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The Effects of Non-Employment in Early Work-Life on Subsequent Employment Chances of Individuals in The Netherlands

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In this article, the effects of non-employment in early work-life on subsequent employment chances of individuals in the Netherlands are examined. A main concern is whether the experience of non-employment in the beginning of the career (permanently) damages a worker's later employment opportunities (that is, the likelihood of exit out of and re-entry into employment). The empirical analysis is based on five retrospective life-history surveys collected in the Netherlands in the period 1992–2003, with full information on employment histories of individuals. The analytic sample consists of 7,761 respondents, who left education since the 1950s. The results of the empirical analysis first of all show that the duration of non-employment in the first 3 years after leaving education (and not the number of non-employment spells in that period) increases the likelihood of exiting employment in the subsequent time period (up until 15 years after leaving education). This finding holds for both men and women. Second, a negative duration effect of non-employment on the likelihood of re-entering employment after a job loss is found, but for men only. These results imply that non-employment in early work-life indeed has a scarring effect on subsequent employment chances of individuals in the Dutch labour market.

Introduction

There is quite some work published in the last two decades looking at whether the experience of unemployment damages future employment prospects, in particular in the form of higher unemployment chances (see for recent contributions among others: Arulampalam *et al.*, 2000; Gregg, 2001; Gangl, 2006). Or formulated differently: do current spells of unemployment increase the propensity of becoming unemployed in the future? In general, this stream of research focuses on a process which is commonly described as scarring (Arulampalam *et al.*, 2001). Scarring—or structural state dependence—refers to the situation where there is a causal link between current and future unemployment. It demonstrates that an individual who currently experiences unemployment will have a higher chance of unemployment in the future than an otherwise equal individual without experiencing unemployment now. In addition to general academic interest, there is a major policy issue involved as well in studying scar effects of unemployment. If there is state dependence, the policy interventions to lower the equilibrium of unemployment are obvious: preventing long-term unemployment spells by means of job creation schemes, wage

subsidies and (re-)training initiatives. If not, these policies to reduce individual unemployment incidence will have no effect on the natural rate of unemployment.

For the Netherlands, there is hardly any research available that investigates scar effects of unemployment. This is surprising, as the employment opportunities of individuals varied widely in this country in the last few decades. Were the employment opportunities during the rebuilding of Dutch society in the first two decades after the Second World War extremely good, the oil crises in the 1970s led to high pressure on the post-war welfare state (Godschalk, 1999). As a consequence, unemployment rates have increased considerably since that period. The worst stage was in the beginning of the 1980s when more than 10 per cent of the total Dutch workforce was unemployed. Among labour market entrants, the situation was particularly bad. Youth unemployment reached its peak in the Netherlands in 1984 with 25 per cent (Salverda, 1992). In addition, the high unemployment rates in that period were characterized by a new phenomenon: long-term unemployment. Many more individuals than before ran the risk of being unemployed for a long time (i.e. longer than 1 year).

We only know of three studies in which scar effects of unemployment are analysed for the Dutch context. First of all, De Vreyer *et al.* (2000) addressed in a comparative study of Denmark, the United Kingdom, France, Italy, and the Netherlands the question whether young workers who first participated in the labour market in times of high aggregate unemployment are permanently disadvantaged, compared to other workers that entered in more favourable periods. By using a pseudo-panel built from a time-series of cross-sectional labour force surveys, they did not find an overall effect of aggregate unemployment at the time of first participation for the Netherlands. However, by differentiating the effect of aggregate unemployment between educational levels, the authors observed an interesting result. The aggregate unemployment rate at labour market entry has a positive effect on the probability of being unemployed later for lower educated, while the effect is negative for higher educated. So, for higher educated young workers in the Netherlands the detrimental effects of entering the labour market in times of high unemployment are less severe than for lower educated ones. In addition, Layte *et al.* (2000) studied the existence of scar effects in the Dutch labour market. In their cross-country comparison (of Britain, Sweden, Italy, and the Netherlands) they found strong evidence of a cumulative effect resulting from past unemployment (that is, the number of months of unemployment in the last 5 years) on the risk of entry into unemployment for both men and women in the Netherlands. Moreover, the authors found that in the Netherlands—like in the other countries—past unemployment has a strong negative effect on the level of class destination and a positive effect on entering the unskilled manual working class, *ceteris paribus*. More recently, Steijn *et al.* (2006) investigated the long-term effects of a bad labour market start in the Netherlands. Also these authors observed that individuals, who started their career as unemployed, are more likely to become unemployed later.

This article, therefore, provides a further investigation into scar effects in the Dutch labour market. More specifically, we are interested in the effects of experiencing non-employment (rather than unemployment) in early work-life on subsequent employment chances of individuals in the Netherlands.[1] The early career consists of the first 3 years after leaving education in which the experience of non-employment is established. Subsequent employment chances refer to exit out of and re-entry into employment in the period between 3 and 15 years after leaving education. To adequately assess the possible scar effects, we need to distinguish between true state dependency and unobserved heterogeneity (Heckman and Borjas, 1980). Individuals may differ in certain unmeasured characteristics that affect their risk of experiencing unemployment, but that are not affected by the experience of unemployment itself. If these unmeasured characteristics are correlated over time and are not statistically controlled for, then current unemployment may incorrectly be considered as a determinant of future unemployment, simply because it is a proxy for over time correlated unobservable variables. Therefore, we correct for possible unobserved heterogeneity in the multivariate analysis. The experience of non-employment is determined by means of the *number* and *cumulative duration* of non-employment spells in the first 3 years after leaving education. The first type of state dependence is termed 'occurrence dependence' (Heckman and Borjas, 1980, p. 248). It refers to the situation where employers use non-employment records in their hiring and firing practices. The second type of state dependence ('lagged duration dependence') can arise, for instance, from the loss of productive skills resulting from non-employment.

The present contribution advances on the few existing Dutch studies on scar effects in two (methodological) ways. First, we use retrospective life-history

data rather than relying on a pseudo-cohorts approach based on repeated cross-sectional data (such as is the case in De Vreyer *et al.*, 2000). Although retrospective data may be troubled by memory bias, this kind of longitudinal data allows to study genuine individual employment patterns rather than aggregate outcomes of a particular cohort from a sequence of cross-sectional state distributions observed at different time points. Second, we pool the data from five retrospective life-history surveys [rather than analysing one single life-history survey as both Layte *et al.* (2000) and Steijn *et al.* (2006) did], which enables to have a much more powerful statistical test of scar effects in the Dutch labour market.

Theoretical Background

Why does scarring occur? Human capital theory (Becker, 1964) claims that non-employment negatively exerts on the accumulation of human capital. Labour market experience is considered as a way of accumulating human capital during the working career. It indicates the level of training required to adequately perform on the work floor. Employers aim to keep the training costs of workers as low as possible and, hence, individuals with experience are more attractive than those without, as the former have more (firm- and/or occupation-specific) knowledge and skills. Periods of non-employment clearly undermine the accumulation of human capital. If non-employed, individuals lose the opportunity to maintain and update their skills. Being in non-employment for a long time can even destroy existing skills (leading to a loss of productive skills), since they may rapidly become obsolete in the current knowledge societies (de Grip and van Loo, 2002). In addition to human capital, non-employment is often linked to a deterioration of social capital that can translate into a weakening of family and social ties, and this desocialization may reduce the probability of finding employment in the future (Granovetter, 1974; Gallie and Paugam, 2000).

Signalling theory (Spence, 1973) stresses the importance of certain signals that help to solve the problem of imperfect information about potential workers faced by employers. When leaving initial education, employers have no other information about the actual skills and true ability of individuals than their educational qualifications and, therefore, use these as a screening device. After a few years in the labour market, however, employers can also use an individual's employment record—perhaps indicating more closely than credentials the true ability of workers—as a selection criterion signalling potential labour productivity (Vishwanath, 1989; Pissarides, 1992). Employers may be inclined to think that there must be something wrong with persons who experienced non-employment in the beginning of their career (regarding their ability, skills, motivation, and so on), causing them to be in a marginal labour market position in the future. This view is supported by the so-called stigma effect of unemployment (Bratberg and Nilsen, 2000), referring to the stigma that unemployed workers carry with them when they experience (long-term) unemployment. This stigmatization also impacts upon the unemployed themselves. The negative signals they receive from (potential) employers probably negatively affect their self-confidence: unemployed persons may lose faith in finding a decent job in the future (Sprengers, 1992). Related to this is that individuals lower their reservation wage during (long) spells of unemployment (Mortensen, 1977). After a certain period of job search, they adjust their choices and preferences and are inclined to accept a low-quality job that is less stable and more likely to be destroyed. Exactly for this reason, these individuals are more likely to experience unemployment in the future.

On the basis of these theoretical considerations, the first hypothesis to be tested in this article is the following:

***Hypothesis 1**: Non-employment in early work-life has negative effects on subsequent employment chances of individuals in the Netherlands.*

The next question, then, is to what extent the detrimental effects of non-employment in the beginning of the career are permanent or not. According to Burgess *et al.* (2003, p. 292), it may well be that scar effects fade away after some time. As soon as the true ability of individual workers turns up, it may outweigh the disadvantageous effects of a bad labour market start. Gardecki and Neumark (1998) empirically support this view. They found that adult labour market outcomes, measured at the age-interval from people in their late 20s to mid 30s, are largely unrelated to early labour market experiences, especially for men. Also from other research it becomes clear that there are no permanent scar effects of early unemployment. The only long-term effect that may be observed is that young workers who experience unemployment in their early career accumulate less work experience and tenure, and therefore, earn less in the future

(Ellwood, 1982). So, our second hypothesis reads as follows:

***Hypothesis 2**: The negative effects of non-employment in early work-life on subsequent employment chances of individuals in the Netherlands decrease over their working career.*

Furthermore, there may be considerable heterogeneity in scar effects. Some individuals may be relatively unaffected by non-employment in early work-life, while others may face considerable adverse career effects of non-employment at labour market entry. In particular, the role of labour market segmentation matters here. According to segmentation theory, the labour market cannot be regarded as a single entity, but should be subdivided into a segment with 'good' jobs and a segment with 'bad' jobs (see for instance Piore, 1975). In the primary segment of the labour market, we find mostly employees with well-paid, permanent jobs and (firm-internal) promotion opportunities. These employees make up the core of permanent workers of a firm, who carry out the key activities. Access to jobs in the primary segment is reserved for those who have mastered the specific skills for these jobs. Therefore, employers use educational qualifications as a screening device to judge the occupation-specific knowledge and skills of individuals and rely on these properties in hiring and firing practices. In the secondary segment of the labour market, in contrast, employers mainly make use of temporary workers to compensate for fluctuations in the work to be done. These workers can be hired through job agencies (temporary help agency employment) or can be called up (on-call employment). As soon as the productivity of the firm declines, temporary workers become superfluous and will be laid-off first. Therefore, the investment made by employers in these workers is usually minimal. The work generally consists of support and/or temporal activities that require little training. This implies that educational qualifications are an irrelevant selection criterion for employers in the secondary labour market segment. Instead of that, these employers principally need to rely on an individual's previous work experience, which serves then as a direct signal of his or her potential productivity. So, it is assumed that scar effects are more consequential in the secondary labour segment than in the primary one, given the stronger emphasis on the individual's employment record in the former. This difference is probably enlarged by the fact that labour market entrants who start in the secondary segment are likely to be entrapped in their unstable position—alternating between periods of employment and non-employment—, as there is hardly any mobility between the two segments. This should additionally handicap them with respect to later career prospects.

In this article, unfortunately, we are not able to distinguish between labour market segments in a direct way, due to the lack of proper measures to define them.[2] Instead of that, we adopt an indirect approach by looking at two particular characteristics of workers that largely determine their likelihood of being employed in one or the other labour market segment. The first characteristic refers to level of education. As argued above, labour market segmentation theory is based on the assumption that there is a link between the allocation mechanisms in the various labour market segments and the required skills. Since a minimum qualification level is required to gain access to the primary segment of the labour market, often translated into an education at the level of upper secondary vocational education or higher, it can be expected that lower educated labour market entrants are particularly found in the secondary segment. Given the premise that employers in the latter segment primarily rely on the individual's employment record rather than their educational qualifications to assess their productive skills, it can be hypothesised that the adverse effects of non-employment at labour market entry on subsequent employment chances are stronger for low educated persons than for high educated ones. So, the third hypothesis states that:

***Hypothesis 3**: The negative effects of non-employment in early work-life on subsequent employment chances of individuals in the Netherlands are stronger for low educated persons than for high educated ones.*

The same argument can be applied to gender differences. Women are more often found in the secondary labour market segment than men and—given the assumption that scar effects are more consequential in this segment—the negative effects of non-employment in early work-life on subsequent employment chances should therefore be stronger for women than for men. In addition, (partial) labour market interruptions of women to take care of children and the household will deteriorate their human capital accumulation. For employers, it is less profitable to invest in women, because of the (expected) shorter pay-off period (Psacharapoulos, 1987). In the case of (part-time) working women, the returns to investment must be recovered in a smaller number of hours and, therefore, non-employment in early

work-life will disadvantage them more during the later working career than men. Therefore, the next hypothesis is formulated as follows:

***Hypothesis 4**: The negative effects of non-employment in early work-life on subsequent employment chances of individuals in the Netherlands are stronger for women than for men.*

In addition to the institutional features of a segmented labour market, structural (macro-economic) labour market circumstances are relevant regarding the strength of scar effects. Some school-leavers enter the labour market during an economic recession; others during a booming period. For individuals from cohorts who left education in a period of unfavourable macro-economic conditions, non-employment in early work-life is probably less disadvantageous. In such a situation, spells of non-employment just happen to an individual like to many other members of that cohort who experience non-employment in the beginning of their career. Experiencing non-employment when entering the labour market in a period of a favourable economic climate, in contrast, is much more a negative signal to employers. Why can the individuals involved not find a job, whereas others actually do? In that case, employers are inclined to think that there must be something wrong with those in non-employment and label them accordingly. Therefore, the fifth and last hypothesis reads as follows:

***Hypothesis 5**: The negative effects of non-employment in early work-life on subsequent employment chances of individuals in the Netherlands are stronger for persons who entered the labour market in times of low unemployment than for those who entered in times of high unemployment.*

Data and Method

In this article, we make use of data from five retrospective life-history surveys conducted in the Netherlands: Netherlands Family Survey 1992–1993 (Ultee and Ganzeboom, 1992), Households in the Netherlands 1995 (Weesie *et al.*, 1995) and Family Surveys Dutch Population 1998, 2000, and 2003 (de Graaf *et al.*, 1998, 2000, 2003). All five surveys are based on random, nationally representative samples from the Dutch population and concern face-to-face interviews with respondents at home. The number of respondents interviewed in the surveys was 1,800, 3,354, 2,029, 1,561, and 2,174, respectively, yielding a dataset of in total 10,918 respondents. From this dataset, we selected individuals who left education in the period after 1950. We look at their working career during the first 15 years after leaving education. After list-wise deletion of respondents for whom information is missing on any of the variables used in the multivariate analysis, a final dataset of 7,761 individuals remained.

The surveys contain retrospective information on work histories, although with some difference in detail. For all jobs held by a respondent, the beginning and ending dates are reported, as well as information on the content of the job. In the Netherlands Family Survey 1992–1993, the work histories were organised by job spells, while in the other four surveys, the work histories were ordered by employer spells. Within each employer spell then, information was gathered on the jobs held—for the survey Households in the Netherlands 1995, this was limited to the first and last job.

The original data were transformed into person-month files, and discrete-time event-history models are estimated. Models are estimated for *exit out of* and *re-entry into employment*, indicating whether an individual is becoming non-employed when currently being in employment, respectively becoming employed when currently being in non-employment after having had a job before. Not working for a period of three months or less is not considered as non-employment. In order to analyse these transitions properly, a logistic (multilevel) regression analysis with correlated random intercepts to capture unobserved heterogeneity among individuals is applied to the person-month data (by means of xtlogit in STATA). Individuals who neither did move out of, or into employment are treated as right censored and repeatable events are possible. The data contain sufficient numbers of events for each transition: 896 exits for men and 2,623 for women and 921 re-entries for men and 1,147 for women.

Various explanatory variables are included in the multivariate analysis. First, non-employment in early work-life needs to be defined. It is measured as the *number* and *cumulative duration of non-employment spells in the first 3 years* after leaving education. Once again, non-employment spells of three months or less are not considered as non-employment. The number of non-employment spells ranges from 0 to 4. The cumulative duration of non-employment spells varies from 0 to 36 months. Given these definitions, the observation window in the discrete-time event-history models begins only 3 years after leaving education (and maximally lasts until 15 years after leaving education).

Second, individual background characteristics are taken into account. *Sex* differences are investigated by distinguishing men and women. Level of *education* is based on seven educational categories referring to the most distinct qualification levels within the Dutch education system: elementary education (lo), lower vocational education (lbo), lower general secondary education (mavo), intermediate vocational education (mbo), intermediate and higher general secondary education (havo/vwo), higher vocational education (hbo) and university education (wo). The variable *years since leaving education* refers to the period since leaving initial education. The timing of exit from initial education is based on the year in which the highest level of education has been attained. The *occupational status* of the job that respondents have is based on the International Socio-Economic Index of Occupational Status (ISEI) developed by Ganzeboom *et al.* (1992). When analysing the transition from non-employment to employment, this variable refers to the occupational position before the episode of non-employment.

Third, the *stage in the life-course* of individuals is measured by combining information on marital and child status in four mutually exclusive response categories and coded with cumulative contrasts. The categories are: single (that is, living alone, unmarried or divorced), married (or cohabiting) without children, married (or cohabiting) with any child under age 6 and married (or cohabiting) with all children over age 6.

Fourth, structural circumstances in the labour market are statistically controlled for. These are determined on the basis of cohort effects. Initially, the cohort effect is assessed by using the *year of leaving education*. The following categories are used: 1950s, 1960s, 1970s, and 1980s. In a second step, the registered *unemployment rate in the year of leaving education* is added to measure the macro-economic conditions more directly (and to test Hypothesis 5). The unemployment rates are based on figures from Statistics Netherlands (CBS, 2007). Survey effects are controlled for by including the *year of survey* (that is, 1992, 1995, 1998, 2000, and 2003). This variable corrects for differences in the design of the various retrospective life-history surveys analysed.

The number and cumulative duration of non-employment spells in the first 3 years after leaving education, year of leaving education, the unemployment rate in the year of leaving education and year of survey are independent variables that are measured time-independently; all other covariates are added as time-dependent variables.

Descriptive Results

Before analysing mobility between employment and non-employment by means of discrete-time event-history models, we start to describe in Figures 1–4 employment rates over the early working career of men and women by the number and cumulative duration of non-employment spells in the first 3 years after leaving education.

In Figures 1 and 2, the employment patterns of men and women are displayed by taking the number of non-employment spells in the first 3 years after leaving education into account.[3] Figure 1 shows that the employment rates for men who have been in non-employment in the first 3 years after leaving education are lower than the employment rates for those who have always been employed during this period. However, the employment rates of the former group of men catch up to a large extent and 15 years after leaving education, only small differences have remained, with the exception for men who left education in the 1980s and who experienced two spells of non-employment in the first 3 years after leaving education.

Also for women, we find general evidence for convergence (Figure 2). The difference with men, however, is that the employment rates for women who have been in non-employment in the first 3 years do not increase in the period between 3 and 15 years after leaving education—as they do for men. Instead, female employment rates decrease over the working career, and then especially for those who have not been in non-employment, making that in some cases the level of labour force participation of women who have been in non-employment in the first 3 years after leaving education reaches that of those who have been working this whole period. In other cases, however, a considerable difference in employment rates remains. In particular, women who experienced two non-employment spells continue to have lower employment rates (especially those who left education in the 1960s and 1980s).

In Figures 3 and 4, similar graphs have been drawn, but now broken down in terms of the duration of non-employment. In Figure 3, we once again observe that the employment rates for men, who have been in non-employment for a long time after leaving education, are lower than for those, who did not experience or only shortly (up to 6 months) experienced non-employment. Also here, patterns of convergence can be discerned. Nevertheless, men who have been in non-employment for more than two years in the first 3 years after leaving education clearly lag

Figure 1 Employment rate for men by year of leaving education and number of non-employment spells

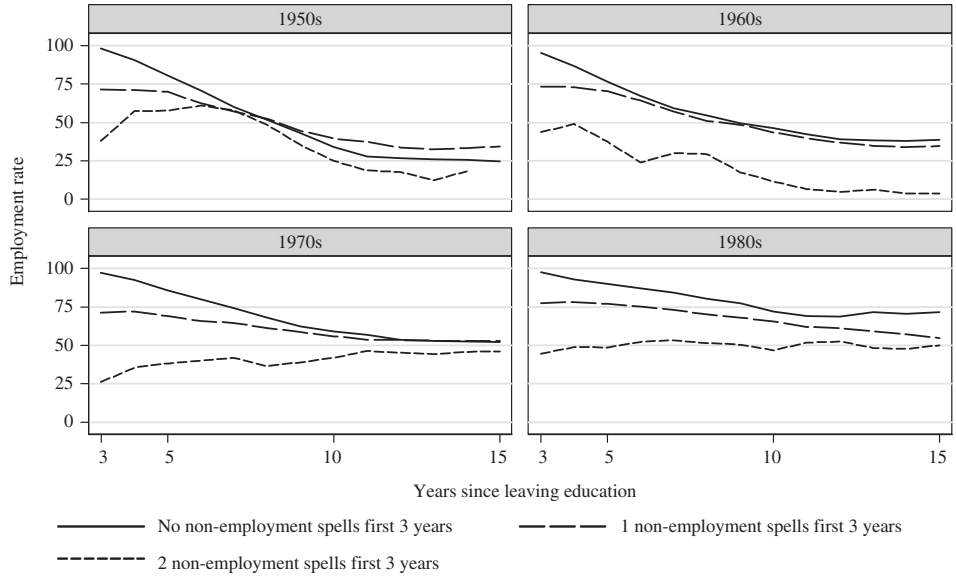

Figure 2 Employment rate for women by year of leaving education and number of non-employment spells

behind in terms of subsequent employment chances. At the end of the observed time period (that is, 15 years after leaving education), their employment rates are still around 15 percentage points lower, with the exception of those who entered the labour market in the 1980s, where the difference is almost 25 percentage points. So, men who experienced long-term non-employment in their early career seem to be permanently handicapped with respect to later employment opportunities.

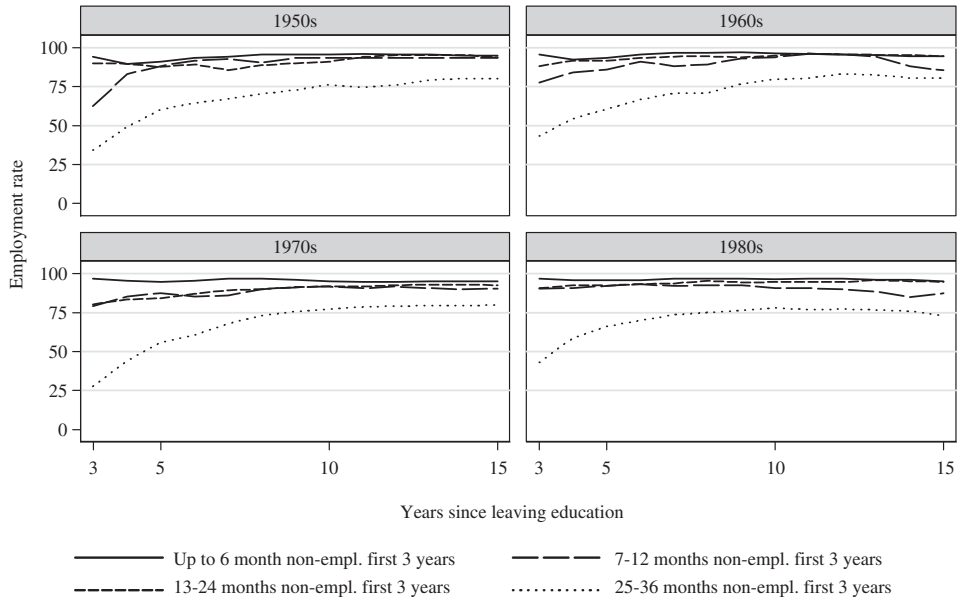

Figure 3 Employment rate for men by year of leaving education and duration of non-employment

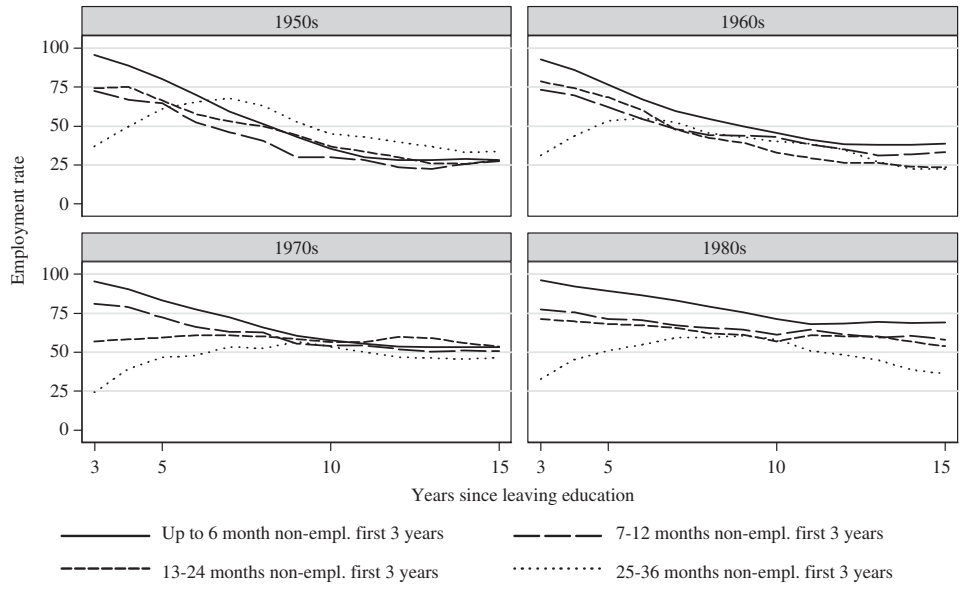

Figure 4 Employment rate for women by year of leaving education and duration of non-employment

For women, we again find decreasing employment rates over the working career (Figure 4). Only for women who experienced non-employment for more than 2 years in the first 3 years after leaving education, an initial increase in employment is detected, but after approximately 8 years their employment rates decline as well. In general, women who were in non-employment for 6 months or less in the first 3 years after

leaving education are most likely to be employed afterwards. However, the differences between the various duration categories are relatively small, especially at the end of the observation period. Once again, the situation for those who left education in the 1980s is exceptional, as for this cohort the relationship between the duration of non-employment in the first 3 years after leaving education and subsequent employment chances is stronger.

Results of Multivariate Analysis

Exit Out of Employment

Table 1 describes which factors affect the likelihood of a transition from employment to non-employment for men and women separately. As independent variables are included the number of non-employment spells, duration of non-employment, years since leaving education, stage in the life-course, education, occupational status, year of leaving education and year of survey. The parameter estimates represent the change in the log odds of the conditional probability of experiencing this transition, caused by a one-unit increase in the associated covariate. Due to the small time-unit of one month all hazards analysed are very low. For such low hazards, the hazard rate and the odds of the hazard rate have nearly the same value. Therefore, the effects of covariates on the odds of hazards are interpreted as effects on hazards.

Model 1 first of all shows that the cumulative duration of non-employment in the first 3 years after leaving education has a positive effect on the probability of becoming non-employed, for both men and women. For men, for instance, the probability of becoming non-employed increases by more than 11 per cent ($e^{0.009*12} = 1.114$), if the duration of non-employment rises by 1 year. This finding supports Hypothesis 1. The effect is not larger for women than men, as was predicted in Hypothesis 4. In addition, the variable years since leaving education affects the probability of becoming non-employed. Labour market entrants, who left education a longer time ago, are less likely to become non-employed than those who left recently. Furthermore, the stage in the life-course of individuals influences the likelihood of employment exit. Remember that the response categories were coded with cumulative contrasts. This means that the effect of a category should be compared with that of the previous one. Men are less likely to become non-employed when they are married; this is even less so when they have young children. Women, in contrast, more often leave the active labour force when they are married and particularly when they have young children. Women with older children less likely leave the labour market than those with young children, although their rate of employment exit is higher than for unmarried women. Aside from this life-course effect, it appears from Model 1 that education matters for women: education negatively affects their probability of becoming non-employed. Higher educated women are less likely to leave the active labour force than lower educated ones. The occupational status attained also has a negative effect on the likelihood of becoming non-employed. Men and women with higher status jobs are less likely to become non-employed than those with lower status jobs. Finally, the results of Model 1 reveal that for women it has become less likely over time that they leave the labour market during their early working career (to take care of the family and the household), whereas for men, the probability of employment exit is highest for those who left education in the 1970s.

In Model 2, we drop the variable number of non-employment spells, as this measure of state dependence was not significant in the previous model. This results in somewhat stronger effects of the cumulative duration of non-employment. For men, the effect size increases from 0.009 to 0.011; for women, the parameter estimate rises from 0.007 to 0.009. Furthermore, Model 2 indicates that excluding the variable number of non-employment spells does not change the estimates of the other variables in the model.

In Model 3, the unemployment rate in the year of leaving education is added, as well as statistical interaction terms of the duration of non-employment in the first 3 years after leaving education with years since leaving education, education and the unemployment rate in the year of leaving education. None of the included interaction terms is significant. This implies that Hypothesis 2, Hypothesis 3, and Hypothesis 5 cannot be confirmed.

Re-entry into Employment

In Table 2, the parameter estimates are presented of the analysis concerning the transition from non-employment to employment after having had a job before. Just like the analysis of employment exit, three models are estimated and men and women are analysed separately. As is evident from Model 1, the duration of non-employment in the first 3 years

Table 1 Coefficients of discrete-time event history models of exit out of employment (logit effects)

	Men			Women		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Number of non-employment spells in first 3 years	0.044			0.059		
Duration of non-employment in first 3 years	0.009*	0.011**	0.000	0.007**	0.009**	−0.002
Years since leaving education ×	−0.092**	−0.092**	−0.101**	−0.089**	−0.089**	−0.092**
Duration of non-employment in first 3 years			0.001			0.000
Stage in life-course (ref. Single; cumulative effects)						
Married, no children	−0.479**	−0.478**	−0.475**	1.581**	1.584**	1.588**
Married, youngest child under age 6	−0.250*	−0.249*	−0.236*	0.590**	0.592**	0.588**
Married, youngest child over age 6	−0.250	−0.250	−0.227	−1.368**	−1.361**	−1.356**
Education (ref. Lo)						
Lbo ×	0.070	0.070	0.056	0.010	0.009	−0.065
Duration of non-employment in first 3 years			0.001			0.012
Mavo ×	−0.068	−0.065	−0.069	−0.290**	−0.288**	−0.264*
Duration of non-employment in first 3 years			−0.001			−0.003
Mbo ×	−0.158	−0.155	−0.020	−0.337**	−0.335**	−0.376**
Duration of non-employment in first 3 years			−0.017			0.009
Havo/vwo ×	−0.190	−0.186	−0.171	−0.474**	−0.469**	−0.544**
Duration of non-employment in first 3 years			−0.004			0.014
Hbo ×	−0.117	−0.113	−0.148	−0.615**	−0.611**	−0.608**
Duration of non-employment in first 3 years			0.002			0.001
Wo ×	0.213	0.216	0.137	−0.506**	−0.500**	−0.507**
Duration of non-employment in first 3 years			0.006			0.003
Occupational status (ISEI/10)	−0.104**	−0.104**	−0.102**	−0.057**	−0.057**	−0.058**
Year of leaving education (ref. 1950s)						
1960s	0.065	0.066	0.065	−0.333**	−0.333**	−0.367**
1970s	0.282*	0.283*	0.252*	−0.958**	−0.959**	−0.853**
1980s	0.150	0.155	0.058	−1.358**	−1.357**	−0.964**
Year of survey (ref. 1992)						
1995	0.234	0.235	0.223	0.018	0.020	0.034
1998	−0.149	−0.148	−0.161	0.030	0.027	0.033
2000	−0.633**	−0.635**	−0.653**	−0.242**	−0.248**	−0.246**
2003	0.127	0.128	0.120	−0.231**	−0.232**	−0.230**
Unemployment rate in year of leaving education ×			−0.004			−0.064**
Duration of non-employment in first 3 years			0.002			0.001
Constant	−5.474**	−5.465**	−5.377**	−4.090**	−4.071**	−3.916**
Lnsig2u constant	0.166	0.168	0.153	−1.050**	−1.043**	−1.093**
Model Chi−square	305**	305**	313**	940**	938**	959**
Df	20	19	28	20	19	28
Number of events	896			2623		
Number of persons	3796			3673		
Number of person-months	459789			313287		

Note: 'lnsig2u constant' denotes the log of the panel-level variance of the intercept.
*$P<0.05$, **$P<0.01$.*

Table 2 Coefficients of discrete-time event history models of re-entry into employment (logit effects)

	Men			Women		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Number of non-employment spells in first 3 years	−0.044			0.028		
Duration of non-employment in first 3 years	−0.011*	−0.013**	−0.011	−0.002	−0.001	0.016
Years since leaving education ×	−0.041**	−0.039**	−0.034	0.003	0.003	0.010
Duration of non-employment in first 3 years			−0.000			−0.000
Stage in life-course (ref. Single; cumulative effects)						
Married, no children	0.045	0.045	0.045	−0.595**	−0.594**	−0.583**
Married, youngest child under age 6	−0.438**	−0.442**	−0.445**	−1.108**	−1.107**	−1.109**
Married, youngest child over age 6	−0.774	−0.772	−0.752	0.723**	0.726**	0.723**
Education (ref. Lo)						
Lbo ×	0.329	0.331	0.371	−0.129	−0.131	−0.182
Duration of non-employment in first 3 years			−0.004			0.007
Mavo ×	0.432*	0.429*	0.353	−0.106	−0.105	−0.245
Duration of non-employment in first 3 years			0.008			0.019
Mbo ×	0.361*	0.362*	0.280	0.181	0.181	0.146
Duration of non-employment in first 3 years			0.010			0.003
Havo/vwo ×	−0.064	−0.066	0.072	0.070	0.071	0.097
Duration of non-employment in first 3 years			−0.011			−0.004
Hbo ×	0.206	0.202	0.073	0.538**	0.541**	0.537**
Duration of non-employment in first 3 years			0.012			−0.002
Wo ×	0.085	0.087	0.084	0.293	0.293	0.229
Duration of non-employment in first 3 years			0.002			0.004
Occupational status (ISEI/10)	0.025	0.024	0.025	0.091**	0.091**	0.094**
Year of leaving education (ref. 1950s)						
1960s	0.109	0.104	0.107	0.416**	0.416**	0.422**
1970s	0.189	0.185	0.182	0.716**	0.718**	0.781**
1980s	0.471**	0.465**	0.453**	1.244**	1.246**	1.468**
Year of survey (ref. 1992)						
1995	−0.186	−0.188	−0.172	0.046	0.049	0.040
1998	−0.279	−0.280	−0.251	−0.136	−0.137	−0.136
2000	−0.492**	−0.489**	−0.471*	−0.274	−0.275	−0.267
2003	−0.761**	−0.766**	−0.754**	−0.331*	−0.329*	−0.325*
Unemployment rate in year of leaving education ×			0.008			−0.011
Duration of non−employment in first 3 years			−0.001			−0.001
Constant	−3.117**	−3.135**	−3.185**	−5.158**	−5.145**	−5.158**
Lnsig2u constant	−0.662**	−0.652**	−0.658**	−0.104	−0.106	−0.104
Model Chi-squared	103**	102**	105**	569**	568**	569**
Df	20	19	28	20	19	28
Number of events	921			1147		
Number of persons	934			2493		
Number of person-months	29941			169969		

Note: 'lnsig2u constant' denotes the log of the panel-level variance of the intercept.
$^{*}P<0.05$, $^{**}P<0.01$.

after leaving education has a negative effect on the likelihood of re-entering employment, but for men only. For them, the probability of re-entering the labour market decreases by 12 per cent ($1 - e^{-0.011*12} = 0.876$) with each additional year of non-employment. This finding partly confirms Hypothesis 1, but implies that Hypothesis 4 needs to be rejected. Furthermore, the variable years since leaving education has a negative effect on the probability to re-enter employment. In addition, the stage in the life-course of individuals matters. For married men with young children, their likelihood of re-entering employment is smaller than for men who are married without having children. Among women, those who are single have the best opportunities to re-enter employment, successively followed by married women without children, married women with older children and married women with young children. Besides that, level of education determines re-entry into employment. First, men who are qualified at the level of lower general secondary education (mavo) and intermediate vocational education (mbo) are more likely to re-enter employment than those with primary education (lo) only. Second, women with a diploma from higher vocational education (hbo) are more likely to re-enter employment after having had a job before than those with only basic education. Also women in high status occupations are more likely to re-enter employment than those having occupations with low status. Finally, year of leaving education is important in explaining rates of re-employment. For women, re-employment probabilities are clearly higher for more recent cohorts of labour market entrants than older ones. For men, we find a similar trend, although the opportunities of re-entering the labour market are only significantly higher for those who belong to the cohort of the 1980s.

In Model 2, the variable number of non-employment spells is once again excluded from the original model. Just like the analysis of employment exit, it is observed that for men the duration effect of non-employment increases somewhat in size (from -0.011 to -0.013) and that the other estimates do not change.

From Model 3, finally, it appears that none of the added interactions between the duration of non-employment in the first 3 years after leaving education and the variables years since leaving education, education and the unemployment rate in the year of leaving education is significant. This means that Hypothesis 2, Hypothesis 3, and Hypothesis 5 are refuted.

Conclusions and Discussion

Based on five retrospective life-history surveys collected in the Netherlands in the period 1992–2003 and advanced statistical methods, the empirical analysis of this article has shown that non-employment in early work-life has detrimental effects on subsequent employment chances of individuals in the Dutch labour market. Non-employment in early work-life was measured in two ways—that is, the number and cumulative duration of non-employment spells in the first 3 years after leaving education—, but it turned out that only the duration of non-employment matters. The results pointed out that the duration of non-employment in the first 3 years after leaving education increases the likelihood of exiting employment in the subsequent time period (up until 15 years after leaving education). This finding holds for both men and women. In addition, a negative duration effect of non-employment on the likelihood of re-entering employment after a job loss was found, but for men only. These results confirm that non-employment in early work-life indeed has a scarring effect on subsequent employment chances of individuals in the Netherlands. No empirical evidence was found that the effects of non-employment duration decline over the working career of individuals (although the descriptive results at least suggested some convergence), nor do these effects differ between educational groups, men and women, and cohorts that left education under various labour market circumstances.

The fact that non-employment duration matters and not the number of non-employment spells, suggests that the detrimental effects of non-employment in early work-life mainly reflect the consequences of a loss in productive skills resulting from this non-employment. This is in line with human capital theory. If an effect of the number of non-employment spells was found, then this would primarily support the view that employers use previous employment records of individuals as a signal of their productive capacity, as is argued in signalling theory. However, future research is needed to develop and conduct more strict empirical tests of the key predictions of both theories in this respect.

Finally, given the observed state dependence of non-employment duration reported in the empirical analysis of this article, the policy recommendations are clear. The findings imply that existing policy interventions in the Netherlands aimed at improving the employment opportunities of in particular the weakest groups on the Dutch labour market [such as

(re-)training initiatives] are quite important measures in order to prevent marginal workers from long-term non-employment and the risk of being stigmatized in the labour market for a long time. Especially in the context of the current knowledge societies, human capital investments over the entire working career ('life long learning') raise the employability of individuals, which improve their chances of staying employed and remaining work secure over the course of their professional life.

Notes

1. The choice for looking at non-employment instead of unemployment is determined by the fact that the data set used in the empirical analysis does not clearly differentiate between both states of inactivity. However, we think that non-employment in the beginning of the working career to a very large extent overlaps with unemployment. Employment patterns simply mirror patterns of unemployment. Only after a few years in the labour market, it can be expected that activity rates decline, mainly due to child-rearing responsibilities. For that reason, we estimate separate models for men and women and adequately control for the stage in the life-course of individuals.
2. Particularly, the data set used for the empirical analysis in this article does not include retrospective information about the sector of industry, probably the single most important characteristic to distinguish between labour market segments.
3. The lines indicating three and four spells of non-employment in the first 3 years after leaving education are not reliable due to small numbers of respondents and are therefore not drawn.

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