include information from the first stage by including correction terms intended to capture selection to programmes. Negative (positive) selection to programmes occurs when persons who have characteristics which make them less (more) attractive in labour market are selected or choose themselves to participate in programmes rather than be open unemployed. Typical characteristics unobserved by the researcher are motivation, self-esteem, learning abilities, etc.

As can be seen at the end of Table 7.5 there seems to be negative selection to employment programmes for all four subgroups, but the

Table 7.5. Estimated annual earnings in 1993 (in 1000 NOK), by age group and gender. Estimates of the conditional expectation correction method. Coefficients and standard errors (in parentheses). Coefficients significant at the 5 per cent level in bold letters

Variables*	# 20 years old in 1991		# 20 years old in 1991	
	Women	Men	Women	Men
INTERCEPT	<b>43.124</b>	<b>63.139</b>	<b>67.752</b>	<b>82.147</b>
Duration in $\theta_1$ :				
< 3 months				
3-6 months	<b>19.357</b>	<b>12.743</b>	<b>9.540</b>	0.513
6-9 months	<b>24.728</b>	<b>12.688</b>	<b>12.764</b>	0.803
9-12 months	19.082	5.553	<b>13.437</b>	-3.196
> 12 months	10.970	-4.289	6.443	-5.110
Duration in $\theta_2$ :	40.367	-28.565	20.277	-6.328
< 3 months	<b>-5.959</b>	<b>-23.249</b>	<b>-13.874</b>	-3.823
3-6 months	<b>-5.296</b>	<b>-22.594</b>	<b>-13.492</b>	-8.356
6-9 months	<b>-10.164</b>	<b>-26.524</b>	<b>-11.342</b>	-4.336
9-12 months	<b>-9.227</b>	<b>-27.899</b>	-12.489	-5.743
> 12 months	-0.560	-19.895	-2.481	-2.644
Duration in $\theta_3$ :				
< 3 months	<b>15.684</b>	7.573	-4.859	3.915
3-6 months	2.340	3.363	-4.205	<b>-13.947</b>
6-9 months	4.790	-1.860	-7.112	<b>-20.563</b>
9-12 months	-4.228	-5.166	-4.859	<b>-24.456</b>
> 12 months	<b>28.653</b>	-9.644	-4.310	-11.937
Duration in $\theta_4$ :				
< 3 months	9.286	-6.859	13.783	-1.171

(continued)



Table 7.5 continued

Variables*	# 20 years old in 1991		\$ 20 years old in 1991	
	Women	Men	Women	Men
Unemploy. exper. (days)	<b>-0.036</b>	0.013	<b>-0.043</b>	<b>-0.054</b>
Parents highest educ.:				
Medium	-0.338	<b>-2.385</b>	-1.927	-0.305
High	<b>-8.294</b>	<b>-9.478</b>	<b>-6.636</b>	<b>-16.778</b>
Search time	0.032	-0.003	<b>0.093</b>	<b>0.1449</b>
(Search time) <sup>2</sup>	<b>-0.225</b>	-0.0004	<b>-0.001</b>	-0.0002
Unemploy. 1993	<b>-3.814</b>	<b>-2.819</b>	<b>-2.374</b>	<b>-3.989</b>
Change unemp. 90-93	<b>-1.796</b>	<b>-8.991</b>	<b>-2.630</b>	<b>-14.315</b>
Longterm unemp. 1993	<b>0.341</b>	<b>0.178</b>	<b>0.173</b>	<b>0.503</b>
Correction term:				
Empl. Progr. ( $\lambda_1$ )	-2.811	-2.761	-1.546	-1.450
Vocat. Progr. ( $\lambda_2$ )	<b>4.817</b>	<b>7.690</b>	1.119	-2.001
Train. progr. ( $\lambda_3$ )	-1.537	-2.239	1.482	<b>4.146</b>
Comb. progr. ( $\lambda_4$ )	-3.633	0.682	0.038	4.030
Adj R-sq	0.1369	0.1462	0.131	0.1302
N	13382	16534	17887	31776

correction term ( $\lambda_1$ ) in all four columns is not significantly different from zero at the 5 per cent level, indicating no selection to employment programmes. Further, there is positive selection to vocational programmes ( $\lambda_2$ ) for men and women 16–20 years old, but not for those 21–25 years old. As regards training programmes the results show positive and significant selection for males 21–25 years old, and no significant selection to programmes for the three remaining subgroups. Males 21–25 with better labour market prospects relative to unemployed non-participants appear to be selected to combination programmes, indicating positive selection for this subgroup. The results show there is no significant selection to combination programmes for any of the other subgroups.

The *intercept* of in all four columns refers to a person who in 1991 had the following characteristics: non-participant Norwegian, no children, 9 years of education, had earnings of 5,000 NOK at the most in 1990, parents with 11 years of education at the most and lived in a county where the local unemployment had the same level and trend as unemployment in Norway. Varying from column to column are gender, age and *time to search*.<sup>62</sup> *Time to search* is on average 57 weeks for females 16–20 years old, 62 weeks for males 16–20 years old, 72 weeks for females 21–25 years old and 74 weeks for males 21–25 years old. As can be seen from the *intercepts* in Table 7.5, females have on average lower earnings than males, and those in the younger age group have lower earnings on average than those in the older age group. However, it should be kept in mind that some of the differences in estimated earnings are due to differences in average time to search among subgroups (earnings are positively correlated with time to search for youth aged 21–25). Moreover, average annual earnings (before income tax) are rather low for persons with the characteristics described above, indicating that employment is not the main activity for most of young

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62. For non-participants *time to search* covers the time from the person enters the register of the unemployed in 1991 until 01.01.93. For participants *time to search* starts when the person exits from the programme and lasts until 01.01.93. This variable is intended to capture time available to sort out the labour market situation before the effect of programmes is measured.

people with very low education and little or no employment experience.

As regards the effect of labour market programmes the pattern is quite similar across subgroups, with the exception of males 21–25 years old. Participation in *employment programmes* for a relatively short period of time has a positive effect for females in both age groups and for males 16–20 years old, but not those of long duration. Employment programmes have no significant effect for males 21–25 years old. *Vocational programmes* do not seem to have a positive effect for any of the subgroups. In fact, it have a significant negative effect for all subgroups other than males 21–25 years old. Further the effect seems to be most negative for men 16–21 years old: estimated earnings are between 20,000 and 28,000 NOK less – depending on the duration of the programme – relative to non-participants with otherwise the same characteristics. *Training programmes* have varying effects across subgroups. For females 16–21 years old training programmes of very short duration (less than 3 months) and programmes of long duration (either one programme lasting one year or two programmes lasting over a year in all) have a positive effect, but not training programmes of between 3 months' and one years' duration. Training programmes have no effect on males 16–21 and females 21–25. Finally, training programmes of between 3 months and one year have a negative effect on earnings for males 21–25 years old. As regards *combination programmes* they have a positive effect for the younger females, which is much the same irrespective of length, and no significant effect for any of the other subgroups.

The effect of *individual characteristics* on earnings is pretty stable across subgroups. Earnings increase with age (the pattern for men 16–20 years old is rather puzzling). Estimated earnings are lower for immigrants from non-western countries relative to Norwegians and immigrants from USA, Canada or western Europe, but only significantly lower for the older age groups. Further, having children has a negative effect on the earnings of women and a positive effect on the earnings of men, and the effect is stronger for the older subgroups.

We now turn to the effect of *human capital characteristics*. Education also affects annual earnings, and differently for men than for

women. For females in both age groups, the higher the level of education the higher the earnings. This is not the case for males: earnings increase with the educational level, except for those with the highest educational levels in two age groups. The drop in estimated earnings we observe for men 16–20 years old with 12 years of education or more, and for men 21–25 years old with 13 years of education or more may indicate that these two groups have a higher propensity to be in education in 1993, i.e. being a wage earner is not their main activity. This may also be the reason why young people who have at least one parent with higher education have lower estimated earnings, compared to youth with parents who have at the most 11 years of education. Earnings in 1990 have clearly a positive and strong effect on earnings in 1993, which is increasing with the level of previous earnings. Further, the effect is stronger for males than for females. Unemployment experience has a negative effect on earnings, such that the longer the unemployment experience the lower are earnings in 1993.

Having time to sort out the labour market situation seems to matter for the older subgroups, expressed by the positive coefficient of *time to search*. However, it has no significant effect for those less than 21 years old.

Unemployment in the home county seems also to have an effect on annual earnings: the higher the unemployment in the home county relative to average unemployment in Norway in 1993, the lower the annual earnings in 1993. Also the greater the increase in local unemployment from 1990 to 1993 relative to the average increase in Norway, the lower are earnings in 1993. On the other hand, the bigger the proportion of long-term unemployed (6 months) in the home county in 1993, the higher are annual earnings in 1993.

## 7.5 Summary and conclusions

Measuring the effects of programmes in terms of subsequent earnings give some positive results. Effects on annual earnings in 1993 vary with duration in different programme categories, with gender and with age group. Employment programmes of short to middle duration have a positive effect on earnings for youth 16–20 years old and for females



over 20, but not for males over 20. Vocational programmes, irrespective of duration, have a negative effect on the earnings of the younger age group. Vocational programmes lasting up to 9 months have also a negative effect on earnings for females over 20, while they have no significant effect for males over 20. Training programmes of short duration have a positive effect on earnings for females aged 16–20, while training programmes of middle to long duration have a negative effect for males over 20. Training programmes seem to have no effect for younger males, nor for females over 20. Lastly, combination programmes appear to have a positive effect on earnings only for younger females.

Otherwise, the analysis suggests the presence of selection mechanisms which if not controlled for would bias the effects of programmes on earnings. Furthermore, it is interesting to notice that the selection process varies with gender and age group. This illustrates the advantage of estimating programme effects for men and women by age group separately. There is no significant selection to either employment or combination programmes for any of the subgroups. There is positive and significant selection to vocational programmes for youth aged 16–20, and also positive selection to training programmes for men 21–25 years old. As previously mentioned, positive selection to programmes occurs when persons who have characteristics which make them more attractive in labour market (are motivated, have high self-esteem) are systematically selected or choose themselves to participate in programmes rather than be open unemployed.

The estimated effects of programmes on earnings must be understood in terms of the individual objective behind participating in the different type of programmes. This is particularly so for participants in vocational programmes who, as documented earlier, spent more time qualifying themselves in the period 1991–93. More time spent in education would as a rule imply less time to get a foothold in the labour market (i.e. more likely to have or have had short-time jobs, part-time jobs or straw jobs to help finance their studies). The estimated effect on earnings for participants in vocational programmes in particular is likely to be a reflection of this. It will be that if programmes had been evaluated at a later period, for instance in 1994 or 1995, the effects would have been

more positive.

As regards individual characteristics, we can conclude that having children has a negative effect on women's earnings, and a positive effect on the earnings of men over 20. Earnings is increasing with age. Having immigrant background has a negative effect on the earnings of men over 20 and of women in both age groups, and no effect for males under 21. Human capital variables behave as expected: earnings are increasing with education and employment experience and decreasing with unemployment experience.

To my knowledge there are only two other studies on the effect of programmes on earnings based on Norwegian data. Raaum and Torp (1997) study the effect of training programmes starting in 1991 on earnings 2 or 3 years later. Their data covers all age groups, and there is no separate analysis of youth. The study done by Schøne (1997) is based on a more restricted sample of Norwegians between 25 and 65 years of age, and the effect of participation in training and employment programmes starting in 1991 is evaluated in terms of their effect on earnings in 1993. The econometric framework used is the same in these two studies, and different from the one used in this chapter.

For comparative purposes I give a short reference to the conclusions of these two studies. Raaum and Torp study the effect of vocational training and non-vocational training separately using both register and survey information. They find a positive effect of vocational training on earnings, when no attempt is made to control for selection bias. At the same time they find positive selection to vocational training indicating that the positive effects might be overestimated when selection bias is not controlled for. They find a negative effect of non-vocational training on earnings. They indicate that, since non-vocational training qualifies participants for further education, the negative effect must be understood in terms of a fraction reentering the ordinary educational system after participation. Further, the average effect of training on earnings is lower than the effect of vocational programmes, reflecting the negative effect on earnings of non-vocational training courses. The average effect of training is lower for females than for males, and also lower for youth under 25 than for adults.

Schøne (1997) also finds a positive effect of training programmes

on earnings. However, no attempt is made to control for selection bias in this study. Further he finds a negative effect on earnings of employment programmes, and points out that this negative effect must be understood within the context that one of the main target groups of employment programmes are people with a specially weak position in the labour market, such as long-term unemployed. However, this is not tested empirically, i.e. no attempt is made to differentiate effects (using for example interaction terms) according unemployment duration previous to participation.

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## Summary and conclusions

Young people wait longer to take adult related decisions such as moving away from their parents home, getting married and bearing children, in the mid 90's than in the 80's. The difficult labour market situation in the 90's, the greater proportion of youth taking further education, and increased costs of student loans and housing rents are some of the factors affecting the observed pattern in the 90's.

Some youth have more difficulties than others in obtaining a foothold in the labour market or in the educational system. Marks at school are of crucial importance for whether teenagers get into the education they wish or not (Edvardsen, 1994), and the longer a person stays outside the educational system the less are the chances of reentering (Vibe et al., 1994). At the same time education is of crucial importance for labour market prospects. An analysis of the employment prospects of youth leaving the educational system in 1990–1991 (Brinch, 1995) shows that those less than 20 years old and those who did not complete two years of upper secondary education have little chances of employment. On the other hand, those with long education seem to have no problems in the labour market. Being an immigrant reduces the probability of employment considerably. Further, having children reduces employment probabilities for women, but being married increases employment probabilities for both men and women.

Compulsory military service can be regarded as a temporary solution for young men who are affected by the difficult labour market situation (90 per cent of conscripts are 19–21 years old). A survey study by Grøgaard (1998) shows that 24 per cent had been registered as unemployed for at least three months during the period between 8–14 months after being demobilized, compared to 17 per cent before the

draft. Moreover, 1.5 per cent of the conscripts were long-term unemployed (unemployed for over 6 months) 8 to 14 months after being demobbed.

Youth outside the labour force who are not in education, or who are in education but are not eligible for student financial support, as well as unemployed youth (registered and not registered) who are not entitled to unemployment benefits, have often difficulties in acquiring the economic means to satisfy their basic needs.<sup>63</sup> *Economic support* to youth from the National Social Security System, other than unemployment benefits, is mostly in the form of single parent support and sick leave allowance while on rehabilitation. *Economic assistance* is the last resort for those who have no alternative source of income and are not entitled to economic support, or cannot live on what they get on social security alone. Lone parents who have difficulties in living on "single parent support" and unemployed youth who are not entitled to unemployment benefits, are among the groups who are most prone to be in need of economic assistance. To judge from figures for 1993 on the proportion of youth who were recipients of economic support and economic assistance, a considerable number of youth at some point or another during the year had difficulties in making ends meet without public support.

Unemployment tripled in the period 1987–93, when it reached a peak of 6.1 per cent of the labour force. Norway followed an active line to fight unemployment. A considerable amount of resources were used in labour market programmes in the first half of the 90's. Young people were one of the main target groups of the active labour market policy. The overall intention of labour market programmes for youth has been to increase the participants' chances of finding an adequate job or an education that would eventually improve their job prospects. The purpose of this study is to evaluate the effects of labour market programmes that youth participated in the early 90's on subsequent labour market prospects.

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63. Eligibility to unemployment benefits is based on previous earnings. To be eligible to student support requires that one is accepted at an educational institution and that one follows normal educational progression.

To this purpose we have collected non-experimental register data on all young people between the ages of 16 and 25 who entered the Register of Unemployed Persons in the course of 1991, as full time unemployed or as participants in labour market programmes.<sup>64</sup> For the nearly 93,000 unemployed we have panel data on personal characteristics, geographical mobility, education, social insurance, as well as information as regards employment, unemployment and participation in labour market programmes for the five-year period, from 1.1.89 until 31.12.93. Several registers were merged to provide this information.

Deciding which rule to use to determine how to place individuals in a non-participant and a participant group is not unproblematic. Teenagers are covered by the so called “youth guarantee”, which is intended to secure youth who cannot get a job or a place in the ordinary educational system, the possibility of participating in a labour market programme. This may give rise to two sources of bias: 1) selection bias if participants differ from non-participants in a systematic way and, 2) contamination bias because as long as they are not provided an alternative they are guaranteed a place in a programme sooner or later which means they can participate on and on again. The longer we allow the period during which an individual can start a programme as a criterion to divide the sample into participants and non-participants the greater the chances that the participant groups differ from the comparison group in a systematic way. On the other hand, the shorter the period chosen the greater the chances of contamination bias, ie. than non-participant participate in programmes and that participants participate in other programmes than the one evaluated. Since these two sources of bias are very difficult to control for successfully we have chosen a compromise between these two “evils”: we chose a one year period during which individuals could enter a programme.

The sample selection rule applied to determine whether an individual is placed into the participant or the non-participant group is the

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64. Those who entered the register in 1991 as partly unemployed, employed wishing to change jobs, temporarily redundant or participants in programmes for the disabled are not included in the sample (see chapter 3 for more details).

following. The participant group consists of all those who participated in at least one ordinary labour market programme which started within the first year after their first appearance in the register in 1991, irrespective of whether they were also registered as openly unemployed during this first year. The comparison group includes all individuals that have experienced open unemployment, but have not participated in programmes, during the first year since they entered the register in 1991. Individuals in the sample may have been registered as unemployed and/or participated in programmes previous to 1991. They may also have started a programme or a spell of unemployment after the first year since they entered the register in 1991. Programmes are divided into four categories: 1) employment programmes (on-the-job training in the public and private sector); 2) vocational programmes for youth (a combination of classroom courses and working practice); 3) training programmes (off-the-job classroom courses) and; 4) various combinations of these three categories of programmes, and other programmes not covered by the three other categories.

Descriptive statistics for the sample of 93,000 youths shows that there are both differences and similarities among groups. All in all one can say that the comparison group resembles participants in employment and training programmes, more than participants in the two other categories. Further, there is one group which differs from the others in most ways: participants in vocational programmes are younger and at least partly because of that, have less education, less employment experience and unemployment experience, and lower annual earnings throughout the period under consideration. The level of parents' educational is however not lower for participants in vocational programmes than for the other groups. Participants in vocational programmes have also the greatest proportion of females. Participants in training programmes have the greatest proportion of immigrants, while participants in employment programmes have the greatest proportion with employment experience.

Many individuals in the sample participated in labour market programmes several times in the course of the five years the data covers. As expected non-participants participated in programmes less in the period previous to 1991 than the participant groups (the background

period) and during the result period. In the period 1989–90 the comparison group had the lowest participation with 11 per cent while participants in employment programmes has the highest proportion with 30 percent. Many participated in programmes in the result period as well: 38 per cent of participants in combination programmes, 32 per cent of participants in training programmes, 31 per cent of participants in vocational programmes and 28 per cent of participants in employment programmes participated in programmes at least once in the result period. Only 16 per cent of members in the comparison group participated in programmes in the result period. Else, it can be mentioned that 14 per cent of all programme participants participated at least twice in the programme period. Average duration of participation in the programme period varies among groups: from about 4 months for participants in employment and training programmes to about 6 months for participants in combination programmes.

Programme effects are evaluated in 1993. Effects are measured by comparing outcomes for participants to those of registered unemployed non-participants. Thus, we estimate the average effects of participation for participants. We do separate analyses for four subgroups: females 16–20 years old, males 16–20 years old, females 21–25 years old and males 21–25 years old. The reason being that both the propensity to participate and subsequent labour market outcomes vary with gender and age group.

Firstly we study the enrolment rule. That is, how individual characteristics and local labour market characteristics affect the propensity to participate in the various programmes. The analyses show that young people between 16–20 years old have a greater probability to participate in programmes, rather than being openly unemployed, compared to people 21–25 years old. This is to be expected since they are covered by the “youth guarantee”. Of all programme categories, vocational programmes are the most “popular” for the younger age group, while training programmes are just as “popular” as vocational programmes for those over 20. The probability of programme participation is lower for females with children than for those with no children. This is also the case for men under 21, but not for men 21–25 years old. As regards immigrants (refers to immigrants from non-



western countries) we observe very much the same pattern across gender, but not across age groups. While immigrants in the younger age groups have a higher probability of being openly unemployed relative to non-immigrants, the opposite is the case for immigrants in the older age groups. Common to all four subgroups are the findings that immigrants have a lower probability of participating in employment programmes, and higher probability of participating in training programmes, compared to non-immigrants. This illustrates that the labour market authorities give priority to immigrant groups in the type of programmes which can give them some formal qualifications, especially language courses. Furthermore, foreigners with little command of the Norwegian language have to attend language courses (a training programme) before they can participate in employment programmes. This may also reflect that immigrants have a special position in the labour market, in the way that they have greater difficulties than other groups in getting a job (with or without wage subsidies) and therefore choose to a greater extent than other groups to qualify themselves.<sup>65</sup>

When it comes to human capital variables, employment and unemployment experience seem to play a more decisive role than education. Having 12 years of completed education relative to having 10 years of education affects men more than women: it has almost no effect on women while it reduces the probability of participating in programmes for men in both age groups. Common to all four subgroups is the finding that those who have parents with higher education have a lower probability of participation than those who have parents with lower education. Further, parents education does not seem to affect the decision of programme type. Unemployment experience is important in that it reduces the probability of not participating and increases the probability of participating – in vocational programmes in particular – both for females and males, and for both age groups. Previous participation in labour market programmes seems to matter little. Employment experience, on the other hand, increases the probability of

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65. This view is in accordance with findings of Hardoy (1993) concerning employers preferences when recruiting new employees.

not participating in any programme, irrespective of gender and age group.

The overall intention of labour market programmes is to improve the labour market prospects of the unemployed youth. Thus, being full time employed is considered a measure of success. Being part-time employed, irrespective of whether or not one is also partly openly unemployed, can also be regarded as an improvement relative to being full-time openly unemployed. Being engaged in education is also considered a measure of success, as acquiring formal competence may facilitate working prospects. Hence, increased probability of employment and/or education are considered positive effects of programmes. Transitions to social security and the unknown state are perhaps not so positive, although not necessarily negative. Social security recipients are for the most single mothers who receive financial support, and many males in the younger age group who are in the unknown category are likely to be conscripts doing the compulsory military service. Thus, it is likely that many youth in these two categories experience a situation which hinders them from actively searching for work. When it comes to programme participation although this is not a measure of success, it is not necessarily a measure of failure either. Some youth do participate in several programmes after each other, partly or wholly as a consequence of a scheme planned by programme administrators. Also, the availability of programmes (specially training programmes) at any one time may delay the planned programme scheme. Further, a two years period is long if the person participates in programmes most of that time, but not if programme participation starts first in the end of the first year. Lastly, being openly unemployed is clearly an undesirable effect of labour market programmes.

From the analysis of the effects of labour market programmes on outcome probabilities we can conclude that participation in labour market programmes seems, for the most, to improve the labour market prospects of the youth two years after entering the register in 1991. We observe several positive effects and few not so positive effects or negative effects on outcome probabilities. Employment programmes and combination programmes have on average positive effects on full-time

employment, for the four subgroups considered. Vocational and training programmes have on average positive effects on full-time employment for men 21–25 years old, but not for the other three subgroups. On the other hand, programme participation seems to have no positive effect on part-time employment. However, where we observe a negative effect, the increase in full-time employment more than compensates for the reduction in part-time employment. Contrary to the intention of labour market programmes we observe no positive effects on education, and for the younger age groups effects on education are for the most negative. In addition, participation in vocational, training and combination programmes seems to increase the probability of being in the unknown category for the younger age groups. Programme participation seems also to increase the probability of being on social security for females 16–19, but not for older females or for males. Last, but not least, we do not observe negative effects in terms of increased unemployment probabilities of participants relative to non-participants, and for some subgroups programme participation seems to contribute to reduce unemployment probabilities. This seems to be the case for males 21–25 years old in all programme categories as well as for participants in vocational and combination programmes irrespective of age and gender.

The estimated effects of individual characteristics on outcome probabilities are as expected. Two of the variables which have a particularly strong effect on subsequent outcomes are unemployment and employment experience. The pattern is very similar for all four subgroups. Unemployment experience reduces the chances of being employed and increases the chances of being unemployed and in the unknown category. The higher wage income from productive work (i.e. sick leave allowance not included) the greater the chances of employment and the lower the chances of unemployment and of being in the unknown category (in addition, for youth 21–25 years old it also reduces the probability of being in education).

The overall conclusion from other evaluations of the effects of labour market programmes in Norway in the 90's on outcome probabilities is that labour market programmes have on average a positive effect on the probability of employment and on employment

or education for youth 16–25 years old. However, a different picture of the situation emerges when the youth population is subdivided into an older and a younger age group, as we do in this report. The results from this report suggest that it is the older age group among the youth who drives the average effect of programmes up. That is, older youth seem to increase their probability of employment and of employment or education by participating in programmes. Programmes do not seem to have a positive effect on the employment or education probability of teenagers after a two years period.

Measuring the effects of programmes for those with positive earnings in terms of subsequent annual earnings give few positive results. Effects on annual earnings in 1993 vary with duration in different programme categories, with gender and with age group. Employment programmes of short to medium duration have a positive effect on earnings for youth 16–20 years old and for females over 20, but not for males over 20. Vocational programmes, irrespective of duration, have a negative effect on the earnings of the younger age group. Vocational programmes lasting up to 9 months have also a negative effect on earnings for females over 20, while they have no significant effect for males over 20. Training programmes of short duration have a positive effect on earnings for females less than 21, while training programmes of middle to long duration have a negative effect for males over 20. Training programmes seem to have no effect for younger males, nor for females over 20. Lastly, combination programmes appear to have a positive effect on earnings only for younger females.

However, the results must be interpreted with some care. Effects are estimated within two years after entering the unemployment register in 1991. Two years might not be long enough time to capture the full scope of the effects of programmes, particularly as regard vocational programmes. Yet, prolonging the period of evaluation is not unproblematic. Young people, and especially young people who have difficulties in sorting out their labour market situation, tend to go in and out of unemployment, in and out of education, and in and out of employment. Thus, the longer the elapsed time, from the time the programmes ended to the time it is evaluated, the more difficult it becomes to disentangle (single out) the effect the particular programme

being evaluated from other activities – and other programmes – the person participated thereafter.

The analyses of both chapter 6 and chapter 7 suggest that time to search (the time that has elapsed from the time since the programme ended to the time the programme is evaluated) does not affect the measure of success for youth less than 21. This might indicate that teenagers, and particular the type of teenagers we are dealing with in this report, take longer time in sorting out their labour market situation than the time span of two years used in this evaluation. The situation is different for youth over 20: the analyses indicate that the labour market situation improves over time. Thus, two years might be too short a time to evaluate effects of programmes for youth.

Otherwise, the analyses of chapter 7 suggests the presence of selection mechanisms which if not controlled for would bias the effects of programmes on earnings. Furthermore, it is interesting to note that the selection process varies with gender and age group. There is no significant selection to either employment or combination programmes for any of the subgroups. There is positive and significant selection to vocational programmes for youth less than 21, and also positive selection to training programmes for men 21–25 years. This illustrates the advantage of estimating programme effects for men and women by age group separately.

As regards individual characteristics, we can conclude that having children has a negative effect on women's earnings, and a positive effect on the earnings of men over 20. Earnings increase with age. Having immigrant background has a negative effect on the earnings of men over 20 and of women in both age groups, and no effect for males under 21. Human capital variables behave as expected: earnings are increasing with education and employment experience and decreasing with unemployment experience.

The only study of the effect on earnings of labour market programmes in Norway during the early 90's which includes data on youth is that of Raaum and Torp (1997). It concentrates on the effect of training programmes. Their study shows a positive effect on earnings of vocational training courses and a negative effect of non-vocational training courses. There is also indication of positive selection to

vocational training such that when selection bias is taken into account the effects become smaller. They also find that the effects estimated are lower for females than for males and lower for youth under 25 than for adults. These findings are in accordance with the results of chapter 7.

The economic cycle may also affect the results arrived at. The chances of leaving the list of unemployed for a job varies with fluctuations in the economic cycle, such that the effects of participation in labour market programmes may also vary. During the period we follow participants and non-participants unemployment was increasing, reaching its peak in 1993. However, this does not mean that job prospects for unemployed were decreasing during the period under consideration. In fact, the opposite seems to have been the case. Recent research shows that the recovery already started during the fall of 1991, even though flows into unemployment continued rising until late 1993 (Røed 2000). As Røed points out this implies that unemployment had a more favourable composition, in the sense of having unemployed with better job prospects, in the beginning of 1990 than in the fall of 1993.

Even though the results of this report indicate modest effects of programmes for youth, they are quite good compared to results for other countries. For instance, Laura Larson (1999) finds no positive effects and some negative effects of the two mayor youth programmes in Sweden. Earlier research of Swedish labour market programmes for youth are not encouraging either, nor are results from most evaluation studies of youth programmes in other OECD countries (see for example the survey of Martin 1998).

Lastly, the evaluation of the effects of labour market programmes presented in this report has weaknesses and limitations that should not be left unmentioned. The analysis of the effects of labour market programmes on outcome probabilities of chapter 6 makes no attempt to control for selection bias. The analysis of the effect of labour market programmes on annual earnings of chapter 7 does. However, in this last analysis we have excluded individuals with no earnings in 1993 (about 10,000 persons). Thus the findings are restricted to the average effects of programmes for individuals with positive earnings in 1993, not to the effect for participants in general. More generally, in both types of analyses we have adopted the same sample selection rule to determine

group membership. As the study of the first part of chapter 6 shows, estimates are sensitive with regards to the sample selection rule adopted to determine membership in the comparison and participant group. Furthermore, there are other possible sources of bias which are disregarded altogether. One such bias may arise from what we may call the sample scheme effect. Hardoy (1999) shows that there are clear differences between estimates based on the stock of unemployed and estimates based on the flow of unemployed. Different samples selection rules and samples schemes are likely to result in different compositions of the groups to be compared, and thus different estimates for average effects. Moreover, as discussed in chapter 4 the analyses may also be subject to contamination bias since a considerable number of persons participated in programmes in the result period (i.e. after their group membership was determined). As shown in Table 4.9 between one third and one fourth of the sample participated in programmes in the result period. The effects estimated might have been somewhat different had we taken into account these sources of bias.

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# Appendix

## Appendix A

Clarification of explanatory variables

### **Programme related variables:**

*Programmes*: categorical variable.

*Non-participant* coded 1 if did not participate in any labour market programmes during the first year after entering the Register of the Unemployed in 1991 (reference category), and zero otherwise.

*Employment programmes* coded 1 if participated in one or several employment programmes during the first year after entering the Register of the Unemployed in 1991( $\theta_1$ ), and zero otherwise.

*Vocational programmes* coded 1 if participated in one or several vocational programmes during the first year after entering the Register of the Unemployed in 1991( $\theta_2$ ), and zero otherwise.

*Training programmes* coded 1 if participated in one or several training programmes during the first year after entering the Register of the Unemployed in 1991( $\theta_3$ ), and zero otherwise.

*Combination programmes* coded 1 if participated in several of the above programme categories during the first year after entering the Register of the Unemployed in 1991( $\theta_4$ ), and zero otherwise.

*Duration in  $\theta_j$*  = number of weeks in labour market programme  $j$  ( $\theta_j$ ) for  $j=1,2,3,4$ , otherwise equals zero. Measured from the average *Duration in  $\theta_j$* .

$(\text{Duration in } \theta_j)^2$  is specified to open for a non-linear relationship between *Duration in  $\theta_j$*  and the response variable. Measure from the average *Duration in  $\theta_j$* .



*Direct participation* coded 1 if the person starts unemployment in 1991 with participation in a labour market programme, and zero if started unemployment in 1991 with open unemployment.

*Time to search*: number of days from the day the last programme evaluated ends and to the date of evaluation, which is two after entering the register in 1991 in chapter 6 and 01.01.93 in chapter 7. For all members of the comparison group *time to search* equals 730 days in chapter 6.

$(Time\ to\ search)^2$  is specified to open for a non-linear relationship between *time to search* and the response variable.

**Individual related variables:**

*Age*: Calculated as 1991 - year of birth.

*Children* coded 1 if the person has one or several children and zero otherwise.

*Immigrant* coded 1 if the person is first and second generation immigrant from Asia, Oceania, Africa, South America and Eastern Europe without Norwegian background, and zero otherwise.

*Level of education*: categorical variable. 9 years of completed education is the reference category.

*Type of education*: categorical variable. Completed education of a general type is the reference category.

*Unemployment experience*: continuous variable. Number of days open unemployed during the two years previous to entering the register in 1991.

*Days since last unemployed*: continuous variable. Number of days since last open unemployed during the two years previous to entering the register in 1991.

*Unemployed* : categorical variable

*Not unemployed* coded 1 if not registered unemployed during the last two years previous to entering the register in 1991, and zero otherwise (reference category).

*With unemployment benefits* coded 1 if registered as unemployed and receiving unemployment benefits during the last two years previous to entering the register in 1991.

*Without unemployment benefits* coded 1 registered as unemployed

but did not receive unemployment benefits during the last two years previous to entering the register in 1991.

*Participation experience*: continuous variable. Number of days of participation in ordinary labour market programmes during the two years previous to entering the register in 1991.

*Frequency of participation* : continuous variable. Number of participation spells during the two years previous to entering the register in 1991.

*Frequency of jobs*: continuous variable. Number of employment spells during the two years previous to entering the register in 1991.

*Months since last job*: continuous variable. Number of months since last holding a job during the two years previous to entering the register in 1991.

*Earnings in 1990*: categorical variable (average annual earnings for a worker in manufacturing were approx. 180 000 NOK in 1990). Unemployment benefits and sick leave allowance are deducted from earnings. Earnings in 1990 are thus a measure of productive earnings.

*Very low* coded 1 if earnings under 5000 NOK (equivalent to approx. 1000 \$ in 1998), and zero otherwise (reference category).

*Low* coded 1 if earnings between 5000 NOK and 30 000 NOK., and zero otherwise

*Middles* coded 1 if earnings between 30 000 NOK and 70 000 NOK., and zero otherwise

*Higher* coded 1 if earnings of at least 70 000 NOK. and zero otherwise

*Parents' education*: categorical variable

*Low* coded 1 if one or both parents have 9 or 10 years of completed education or both have unknown education, and zero otherwise (reference category)

*Middles* coded 1 if at least one parent has 11 or 12 years of completed education while the other has either less or unknown education.

*Higher* coded 1 if at least one parent with at least 13 years of education while the other has either less or unknown education.

**Labour market related variables:**

*Local participation in 1991* : Number of persons in ordinary labour market programmes (RUP) relative to the labour force, 1991. Measured at the county/province level (19) and relative to average figures for Norway.

*Local unemployment in 1991* : Number of person unemployed (RUP) relative to the labour force, 1991. Measured at the county/province level (19) and relative to average figures for Norway.

*Local unemployment in 1993* : Number of person unemployed (RUP) relative to the labour force, 1993. Measured at the county/province level (19) and relative to average figures for Norway.

*Change in local unemployment in 1990-93* : Calculated as above.

*Local long term unemployment in 1993*: Calculated as above (long term unemployed if duration is 6 months or more).

## Appendix to chapter 5

Definitions of explanatory variables are presented in Appendix A

Response variable:

$T_1 = \text{Prob}(\theta_1=1|x)$  where  $\theta_1=1$  if the person participates in employment programmes, and zero otherwise.

$T_2 = \text{Prob}(\theta_2=1|x)$  where  $\theta_2=1$  if the person participates in vocational programmes, and zero otherwise.

$T_3 = \text{Prob}(\theta_3=1|x)$  where  $\theta_3=1$  if the person participates in training programmes, and zero otherwise.

$T_4 = \text{Prob}(\theta_4=1|x)$  where  $\theta_4=1$  if the person participates in combination programmes, and zero otherwise.

$T_5 = \text{Prob}(\theta_5=1|x)$  where  $\theta_5=1$  if the person is a non-participant (reference category), and zero otherwise.

*Table 5.A. Women and men, 16–20 years old. Estimated coefficients (standard error) for the probability of participation. Multinomial Logit*

	Women				Men			
	ln ( $T_1/T_5$ )	ln ( $T_2/T_5$ )	ln ( $T_3/T_5$ )	ln ( $T_4/T_5$ )	ln ( $T_1/T_5$ )	ln ( $T_2/T_5$ )	ln ( $T_3/T_5$ )	ln ( $T_4/T_5$ )
Intercept	-3.344 (0.593)	1.396 (0.226)	-3.086 (0.455)	-1.851 (0.386)	-2.861 (0.400)	1.901 (0.208)	-2.753 (0.352)	-0.707 (0.336)
Age :- 18 years old	0.063 (0.243)	-0.673 (0.074)	0.588 (0.258)	0.142 (0.155)	0.155 (0.195)	-0.748 (0.067)	0.859 (0.183)	0.008 (0.120)
- 19 years old	0.023 (0.229)	-0.889 (0.071)	1.493 (0.233)	0.492 (0.143)	0.304 (0.184)	-1.203 (0.065)	1.296 (0.173)	-0.225 (0.118)
- 20 years old	-0.070 (0.244)	-1.265 (0.080)	1.816 (0.237)	0.329 (0.154)	0.325 (0.192)	-1.951 (0.077)	1.297 (0.178)	-0.637 (0.132)
Children	-0.526 (0.183)	-0.821 (0.080)	-0.284 (0.119)	-0.996 (0.145)	-0.128 (0.370)	-0.809 (0.341)	-0.016 (0.310)	-0.266 (0.412)
Immigrant	-0.935 (0.595)	-0.624 (0.126)	1.041 (0.184)	0.218 (0.206)	-0.910 (0.370)	-0.435 (0.111)	0.736 (0.145)	0.212 (0.165)
Local unemploy.	-0.125	-0.134	0.120	0.180	0.140	-0.129	-0.268	-0.169

*Table 5.A. Women and men, 16–20 years old. Estimated coefficients (standard error) for the probability of participation. Multinomial Logit*

	Women				Men			
	ln (T <sub>1</sub> /T <sub>5</sub> )	ln (T <sub>2</sub> /T <sub>5</sub> )	ln (T <sub>3</sub> /T <sub>5</sub> )	ln (T <sub>4</sub> /T <sub>5</sub> )	ln (T <sub>1</sub> /T <sub>5</sub> )	ln (T <sub>2</sub> /T <sub>5</sub> )	ln (T <sub>3</sub> /T <sub>5</sub> )	ln (T <sub>4</sub> /T <sub>5</sub> )
91(%)	(0.168)	(0.063)	(0.122)	(0.108)	(0.118)	(0.061)	(0.100)	(0.101)
Local particip.	0.369	0.095	0.432	0.290	0.355	0.055	0.274	0.250
91(%)	(0.040)	(0.019)	(0.033)	(0.030)	(0.031)	(0.019)	(0.027)	(0.027)
Months since last job	-0.013	-0.006	0.000	-0.002	-0.014	-0.002	0.005	-0.005
	(0.007)	(0.003)	(0.005)	(0.005)	(0.005)	(0.003)	(0.004)	(0.005)
Frequency of jobs	0.060	-0.126	-0.029	-0.120	0.069	-0.102	-0.017	-0.194
	(0.056)	(0.028)	(0.047)	(0.046)	(0.042)	(0.029)	(0.040)	(0.048)
Earnings 90:								
– low	0.163	-0.123	-0.126	0.158	0.099	-0.119	-0.077	-0.049
	(0.121)	(0.047)	(0.087)	(0.076)	(0.089)	(0.045)	(0.073)	(0.072)
– medium	-0.061	-0.783	-0.688	-0.677	-0.054	-0.949	-0.380	-0.677
	(0.150)	(0.067)	(0.116)	(0.113)	(0.104)	(0.067)	(0.094)	(0.105)
– high	-0.192	-1.759	-1.017	-1.468	-0.654	-1.600	-0.551	-1.056
	(0.231)	(0.146)	(0.193)	(0.245)	(0.133)	(0.097)	(0.108)	(0.137)
Unempl. experience. (days)	0.003	-0.002	-0.001	-0.003	0.001	-0.002	-0.001	-0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Days since last unemployed	-0.002	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Unemployed:								
– unempl. benefits	-0.707	-0.606	-0.293	0.020	-0.252	-0.746	-0.583	-0.585
	(0.338)	(0.192)	(0.283)	(0.270)	(0.195)	(0.153)	(0.181)	(0.213)
–no unempl. benefits	-0.796	-0.346	-0.121	-0.249	-0.237	-0.326	-0.337	-0.417
	(0.242)	(0.108)	(0.183)	(0.171)	(0.150)	(0.096)	(0.132)	(0.143)
Particip. experience (days)	0.003	0.000	0.001	-0.001	0.001	0.002	0.002	0.001
	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Frequency of participation	0.369	0.268	0.112	0.520	0.562	0.274	0.090	0.561
	(0.180)	(0.096)	(0.161)	(0.136)	(0.113)	(0.083)	(0.117)	(0.107)

*Table 5.A. Women and men, 16–20 years old. Estimated coefficients (standard error) for the probability of participation. Multinomial Logit*

	Women				Men			
	ln (T <sub>1</sub> /T <sub>5</sub> )	ln (T <sub>2</sub> /T <sub>5</sub> )	ln (T <sub>3</sub> /T <sub>5</sub> )	ln (T <sub>4</sub> /T <sub>5</sub> )	ln (T <sub>1</sub> /T <sub>5</sub> )	ln (T <sub>2</sub> /T <sub>5</sub> )	ln (T <sub>3</sub> /T <sub>5</sub> )	ln (T <sub>4</sub> /T <sub>5</sub> )
Parents educ.:								
– medium	0.007 (0.106)	–0.063 (0.043)	0.078 (0.079)	–0.073 (0.072)	–0.229 (0.079)	–0.132 (0.042)	–0.156 (0.067)	–0.133 (0.067)
– high	–0.080 (0.130)	–0.160 (0.051)	–0.235 (0.100)	–0.328 (0.090)	–0.288 (0.099)	–0.254 (0.051)	–0.258 (0.083)	–0.345 (0.087)
Level educ.:								
– Unknown	–0.208 (0.337)	0.305 (0.111)	0.349 (0.241)	–0.466 (0.221)	–0.202 (0.345)	0.366 (0.152)	0.389 (0.258)	0.576 (0.280)
– 10 years	–0.384 (0.179)	0.105 (0.069)	–0.006 (0.128)	–0.423 (0.119)	–0.333 (0.163)	0.142 (0.088)	–0.172 (0.134)	0.025 (0.145)
– 11 years	0.013 (0.202)	0.223 (0.083)	0.358 (0.141)	–0.049 (0.134)	–0.119 (0.175)	0.159 (0.100)	–0.120 (0.145)	0.104 (0.161)
– 12 years +	0.250 (0.183)	0.121 (0.079)	0.303 (0.128)	0.018 (0.126)	–0.018 (0.152)	–0.269 (0.096)	–0.413 (0.130)	–0.454 (0.161)
Type educ.:								
– admin/econ.	0.482 (0.155)	–0.001 (0.065)	0.177 (0.108)	0.562 (0.106)	–0.168 (0.186)	–0.105 (0.100)	0.274 (0.142)	–0.052 (0.170)
– manufact.	0.550 (0.222)	–0.054 (0.094)	0.381 (0.154)	0.104 (0.167)	0.524 (0.147)	–0.054 (0.084)	0.347 (0.124)	0.411 (0.137)
– transp./trade	0.628 (0.335)	0.085 (0.170)	0.621 (0.232)	0.556 (0.248)	0.226 (0.217)	–0.167 (0.131)	0.649 (0.168)	–0.031 (0.213)
– health/service	0.289 (0.197)	0.020 (0.078)	–0.169 (0.144)	0.165 (0.136)	0.149 (0.250)	0.238 (0.130)	0.097 (0.208)	–0.168 (0.244)
Local unemploy. 90 (%)	0.326 (0.158)	0.220 (0.060)	–0.341 (0.118)	–0.143 (0.104)	–0.173 (0.113)	0.116 (0.059)	0.270 (0.095)	0.145 (0.096)

*Table 5.B. Women and men, 21–25 years old. Estimated coefficients (standard error) for the probability of participation. Multinomial Logit*

	Women				Men			
	ln (T <sub>1</sub> /T <sub>5</sub> )	ln (T <sub>2</sub> /T <sub>5</sub> )	ln (T <sub>3</sub> /T <sub>5</sub> )	ln (T <sub>4</sub> /T <sub>5</sub> )	ln (T <sub>1</sub> /T <sub>5</sub> )	ln (T <sub>2</sub> /T <sub>5</sub> )	ln (T <sub>3</sub> /T <sub>5</sub> )	ln (T <sub>4</sub> /T <sub>5</sub> )
Intercept	-1.663 (0.326)	-0.721 (0.283)	-0.592 (0.234)	-1.452 (0.379)	-1.667 (0.207)	-1.916 (0.281)	-1.614 (0.192)	-2.299 (0.307)
Age :								
- 22 years old	-0.085 (0.086)	-0.500 (0.067)	-0.098 (0.065)	-0.347 (0.093)	-0.146 (0.054)	-0.266 (0.069)	-0.066 (0.054)	-0.143 (0.079)
- 23 years old	0.000 (0.090)	-0.704 (0.078)	-0.018 (0.068)	-0.354 (0.101)	-0.207 (0.059)	-0.372 (0.081)	0.069 (0.057)	-0.231 (0.089)
- 24 years old	-0.011 (0.094)	-0.895 (0.087)	0.007 (0.070)	-0.390 (0.108)	-0.196 (0.063)	-0.663 (0.096)	0.133 (0.059)	-0.034 (0.090)
-25 years old	-0.187 (0.103)	-1.155 (0.100)	-0.021 (0.073)	-0.744 (0.126)	-0.400 (0.068)	-0.876 (0.103)	0.158 (0.059)	-0.321 (0.098)
Children	-0.316 (0.071)	-0.506 (0.064)	-0.015 (0.050)	-0.655 (0.085)	0.040 (0.077)	-0.206 (0.129)	-0.060 (0.069)	-0.042 (0.116)
Immigrant	0.015 (0.219)	0.565 (0.117)	0.767 (0.104)	1.481 (0.135)	-0.316 (0.132)	1.006 (0.101)	0.885 (0.083)	1.094 (0.111)
Local unemploy. 91(%)	-0.058 (0.105)	-0.007 (0.088)	-0.156 (0.076)	0.035 (0.119)	0.049 (0.067)	0.222 (0.091)	-0.300 (0.063)	0.030 (0.099)
Local particip. 91(%)	0.377 (0.027)	0.072 (0.027)	0.260 (0.021)	0.338 (0.032)	0.355 (0.018)	0.084 (0.029)	0.215 (0.018)	0.361 (0.027)
Months since last job	-0.031 (0.004)	-0.004 (0.004)	0.001 (0.003)	-0.010 (0.005)	-0.014 (0.003)	-0.003 (0.004)	-0.003 (0.003)	-0.001 (0.004)
Frequency of jobs	-0.068 (0.030)	-0.200 (0.032)	-0.141 (0.025)	-0.171 (0.041)	0.012 (0.020)	-0.145 (0.034)	-0.072 (0.020)	-0.082 (0.033)
Earnings 90:								
- low	0.217 (0.087)	-0.044 (0.069)	-0.077 (0.064)	-0.135 (0.093)	-0.131 (0.056)	-0.243 (0.071)	-0.139 (0.055)	-0.151 (0.078)
- medium	0.048 (0.092)	-0.569 (0.080)	-0.337 (0.069)	-0.587 (0.108)	-0.269 (0.060)	-0.587 (0.086)	-0.392 (0.061)	-0.481 (0.091)

*Table 5.B. Women and men, 21–25 years old. Estimated coefficients (standard error) for the probability of participation. Multinomial Logit*

	Women				Men			
	ln (T <sub>1</sub> /T <sub>5</sub> )	ln (T <sub>2</sub> /T <sub>5</sub> )	ln (T <sub>3</sub> /T <sub>5</sub> )	ln (T <sub>4</sub> /T <sub>5</sub> )	ln (T <sub>1</sub> /T <sub>5</sub> )	ln (T <sub>2</sub> /T <sub>5</sub> )	ln (T <sub>3</sub> /T <sub>5</sub> )	ln (T <sub>4</sub> /T <sub>5</sub> )
– high	–0.358 (0.101)	–1.455 (0.099)	–0.450 (0.069)	–1.069 (0.120)	–0.847 (0.060)	–1.330 (0.091)	–0.422 (0.054)	–0.995 (0.090)
Unempl. experience. (days)	0.002 (0.000)	–0.001 (0.001)	–0.001 (0.000)	–0.001 (0.001)	0.002 (0.000)	0.001 (0.000)	0.000 (0.000)	0.001 (0.000)
Days since last unemployed	–0.001 (0.000)	–0.001 (0.000)	–0.001 (0.000)	–0.002 (0.000)	–0.001 (0.000)	–0.001 (0.000)	0.000 (0.000)	–0.001 (0.000)
Unemploy:								
–unempl. benefits	–0.539 (0.127)	–0.983 (0.134)	–0.277 (0.101)	–0.822 (0.161)	–0.258 (0.074)	–0.534 (0.112)	–0.047 (0.071)	–0.486 (0.114)
–no unempl. benefits	–0.648 (0.123)	–0.203 (0.108)	–0.045 (0.090)	–0.469 (0.140)	–0.256 (0.076)	–0.020 (0.100)	0.007 (0.072)	–0.175 (0.108)
Particip. experience (days)	0.007 (0.001)	0.003 (0.001)	0.002 (0.001)	0.002 (0.001)	0.003 (0.001)	0.002 (0.001)	0.002 (0.001)	0.004 (0.001)
Frequency of participation	0.179 (0.082)	0.073 (0.094)	0.268 (0.079)	0.454 (0.101)	0.426 (0.066)	0.296 (0.106)	0.196 (0.074)	0.350 (0.093)
Parents educ.:								
– medium	–0.005 (0.070)	0.009 (0.063)	0.109 (0.052)	–0.155 (0.084)	–0.185 (0.046)	0.042 (0.067)	0.036 (0.044)	–0.094 (0.071)
– high	–0.142 (0.083)	–0.009 (0.071)	–0.106 (0.064)	–0.423 (0.103)	–0.403 (0.057)	–0.025 (0.075)	–0.123 (0.053)	–0.224 (0.085)
Level educ.:								
– Unknown	–0.024 (0.249)	0.284 (0.166)	0.375 (0.147)	0.470 (0.231)	–0.160 (0.166)	0.198 (0.185)	0.333 (0.149)	0.161 (0.209)
– 10 years	–0.099 (0.127)	0.085 (0.100)	0.054 (0.086)	0.141 (0.147)	–0.209 (0.084)	0.003 (0.109)	–0.039 (0.079)	–0.059 (0.123)
– 11 years	0.117 (0.137)	0.109 (0.110)	–0.067 (0.096)	0.399 (0.153)	–0.036 (0.090)	0.057 (0.118)	–0.021 (0.085)	–0.213 (0.133)
– 12 years +	0.163	–0.091	0.000	0.405	–0.183	–0.301	–0.240	–0.356



*Table 5.B. Women and men, 21–25 years old. Estimated coefficients (standard error) for the probability of participation. Multinomial Logit*

	Women				Men			
	ln	ln	ln	ln	ln	ln	ln	ln
	(T <sub>1</sub> /T <sub>5</sub> )	(T <sub>2</sub> /T <sub>5</sub> )	(T <sub>3</sub> /T <sub>5</sub> )	(T <sub>4</sub> /T <sub>5</sub> )	(T <sub>1</sub> /T <sub>5</sub> )	(T <sub>2</sub> /T <sub>5</sub> )	(T <sub>3</sub> /T <sub>5</sub> )	(T <sub>4</sub> /T <sub>5</sub> )
	(0.114)	(0.091)	(0.078)	(0.134)	(0.074)	(0.095)	(0.071)	(0.112)
Type educ.:								
– admin/econ.	0.105 (0.145)	–0.320 (0.127)	–0.338 (0.109)	–0.077 (0.182)	–0.439 (0.114)	–0.932 (0.164)	–0.629 (0.108)	–1.068 (0.187)
– manufact.	0.278 (0.077)	0.024 (0.069)	0.170 (0.059)	0.419 (0.087)	0.167 (0.079)	0.183 (0.100)	0.244 (0.073)	0.584 (0.111)
– transp./trade	0.277 (0.125)	–0.111 (0.118)	0.196 (0.092)	0.108 (0.155)	0.435 (0.060)	0.006 (0.081)	0.382 (0.056)	0.491 (0.091)
– health/service	0.276 (0.151)	–0.038 (0.154)	0.296 (0.116)	0.406 (0.172)	0.390 (0.098)	0.042 (0.150)	0.161 (0.099)	0.289 (0.157)
Local unemploy. 90 (%)	0.140 (0.105)	–0.134 (0.094)	–0.194 (0.080)	–0.207 (0.132)	0.103 (0.110)	0.190 (0.140)	–0.112 (0.110)	0.317 (0.160)

## Appendix to chapter 6

Description of explanatory variables are presented in Appendix A

Response variables: (initials in parenthesis stand for data source, as described in chapter 3)

$P_1 = P(Y_1=1|x)$  where  $Y_1 = 1$  if participant in an ordinary labour market programme (RUP), and 0 otherwise.

$P_2 = P(Y_2=1|x)$  where  $Y_2 = 1$  if part-time employed (REM/RST) or also part-time unemployed (RUP), since by definition one must have a part-time job to be able to register as part-time unemployed, and 0 otherwise.

$P_3 = P(Y_3=1|x)$  where  $Y_3 = 1$  if in full-time job (REM/RST) or self employed, and 0 otherwise.

$P_4 = P(Y_4=1|x)$  where  $Y_4 = 1$  if receiving social security (mostly maternity support for lone mothers without a job) (RSS), and 0 otherwise.

$P_5 = P(Y_5=1|x)$  where  $Y_5 = 1$  if solely in education or in education in

addition to other states (all registers but RUP), and 0 otherwise.

$P_6 = P(Y_6=1|x)$  where  $Y_6 = 1$  if state unknown (residual category), and 0 otherwise.

$P_7 = P(Y_7=1|x)$  where  $Y_7 = 1$  if full-time unemployed (RUP), and 0 otherwise.  
 $Y=1$  if  $Y_2=1$  or  $Y_3=1$ , and 0 otherwise.

*Table 6.a. Binary Logit. Standard error in parentheses. Full model of Sample 1, see Table 6.1*

Variables	$\ln[P(Y)/1-P(Y)]$
Intercept	-2.004 (0.178)
Programmes:	
– Employment ( $\theta_1$ )	0.136 (0.047)
– Vocational ( $\theta_2$ )	-0.054 (0.045)
– Training ( $\theta_3$ )	-0.009 (0.046)
– Combination ( $\theta_4$ )	0.248 (0.057)
Direct participation	-0.005 (0.025)
Time to search (days)	0.002 (0.001)
(Time to search) <sup>2</sup>	-0.0001 (0.000)
Days since last unemployed	0.0006 (0.0000)
Unemployment experience (days)	-0.001 (0.0001)
Unemployed:	
– with unempl. benefits	0.218 (0.034)
– without unempl. benefits	0.001 (0.030)
Male	0.030 (0.015)
Age in 1991	0.040 (0.004)
Children	-0.330 (0.024)
Immigrant	-0.429 (0.042)
Parents education: – middles	-0.012 (0.016)
– high	-0.076 (0.019)
Level of education:	
– unknown	-0.013 (0.035)
– 10 years	0.093 (0.020)
– 11 years	0.286 (0.023)
– 12 years or more	0.309 (0.020)
Annual earnings in 1990: – low	0.989 (0.019)

*Table 6.a. Binary Logit. Standard error in parentheses. Full model of Sample 1, see Table 6.1*

Variables	$\ln[P(Y)/1-P(Y)]$
– medium	1.124 (0.023)
– high	1.284 (0.023)
Number of jobs	0.001 (0.006)
Local unemployment in 1993 (%)	–0.087 (0.010)
Change in local unemployment 1990–93(%)	–0.100 (0.012)
Local long term unemployment (%)	0.0006 (0.001)

*Table 6.b. Multinomial Logit estimates. Standard error in parentheses. Women 16–20 years old*

Variables	$\ln(P_1/P_7)$	$\ln(P_2/P_7)$	$\ln(P_3/P_7)$	$\ln(P_4/P_7)$	$\ln(P_5/P_7)$	$\ln(P_6/P_7)$
Intercept	0.039 (0.660)	–0.903 (0.585)	0.259 (0.534)	–2.194 (0.693)	0.756 (0.611)	–0.017 (0.557)
Employment progr. ( $\theta_1$ )	0.272 (0.283)	0.028 (0.242)	0.382 (0.219)	0.511 (0.295)	–0.627 (0.268)	0.087 (0.247)
Vocational progr. ( $\theta_2$ )	0.196 (0.214)	0.153 (0.184)	0.130 (0.169)	0.488 (0.219)	–0.209 (0.190)	0.376 (0.176)
Training progr. ( $\theta_3$ )	0.441 (0.243)	0.074 (0.211)	0.050 (0.194)	0.297 (0.260)	–0.417 (0.224)	0.188 (0.208)
Combination progr. ( $\theta_4$ )	0.426 (0.262)	0.240 (0.230)	0.433 (0.210)	0.662 (0.284)	–0.504 (0.244)	0.334 (0.225)
Direct participation	0.249 (0.102)	0.202 (0.091)	0.179 (0.083)	0.075 (0.115)	0.742 (0.093)	0.142 (0.089)
Time to search (days)	–0.004 (0.005)	0.005 (0.004)	0.006 (0.004)	0.017 (0.005)	–0.001 (0.004)	0.011 (0.004)
(Time to search) <sup>2</sup>	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Age:						
– 18 years old	–0.195	–0.009	–0.090	0.207	–0.417	–0.113

*Table 6.b. Multinomial Logit estimates. Standard error in parentheses. Women 16–20 years old*

Variables	$\ln(P_1/P_7)$	$\ln(P_2/P_7)$	$\ln(P_3/P_7)$	$\ln(P_4/P_7)$	$\ln(P_5/P_7)$	$\ln(P_6/P_7)$
	(0.150)	(0.141)	(0.124)	(0.160)	(0.135)	(0.124)
– 19 years old	–0.429	0.003	–0.141	–0.094	–0.376	–0.241
	(0.145)	(0.133)	(0.118)	(0.156)	(0.126)	(0.119)
– 20 years old	–0.341	–0.136	–0.225	–0.096	–0.754	–0.271
	(0.161)	(0.146)	(0.130)	(0.171)	(0.147)	(0.133)
Children	0.032	0.087	–0.557	1.546	–0.299	0.081
	(0.159)	(0.131)	(0.131)	(0.126)	(0.161)	(0.128)
Immigrant	0.767	–0.409	–0.339	–0.651	0.021	0.229
	(0.211)	(0.238)	(0.203)	(0.296)	(0.216)	(0.190)
Days since last unemployed	0.000	0.001	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Unemployment experience	–0.002	–0.002	–0.003	–0.001	–0.002	–0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)
Unemployed.:						
– with unemploy. benefits	0.178	0.123	–0.328	–0.102	–0.602	–0.688
	(0.315)	(0.261)	(0.247)	(0.296)	(0.363)	(0.290)
– without unempl. benefits	0.077	0.046	–0.325	0.290	–0.488	–0.092
	(0.198)	(0.170)	(0.158)	(0.192)	(0.205)	(0.167)
Level of education:						
– 10 years	–0.025	0.115	0.067	–0.168	–0.227	–0.152
	(0.101)	(0.086)	(0.078)	(0.100)	(0.096)	(0.083)
– 11 years	0.023	0.328	0.324	–0.227	–0.008	–0.312
	(0.130)	(0.105)	(0.097)	(0.137)	(0.118)	(0.111)
– 12 years +	0.216	0.766	0.790	–0.233	1.269	0.307
	(0.170)	(0.137)	(0.127)	(0.189)	(0.147)	(0.142)
– Unknown	–0.299	0.081	0.033	–0.079	0.426	0.215
	(0.159)	(0.149)	(0.131)	(0.173)	(0.131)	(0.126)
Parents education:						
– medium	0.092	0.126	0.193	0.121	0.365	0.156
	(0.090)	(0.075)	(0.069)	(0.093)	(0.080)	(0.075)

*Table 6.b. Multinomial Logit estimates. Standard error in parentheses. Women 16–20 years old*

Variables	$\ln(P_1/P_7)$	$\ln(P_2/P_7)$	$\ln(P_3/P_7)$	$\ln(P_4/P_7)$	$\ln(P_5/P_7)$	$\ln(P_6/P_7)$
– high	0.095 (0.119)	0.103 (0.098)	0.365 (0.089)	–0.066 (0.129)	0.828 (0.097)	0.329 (0.096)
Earnings in 1990:						
– Low	0.271 (0.099)	0.881 (0.083)	0.899 (0.076)	–0.384 (0.110)	0.181 (0.088)	–0.439 (0.086)
– Medium	0.098 (0.147)	1.014 (0.114)	0.949 (0.106)	–0.289 (0.150)	0.035 (0.130)	–0.556 (0.125)
– High	–0.255 (0.241)	0.644 (0.169)	0.633 (0.156)	–0.060 (0.208)	–0.803 (0.249)	–1.565 (0.241)
Number of jobs	–0.101 (0.044)	–0.010 (0.034)	–0.043 (0.032)	0.032 (0.044)	–0.097 (0.039)	–0.024 (0.036)
Local unemployment in 1993 (%)	–0.017 (0.072)	–0.084 (0.060)	–0.145 (0.055)	–0.211 (0.074)	–0.018 (0.063)	–0.040 (0.059)
Change in loc. unemp.. 1990–93(%)	0.038 (0.058)	0.001 (0.048)	–0.084 (0.043)	0.106 (0.061)	0.020 (0.051)	–0.012 (0.048)
Local long term unemployment (%)	0.005 (0.006)	–0.006 (0.005)	0.003 (0.005)	0.010 (0.007)	–0.012 (0.006)	0.000 (0.005)

*Table 6.c. Multinomial Logit. Standard error in parentheses. Men 16–20 years old*

Variables	$\ln(P_1/P_7)$	$\ln(P_2/P_7)$	$\ln(P_3/P_7)$	$\ln(P_4/P_7)$	$\ln(P_5/P_7)$	$\ln(P_6/P_7)$
Intercept	–0.733 (0.575)	–1.454 (0.641)	–0.538 (0.461)	–5.803 (1.759)	–0.466 (0.577)	0.492 (0.475)
Employment progr. ( $\theta_1$ )	–0.362 (0.208)	–0.232 (0.206)	0.037 (0.149)	0.615 (0.568)	–0.648 (0.200)	–0.097 (0.163)
Vocational progr. ( $\theta_2$ )	0.243 (0.168)	–0.229 (0.182)	–0.111 (0.131)	0.529 (0.513)	–0.270 (0.161)	0.198 (0.136)
Training progr. ( $\theta_3$ )	0.033	–0.349	–0.041	0.644	–0.489	0.079

*Table 6.c. Multinomial Logit. Standard error in parentheses. Men 16–20 years old*

Variables	$\ln(P_1/P_7)$	$\ln(P_2/P_7)$	$\ln(P_3/P_7)$	$\ln(P_4/P_7)$	$\ln(P_5/P_7)$	$\ln(P_6/P_7)$
	(0.187)	(0.201)	(0.143)	(0.553)	(0.183)	(0.152)
Combination progr. ( $\theta_4$ )	0.205	0.072	0.244	0.555	-0.421	0.256
	(0.212)	(0.232)	(0.169)	(0.674)	(0.213)	(0.175)
Direct participation	0.243	0.156	0.329	-0.295	0.626	0.122
	(0.087)	(0.098)	(0.071)	(0.311)	(0.085)	(0.073)
Time to search (days)	-0.001	0.004	0.008	0.015	0.004	0.007
	(0.005)	(0.005)	(0.004)	(0.015)	(0.005)	(0.004)
(Time to search) <sup>2</sup>	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Age:						
- 18 years old	-0.418	-0.392	-0.448	0.375	-0.748	-0.281
	(0.124)	(0.134)	(0.099)	(0.477)	(0.114)	(0.099)
- 19 years old	-0.553	-0.526	-0.782	0.413	-1.004	-0.515
	(0.120)	(0.127)	(0.095)	(0.464)	(0.110)	(0.096)
- 20 years old	-0.288	-0.514	-0.837	-0.012	-1.139	-0.739
	(0.132)	(0.140)	(0.105)	(0.501)	(0.126)	(0.108)
Children	-0.310	-0.472	0.026	-8.2272	-1.155	-0.238
	(0.404)	(0.405)	(0.268)	0.000	(0.624)	(0.317)
Immigrant	0.290	0.323	-0.109	0.724	0.276	0.289
	(0.175)	(0.190)	(0.155)	(0.518)	(0.171)	(0.143)
Days since last unemployed	0.000	0.001	0.001	0.000	0.001	-0.001
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)
Unemployment experience	0.001	0.000	-0.001	-0.002	-0.003	0.000
	(0.001)	(0.001)	(0.001)	(0.003)	(0.001)	(0.001)
Unemployed.:						
- with unemploy. benefits	0.026	0.288	0.345	0.766	-0.103	-0.410
	(0.207)	(0.199)	(0.151)	(0.522)	(0.249)	(0.173)
- without unempl. benefits	-0.007	0.016	-0.067	0.256	-0.226	-0.209
	(0.144)	(0.145)	(0.109)	(0.407)	(0.160)	(0.116)

*Table 6.c. Multinomial Logit. Standard error in parentheses. Men 16–20 years old*

Variables	$\ln(P_1/P_7)$	$\ln(P_2/P_7)$	$\ln(P_3/P_7)$	$\ln(P_4/P_7)$	$\ln(P_5/P_7)$	$\ln(P_6/P_7)$
Level of education:						
– 10 years	0.007 (0.081)	0.070 (0.081)	0.290 (0.060)	0.079 (0.225)	–0.025 (0.082)	0.036 (0.063)
– 11 years	0.129 (0.100)	0.206 (0.097)	0.536 (0.073)	–0.445 (0.319)	0.307 (0.098)	–0.027 (0.081)
– 12 years +	0.198 (0.153)	0.865 (0.136)	1.060 (0.110)	–0.696 (0.641)	1.556 (0.131)	0.435 (0.124)
– Unknown	0.198 (0.134)	0.293 (0.149)	0.244 (0.113)	0.248 (0.488)	0.605 (0.118)	0.302 (0.110)
Parents education:						
– medium	0.077 (0.072)	0.171 (0.071)	0.168 (0.054)	–0.260 (0.245)	0.436 (0.068)	0.114 (0.058)
– high	0.009 (0.094)	0.245 (0.089)	0.230 (0.068)	0.192 (0.280)	0.790 (0.079)	0.188 (0.073)
Earnings in 1990:						
– Low	0.217 (0.080)	0.943 (0.079)	0.951 (0.060)	0.243 (0.268)	0.122 (0.074)	–0.241 (0.066)
– Medium	0.056 (0.112)	0.874 (0.103)	1.037 (0.079)	0.763 (0.297)	–0.137 (0.107)	–0.195 (0.089)
– High	–0.050 (0.131)	0.678 (0.120)	1.201 (0.089)	0.713 (0.339)	–0.572 (0.141)	–0.404 (0.107)
Number of jobs	0.029 (0.035)	0.072 (0.032)	0.041 (0.025)	0.202 (0.091)	0.031 (0.033)	0.055 (0.028)
Local unemployment in 1993 (%)	–0.103 (0.058)	0.064 (0.057)	–0.173 (0.043)	0.359 (0.188)	–0.005 (0.054)	0.012 (0.046)
Change in local unemploy. 1990–93(%)	0.051 (0.048)	–0.169 (0.044)	–0.102 (0.034)	–0.107 (0.139)	–0.023 (0.043)	–0.073 (0.037)
Local long term unemployment (%)	0.007 (0.005)	0.005 (0.005)	0.002 (0.004)	–0.036 (0.017)	0.000 (0.005)	0.006 (0.004)

*Table 6.d. Multinomial Logit. Standard error in parentheses.  
Women 21–25 years old*

Variables	$\ln(P_1/P_7)$	$\ln(P_2/P_7)$	$\ln(P_3/P_7)$	$\ln(P_4/P_7)$	$\ln(P_5/P_7)$	$\ln(P_6/P_7)$
Intercept	-0.598 (0.847)	-0.632 (0.759)	-0.512 (0.708)	0.079 (0.866)	-3.411 (0.879)	-0.065 (0.800)
Employment progr. ( $\theta_1$ )	-0.239 (0.243)	-0.178 (0.205)	0.035 (0.191)	0.011 (0.236)	-0.056 (0.241)	-0.220 (0.225)
Vocational progr. ( $\theta_2$ )	0.252 (0.241)	0.132 (0.209)	0.292 (0.194)	0.214 (0.237)	0.581 (0.237)	0.416 (0.217)
Training progr. ( $\theta_3$ )	0.090 (0.236)	-0.029 (0.202)	0.103 (0.188)	0.089 (0.230)	0.262 (0.233)	0.218 (0.212)
Combination progr. ( $\theta_4$ )	0.309 (0.290)	0.143 (0.258)	0.678 (0.237)	0.289 (0.295)	0.521 (0.301)	0.413 (0.271)
Direct participation	0.335 (0.128)	0.334 (0.115)	0.275 (0.107)	0.169 (0.130)	0.535 (0.135)	0.314 (0.121)
Time to search (days)	-0.003 (0.008)	0.003 (0.007)	0.007 (0.006)	-0.002 (0.008)	0.026 (0.008)	0.014 (0.007)
(Time to search) <sup>2</sup>	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Age:						
- 22 years old	0.066 (0.101)	-0.044 (0.080)	0.015 (0.075)	0.056 (0.096)	0.078 (0.093)	-0.097 (0.088)
- 23 years old	0.133 (0.105)	-0.033 (0.084)	0.115 (0.079)	0.050 (0.100)	-0.159 (0.102)	-0.154 (0.093)
-24 years old	-0.122 (0.110)	-0.264 (0.086)	0.015 (0.080)	-0.075 (0.101)	-0.527 (0.109)	-0.129 (0.093)
-25 years old	-0.279 (0.116)	-0.316 (0.090)	0.046 (0.084)	-0.109 (0.104)	-0.498 (0.114)	-0.157 (0.097)
Children	0.180 (0.076)	0.155 (0.061)	-0.724 (0.059)	0.883 (0.071)	-0.513 (0.080)	-0.179 (0.067)
Immigrant	0.493 (0.151)	-0.293 (0.150)	-0.457 (0.141)	-0.654 (0.174)	0.284 (0.173)	0.269 (0.133)



*Table 6.d. Multinomial Logit. Standard error in parentheses.  
Women 21–25 years old*

Variables	$\ln(P_1/P_7)$	$\ln(P_2/P_7)$	$\ln(P_3/P_7)$	$\ln(P_4/P_7)$	$\ln(P_5/P_7)$	$\ln(P_6/P_7)$
Days since last						
unemployed	0.000	0.000	0.000	0.000	0.001	-0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Unemployment	0.001	0.000	-0.001	-0.001	-0.001	0.000
experience	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)
Unemployed.:						
- with unemploy.	-0.069	-0.073	0.108	0.123	0.145	-0.200
benefits	(0.151)	(0.119)	(0.110)	(0.137)	(0.149)	(0.133)
- without unempl.	0.242	0.097	0.080	0.291	0.303	-0.106
benefits	(0.139)	(0.112)	(0.105)	(0.128)	(0.135)	(0.123)
Level of education:						
-10 years	-0.191	0.036	-0.071	-0.291	-0.178	-0.173
	(0.108)	(0.090)	(0.086)	(0.092)	(0.130)	(0.093)
- 11 years	-0.127	0.281	0.166	-0.537	-0.005	-0.272
	(0.123)	(0.100)	(0.096)	(0.112)	(0.144)	(0.109)
- 12 years+	0.074	0.415	0.655	-0.370	1.064	0.168
	(0.111)	(0.092)	(0.086)	(0.100)	(0.121)	(0.097)
- 13 years +	-0.263	0.405	1.104	-0.598	1.824	0.157
	(0.185)	(0.136)	(0.123)	(0.178)	(0.154)	(0.148)
- Unknown	0.056	0.280	0.252	-0.355	-0.104	0.073
	(0.181)	(0.166)	(0.155)	(0.182)	(0.216)	(0.152)
Parents education:						
- medium	0.035	0.016	0.023	-0.013	0.207	0.057
	(0.082)	(0.065)	(0.060)	(0.076)	(0.080)	(0.072)
- high	0.013	0.049	0.109	-0.030	0.588	0.206
	(0.103)	(0.079)	(0.072)	(0.097)	(0.088)	(0.086)
Earnings in 1990:						
- Low	0.245	0.824	0.778	-0.351	-0.360	-0.765
	(0.098)	(0.082)	(0.076)	(0.094)	(0.095)	(0.087)
- Medium	0.155	0.992	0.808	-0.216	-0.328	-0.969

*Table 6.d. Multinomial Logit. Standard error in parentheses.  
Women 21–25 years old*

Variables	$\ln(P_1/P_7)$	$\ln(P_2/P_7)$	$\ln(P_3/P_7)$	$\ln(P_4/P_7)$	$\ln(P_5/P_7)$	$\ln(P_6/P_7)$
	(0.106)	(0.085)	(0.080)	(0.097)	(0.099)	(0.095)
– Higher	0.057	0.806	0.783	–0.173	–0.745	–1.295
	(0.106)	(0.084)	(0.077)	(0.094)	(0.102)	(0.095)
Number of jobs	0.004	–0.027	–0.028	–0.021	–0.014	–0.084
	(0.030)	(0.023)	(0.021)	(0.028)	(0.028)	(0.027)
Local unemployment in 1993 (%)	0.097	–0.013	–0.090	–0.023	–0.097	–0.056
	(0.063)	(0.049)	(0.046)	(0.057)	(0.060)	(0.054)
Change in loc. unempl.. 1990–93(%)	0.011	–0.020	–0.108	–0.018	–0.011	–0.050
	(0.051)	(0.039)	(0.036)	(0.047)	(0.048)	(0.044)
Local long term unemployment (%)	–0.013	–0.016	–0.013	–0.010	–0.027	–0.005
	(0.006)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)

*Table 6.e. Multinomial Logit. Standard error in parentheses. Men  
21–25 years old, from Sample 1*

Variables	$\ln(P_1/P_7)$	$\ln(P_2/P_7)$	$\ln(P_3/P_7)$	$\ln(P_4/P_7)$	$\ln(P_5/P_7)$	$\ln(P_6/P_7)$
Intercept	–0.105	–1.456	–1.090	–1.936	–3.717	0.971
	(0.620)	(0.656)	(0.488)	(1.774)	(0.750)	(0.615)
Employment progr. ( $\theta_1$ )	–0.076	–0.090	0.309	0.202	0.190	–0.169
	(0.169)	(0.170)	(0.125)	(0.458)	(0.187)	(0.160)
Vocational progr. ( $\theta_2$ )	0.483	0.129	0.504	–0.415	0.451	0.338
	(0.182)	(0.191)	(0.143)	(0.577)	(0.208)	(0.172)
Training progr. ( $\theta_3$ )	0.168	–0.101	0.323	–0.285	0.352	–0.117
	(0.169)	(0.171)	(0.126)	(0.477)	(0.188)	(0.160)
Combination progr. ( $\theta_4$ )	0.241	0.112	0.676	–0.116	0.600	–0.010
	(0.208)	(0.218)	(0.161)	(0.597)	(0.244)	(0.203)
Direct participation	0.155	0.229	0.109	0.191	0.041	0.267
	(0.100)	(0.106)	(0.079)	(0.280)	(0.121)	(0.095)
Time to search (days)	–0.008	0.004	0.012	–0.008	0.024	–0.003

*Table 6.e. Multinomial Logit. Standard error in parentheses. Men  
21–25 years old, from Sample 1*

Variables	$\ln(P_1/P_7)$	$\ln(P_2/P_7)$	$\ln(P_3/P_7)$	$\ln(P_4/P_7)$	$\ln(P_5/P_7)$	$\ln(P_6/P_7)$
	(0.006)	(0.006)	(0.004)	(0.016)	(0.007)	(0.006)
(Time to search) <sup>2</sup>	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Age:						
– 22 years old	–0.016	–0.141	0.006	0.121	–0.098	–0.004
	(0.073)	(0.066)	(0.051)	(0.195)	(0.068)	(0.064)
– 23 years old	–0.100	–0.371	–0.157	–0.129	–0.467	–0.088
	(0.078)	(0.071)	(0.054)	(0.214)	(0.076)	(0.069)
– 24 years old	–0.070	–0.428	–0.105	–0.118	–0.564	–0.095
	(0.082)	(0.076)	(0.057)	(0.222)	(0.083)	(0.073)
– 25 years old	–0.166	–0.532	–0.169	–0.169	–0.843	–0.184
	(0.084)	(0.077)	(0.057)	(0.224)	(0.088)	(0.074)
Children	–0.052	0.076	0.207	0.520	–0.843	–0.161
	(0.102)	(0.090)	(0.066)	(0.210)	(0.153)	(0.094)
Immigrant	0.106	0.219	–0.384	–0.836	0.784	0.343
	(0.114)	(0.120)	(0.093)	(0.424)	(0.127)	(0.097)
Days since last unemployed	0.000	0.000	0.001	–0.001	0.000	–0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Unemployment experience	–0.001	–0.002	–0.002	0.000	–0.002	–0.001
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)
Unemployed.:						
– with unemploy. benefits	0.137	0.190	0.219	–0.434	0.193	–0.239
	(0.098)	(0.091)	(0.068)	(0.260)	(0.102)	(0.089)
– without unempl. benefits	0.106	0.016	–0.043	–0.190	–0.103	–0.068
	(0.097)	(0.091)	(0.069)	(0.261)	(0.100)	(0.086)
Level of ed.: –10 years	0.150	0.090	0.165	–0.140	0.086	–0.136
	(0.078)	(0.076)	(0.055)	(0.188)	(0.114)	(0.069)
– 11 years	0.093	0.235	0.384	–0.365	0.663	–0.142
	(0.089)	(0.084)	(0.062)	(0.229)	(0.115)	(0.079)
– 12 years	0.070	0.550	0.737	–0.401	1.688	–0.004

*Table 6.e. Multinomial Logit. Standard error in parentheses. Men 21–25 years old, from Sample 1*

Variables	$\ln(P_1/P_7)$	$\ln(P_2/P_7)$	$\ln(P_3/P_7)$	$\ln(P_4/P_7)$	$\ln(P_5/P_7)$	$\ln(P_6/P_7)$
	(0.081)	(0.074)	(0.055)	(0.204)	(0.100)	(0.069)
– 13 years +	–0.051	0.571	0.835	–1.052	2.321	–0.176
	(0.144)	(0.120)	(0.091)	(0.534)	(0.127)	(0.120)
– Unknown	0.141	0.185	0.209	0.606	0.291	0.143
	(0.127)	(0.134)	(0.097)	(0.304)	(0.166)	(0.105)
Parents education:						
– medium	0.066	0.159	0.119	0.151	0.415	0.171
	(0.061)	(0.056)	(0.042)	(0.158)	(0.062)	(0.056)
– high	–0.097	0.294	0.141	–0.119	0.865	0.342
	(0.077)	(0.065)	(0.051)	(0.223)	(0.065)	(0.064)
Earnings in 1990:						
– Low	0.266	0.760	0.781	0.664	–0.016	–0.554
	(0.074)	(0.071)	(0.054)	(0.215)	(0.069)	(0.067)
– Medium	0.257	0.836	0.912	0.531	–0.139	–0.620
	(0.081)	(0.076)	(0.057)	(0.234)	(0.078)	(0.074)
– Higher	–0.023	0.686	0.932	0.747	–0.634	–0.851
	(0.073)	(0.069)	(0.050)	(0.204)	(0.074)	(0.064)
Number of jobs	–0.052	–0.005	–0.020	0.027	–0.056	0.030
	(0.022)	(0.019)	(0.015)	(0.054)	(0.022)	(0.020)
Local unemployment in 1993 (%)	0.023	–0.005	–0.176	0.127	–0.067	–0.007
	(0.047)	(0.042)	(0.032)	(0.127)	(0.046)	(0.041)
Change in loc. unempl.. 1990–93(%)	0.095	–0.089	–0.131	–0.037	–0.016	–0.087
	(0.039)	(0.033)	(0.026)	(0.099)	(0.036)	(0.033)
Local long term unemployment (%)	0.001	0.000	0.004	–0.013	–0.012	0.010
	(0.004)	(0.004)	(0.003)	(0.011)	(0.004)	(0.004)

## Appendix to chapter 7

1. Descriptive statistics for individual with earnings in 1993 compared to those without.

*Table 7.A. Descriptive statistics of individual characteristics for the four programme categories and the comparison group, according to whether they had earnings in 1993 (Yes) or not (No)*

Earnings	Comparison g.		Employment p.		Vocational p.		Training p.		Combination p.	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Age:										
16–18 years (%)	6	12	4	3	37	56	20	24	16	27
19–20 years (%)	20	25	20	18	42	28	26	26	35	35
21–22 years (%)	34	40	40	37	14	9	26	21	35	19
23–25 years (%)	39	22	37	42	7	7	29	29	14	19
Female (%)	36	48	30	29	53	52	43	47	43	45
Children (%)	13	23	11	15	4	7	10	18	7	10
Immigrant (%)	2	9	2	7	3	7	4	16	4	14
Completed education:										
9 years (%)	16	29	14	22	30	40	23	31	20	30
10 years (%)	24	29	25	33	28	23	23	26	27	30
11 years (%)	16	10	20	16	15	7	15	11	19	12
12 years (%)	34	18	33	17	14	5	27	13	25	10
13 or more years (%)	7	5	5	4	1	0	5	3	3	1
Unknown educ. (%)	3	9	2	9	11	25	7	16	6	16
Earnings in 1990:										
Very low (%)	19	51	22	46	47	77	35	70	35	70
Low (%)	25	22	30	29	37	19	32	19	34	20
Medium (%)	22	13	26	16	12	3	14	5	16	7
Higher (%)	34	14	22	9	4	1	18	5	15	3
Particip. exp. (days)	11	15	36	46	17	20	15	18	24	29
Unempl. exp. (days)	47	65	74	137	21	24	37	43	41	38
Not unempl. 90 (%)	56	52	42	31	73	72	65	63	59	61
Unemployed with unempl. benefit 90 (%)	27	20	27	41	23	3	19	11	18	8
Unemployed without unempl. benefit 90 (%)	16	28	20	28	6	24	20	26	22	31

*Table 7.A. Descriptive statistics of individual characteristics for the four programme categories and the comparison group, according to whether they had earnings in 1993 (Yes) or not (No)*

	Comparison		Employment		Vocational		Training		Combination	
	g.		p.		p.		p.		p.	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Earnings										
Particip. Duration	0	0	120	118	159	159	113	128	182	196

Note: variables are defined in appendix A.

## 2. Model specifications

We have also tried other models than the one presented in chapter 7 (Model 1). In Model 2 we estimate the average effect of programmes (individual indexation is suppressed). That is,

$$(1) \quad Y = b_0 + Xb_1 + \theta_j b_{2j} + b_{3f} T_f + b_4 ST + b_{5j} CT_j$$

*for j = 1,2,3,4, f = 1,2,3*

where  $\theta_j$  is a vector of programme categories for  $j=1,2,3,4$ , which have no participation as the reference category, i.e.  $\theta_j = 1$  if the person participates in programme  $j$  and 0 otherwise in (1) and  $b_{2j}$  is the average effect of participation in programme  $j$  compared to not participating at all.  $Y$  is annual earnings and  $X$  is a vector of individual characteristics and local labour market characteristics.  $T_f$  is a vector for the frequency of the programme spells and assumes three values: 1, 2 and 3 or more programmes, where participation in one programme is the reference category.  $ST$  is a dichotomous variable which assumes the value of 1 if the person entered the register of the unemployed in 1991 as labour market participant and 0 if the person entered the register of the unemployed as open unemployed, irrespective of whether he/she later started a programme or not. Finally,  $CT_j$  for  $j=1,2,3,4$  are the correction terms for the programme categories calculated using the CEC method. In Model 3 we open for the possibility that the effect of programmes

may vary with the duration of the programme,

$$(2) \quad Y = a_0 + Xa_1 + a_2\theta_j + a_3TD_j + a_4(TD_j)^2 + a_5T_j + a_6ST_j + a_7CT_j \\ \text{for } j = 1,2,3,4, \quad f = 1,2,3$$

$TD_j$  is the number of weeks of participation in programme  $j$ , and is measured from the average, i.e.

$$TD_j = TD_{ij} - \overline{TD_j} \quad \text{for } i = 1, \dots, n \quad j = 1,2,3,4$$

where  $i$  denotes individual. We include  $TD_j^2$  to open for the possibility of a non-linear effect of duration in a programme on earnings.  $TD$  is often measured relative to average duration because that is where the variable is centred.

The specification presented in chapter 7, Model 1, was

$$(3) \quad Y = c_0 + Xc_1 + c_{2jk}TDI_{jk} + c_3CT_j \quad \text{for } j = 1,2,3,4, \quad k = 1,2,3,4,5$$

where the vector  $TDI_{jk}$  captures the effect of participating in programme  $j$  for different periods of time  $k$  compared to not participating at all. The vector  $TDI$  has the following time intervals for each programme category: 1 day to 3 months, 3–6 months, 6–9 months, 9–12 months and over 1 year.

In Table 7.A we present estimates of some of the programme related variables for men 16–20 years old. In columns two and four CEC method is applied to the model specification of equations (1) and (2) (Model 2 and Model 3, respectively). In columns one and three show the Ordinary Least Square estimates, which are equivalent Model 2 and Model 3 respectively with the exception that vector  $CT$  is assumed to be equal to zero. Since the other variables, vector  $X$ , are the same in all three models and are pretty stable to model specification, we do not

include them in Table 7.A.

*Table 7. B. Estimated annual earnings in 1993 (in 1000 NOK) for men 16–20 years of age. OLS and conditional expectation correction method. Coefficients and standard errors (in parentheses). Coefficients significant at the 5 per cent level in bold letters*

Variables	OLS		CEC		OLS		CEC	
Intercept	<b>55.503</b>	(1.794)	<b>61.706</b>	(2.215)	<b>56.090</b>	(1.816)	<b>62.063</b>	(2.225)
Employment								
Progr. ( $\theta_1$ )	<b>4.511</b>	(2.178)	<b>12.633</b>	(5.533)	<b>5.188</b>	(2.527)	<b>13.446</b>	(5.668)
Vocational								
Progr. ( $\theta_2$ )	<b>-11.566</b>	(1.507)	<b>-22.095</b>	(2.659)	<b>-13.838</b>	(1.749)	<b>-23.878</b>	(2.764)
Training								
Progr. ( $\theta_3$ )	-2.099	(2.010)	5.861	(5.149)	-2.226	(2.444)	5.199	(5.336)
Combination								
Progr. ( $\theta_4$ )	-1.015	(2.650)	-3.232	(6.894)	-4.275	(3.071)	-5.772	(7.078)
Direct								
participation	<b>6.557</b>	(1.341)	2.409	(1.904)	<b>7.262</b>	(1.387)	3.116	(1.945)
Frequency of								
progr.: 2	-2.848	(1.724)	-2.799	(1.724)	-1.965	(1.750)	-1.967	(1.749)
3 +	-3.586	(2.971)	-3.563	(2.970)	-3.008	(2.999)	-3.034	(2.998)
Duration $\theta_1$					-0.062	(0.235)	-0.079	(0.235)
(Duration $\theta_1$ ) <sup>2</sup>					-0.022	(0.012)	-0.021	(0.012)
Duration $\theta_2$					<b>-0.185</b>	(0.081)	<b>-0.159</b>	(0.081)
(Duration $\theta_2$ ) <sup>2</sup>					0.004	(0.004)	0.003	(0.004)
Duration $\theta_3$					-0.226	(0.146)	-0.220	(0.145)
(Duration $\theta_3$ ) <sup>2</sup>					-0.007	(0.006)	-0.007	(0.006)
Duration $\theta_4$					0.074	(0.129)	0.082	(0.129)
(Duration $\theta_4$ ) <sup>2</sup>					0.001	(0.005)	0.001	(0.005)
Correction term:								
Empl. progr. ( $\lambda_1$ )			-2.912	(1.922)			-2.934	(1.924)
Vocat. progr. ( $\lambda_2$ )			<b>6.975</b>	(1.537)			<b>6.844</b>	(1.541)



*Table 7. B. Estimated annual earnings in 1993 (in 1000 NOK) for men 16–20 years of age. OLS and conditional expectation correction method. Coefficients and standard errors (in parentheses). Coefficients significant at the 5 per cent level in bold letters*

Variables	OLS	CEC	OLS	CEC
Train. progr.( $\lambda_3$ )		-2.935 (1.892)		-2.673 (1.893)
Comb. progr.( $\lambda_4$ )		1.0997 (2.334)		0.920 (2.336)
+ individual and labour market related				
local characteristics				
Adj R-sq	0.1448	1460	0.1454	0.1464
N	16534	16534	16534	16534

To illustrate the differences between the results of the three models we look at participants in employment programmes. The results of model 2 in Table 7.A (column 2) show that the effect of participation in one employment programme for a person who was unemployed previous to entering the programme (direct participation=0) is as much as 12,600 NOK more on average relative to a non-participant with otherwise the same characteristics. This difference is significant. The results of model 3 show that a person who participates 18 weeks on an employment programme (average duration of participation in employment programmes for men 16–20 years old) has average earnings of 13,400 NOK above a non-participant. Further, departures from average duration in the programme are decreasing at an increasing rate. However, these two parameters (Duration  $\theta_1$  and (Duration  $\theta_1$ )<sup>2</sup>) are not significantly different from zero at the 5 per cent level indicating that it is programme participation in itself rather than how long one participates that has an effect on earnings. On the other hand, the results of Model 1 in Table 7.5 showed that only employment programmes of short and average duration have a positive effect of about 12,700 NOK, while participation for longer periods of time has no significant effect on earnings. Thus, the results of model 3 give a more precise understanding of the effect of programmes than the two other models.

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Rapport 9:2000

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Young and unemployed, then what?

*Sammendrag*

Er deltakere i arbeidsmarkedstiltak forskjellige fra arbeidsledige som ikke deltar, og er det forskjeller mellom deltakere i ulike typer tiltak? Er det slik at arbeidsledige som deltar i tiltak, har større sjanser for å forbedre sin situasjon på arbeidsmarkedet enn arbeidsledige som ikke deltar i tiltak? Er effekten forskjellig på tvers av ulike typer tiltak? Hvordan er effekten for kvinner i forhold til menn, og hvordan er effekten for tenåringer relativt til effekten for dem som er over 20? Dette er noen av spørsmålene vi forsøker å svare på i denne rapporten, som handler om registrerte arbeidsledige ungdom 16–25 år og effekter av arbeidsmarkedstiltak.

Analysene indikerer at ønskelige effekter av tiltak, som for eksempel økte sjanser for å være i jobb eller under utdanning, er beskjedne. Men vi finner heller ikke indikasjoner på klare negative effekter av tiltak. Effektene varierer på tvers av tiltakstyper og etter kjønn og aldersgruppe.

*Emneord*

Arbeidsmarkedspolitik, evaluering, ungdom.

*Summary*

Do participants in labour market programmes differ from unemployed non-participants, and do participants in different programmes differ? Do unemployed who participate in labour market programmes have greater chances of improving their labour market prospects relative to unemployed who do not participate in programmes? Are effects different across programmes? How are the effects for males compared with the effects for females? And what about the effects for teenagers relative to the effects for unemployed in their 20's? These are some of the questions discussed in this report, which deals with registered unemployed 16–25 years old and the effects of labour market programmes.

The overall conclusion of the analyses is that desirable effects of programmes, such as increased chances of employment and education, seem to be rather modest on average. There is, however, no indication of programmes having negative effects. We find that the effects vary across programmes, and across age groups and gender.

*Index terms*

Labour market policy, evaluation, youth.