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Policies for young adults with reduced work capacity

Labour market impact in Sweden and Norway

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Abstract

The rising numbers of young people with disability pension concerns many advanced economies. We present results from a comparative analysis of Sweden and Norway, two countries which are very similar in many respects, but differ regarding the policy mix to enhance the employability of the work disabled. Using rich longitudinal data, we follow unemployed young adults (aged 25-29 years old) with reduced work capacity to investigate the effect of different types of labour market policies. We follow these individuals up to four years after the start of unemployment. Our results indicate that, in spite of radical differences in programme composition and strategies, there are surprisingly small country differences in impacts. Having participated in workplace related programmes about doubles the likelihood of entering regular employment or education. Participating in qualifying training courses also increases this likelihood, but effect sizes are smaller.

Keywords: Unemployment, labour market programmes, reduced work capacity, young adults
JEL-codes: J08, J64, J68

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1 Introduction

In recent decades, many OECD countries have seen a rise in the number of young people with health impairment, hindering them from being fully integrated in the labour market (see e.g. OECD 2009). The daunting challenges faced by vulnerable groups, like the young, the unemployed and the disabled are often exacerbated in times of economic downturn. In this paper we compare labour market policies targeted at young adults (aged 25–29) with work impairment in Sweden and Norway, two Scandinavian countries often placed alongside when compared to the rest of the world. We investigate how Sweden and Norway have approached the rising number of young unemployed adults with reduced work capacity and investigate if the combination of policies in place has worked to enhance their employability.

Young adults differ in some crucial respects from the very young. Young adults are likely to have completed some/most of the desired education and to have gained some work experience, and they are at a stage in life when many important events occur, like getting the first steady/permanent job and establishing a family. Failing to make these transitions successfully may have serious consequences for their labour market prospects and well-being. It is well documented that scarring effects of youth unemployment are a huge burden to the individual and the society (Bell and Blanchflower 2011). Throughout advanced economies, policies have been put into place to assist the insertion or return to the labour market of young individuals, and to counteract potentially long-lasting scarring effects. Evidence of the impact of such policies is not congruent: differences in target groups, methods and contexts contribute to the divergent findings (Hardoy et al. 2018; Kluve et al. 2019).

The Scandinavian countries have a long tradition of implementing labour market programmes (LMP). They also provide programmes targeted specifically at persons with disabilities, even if in many cases the work impairment is minor. A novelty of this study is that it compares the impact of two policy packages, namely workplace-related vs. training measures, in the neighbouring countries Sweden and Norway. Both countries are relatively small, advanced economies with a common history and culture. They share high standards of living, relatively small income differences and a generous welfare state. Studies of reform paths in sickness and disability policies in the OECD countries since the 1990s, show that Norway and Sweden follow each other closely over time, and closer than most other countries (OECD 2010; Böheim and Leoni 2018). Importantly for our study, the two countries have pursued different policy mixes when it comes to programmes targeted at young adults with reduced work capacity. Sweden has primarily emphasized workplace-related programmes. In contrast, the most popular measure for young adults with work disabilities in Norway has been to take part in ordinary education relying on the welfare benefits LMP participants are entitled to.

Our data cover work-impaired young adults aged 25–29 (born 1973–1984) who have registered as unemployed at the public employment service (PES) in the period from 2002 to 2009. We follow these individuals for a maximum of four years. Rich longitudinal administrative data from Sweden and Norway are merged for this purpose. Importantly, we are able to follow these young adults and observe transitions in and out of active and passive labour market policies, and in and out of employment and education. We use a Timing-of-Events (ToE) framework developed by Abbring and van den Berg (2003) to estimate the effects of programme participation in the two countries. A special feature of the model is that it controls for unobserved heterogeneity, in addition to the usual explanatory variables typically included in such analyses. The model uses information on the timing of events to identify causal relationships. In addition, the method explicitly takes into account that there are unobservable time-invariant individual fixed characteristics that affect both transitions to LMPs and to employment and education.[5] The method has been also been shown to perform well relative to other non-experimental methods (Muller, Klaauw, and Heyma 2020).

There exists a vast number of studies on the impact of LMPs from many countries, mostly focusing on the unemployed in general (see e.g. Card et al. (2018) for a review). There are fewer studies if we narrow down the target group to younger people, and even fewer if we focus on young adults with disabilities. The literature on LMPs for unemployed individuals in general, clearly shows that the effectiveness of programmes differs substantially by age group, where young people seem to gain less from participation in LMPs compared to adults (Card, Kluve, and Weber 2018). Another lesson from the above meta-analysis is that the closer the programmes are to the ordinary labour market, the more successful they seem to be in terms of enhancing employment prospects. The meta-analyses of Kluve et al. (2019) and Hardoy et al. (2018) focusing exclusively on youth support these findings.

Some studies focusing specifically on Sweden and Norway deserve mention. In Sweden vocational labour market training has been found to have a positive impact on employment and earnings for unemployed individuals in general (van den Berg and Vikström 2019), although the experience of this type of measure during the crisis in the 1990s was less positive (Forslund and Vikström 2011). When it comes to programmes on the workplace, wage subsidies are found to have a positive impact on employment prospects (e.g. Sjögren and Vikström 2015), while the evidence for work practice is more mixed (e.g. Forslund, et al. 2013; Swedish Public Employment Service 2021). Focusing specifically on jobseekers with disabilities, Angelov and Eliason (2018b)

[5] Recent applications of the ToE model in the context of LMPs include Clausen et al. (2009); Heinesen, Husted, and Rosholm (2013); Kyyrä, Arranz, and García-Serrano (2019); and Richardson and van den Berg (2013). Particularly relevant in our context is Holm et al. (2017), who use the method to investigate the impact of LMP for sick-listed workers in Denmark.

find that wage subsidies tend to reduce unsubsidized employment in this group, but also the likelihood of leaving the labour market through receiving disability pension. As for Norway, two recent studies (Markussen and Røed 2014; von Simson and Hardoy 2020) suggest that participation in measures that most resemble regular work are more successful than alternative strategies in the sheltered sector.[6] Moreover, strategies that prioritise subsidising ordinary education also appear to be relatively successful for the young work impaired (ibid), although employment effects disappear after 5–9 years (Salvanes, Reiling, and Sandsør 2018).

Our results support the overall conclusions drawn from previous evaluations. In short, we find clear and strong lock-in effects during programme participation for both workplace-related programmes and training/educational programmes, and a positive impact on transitions to unsubsidized work or education after having participated in measures providing work practice and experience. In contrast, the success of training measures seems to be linked to whether or not they provide certified qualifications. We find that participation in programmes providing work experience doubles the chance of transitioning to either regular employment or education, relative to remaining openly unemployed. This is the case in both Sweden and Norway. The impact of participating in training is also positive but considerably smaller.

The paper continues as follows: In section 2 we discuss the conditions young adults have faced on the labour market in recent years, and we highlight important differences and similarities between Sweden and Norway. Section 3 presents the estimation model, while section 4 describes the data and variables. Section 5 presents results, and section 6 concludes.

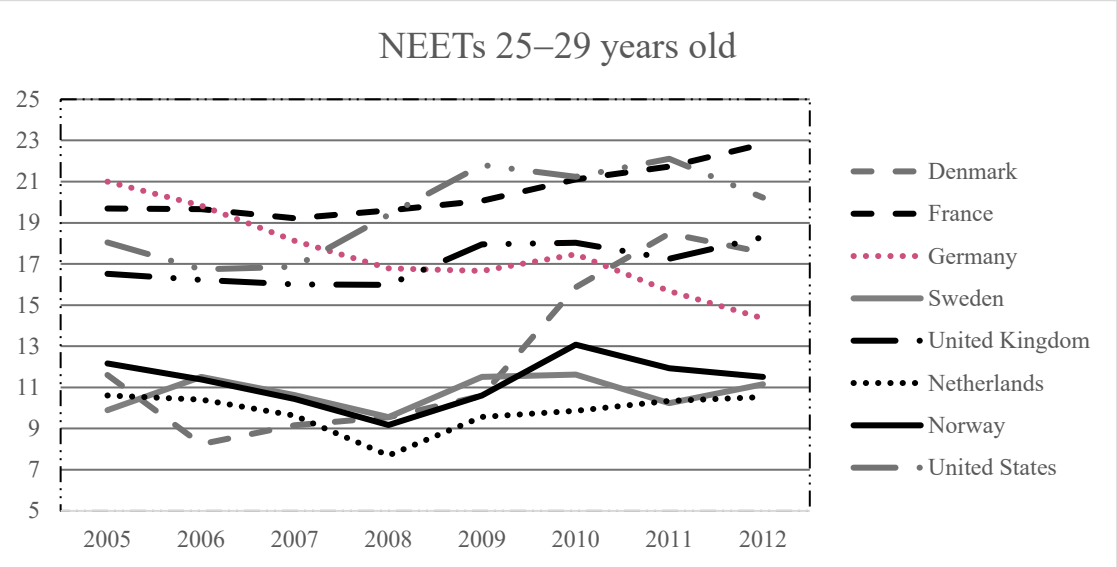
2 Young adults out of work – similarities and differences between the two countries

Norway and Sweden share culture, history, traditions, and common norms. The 'Scandinavian model' refers to the particular way Scandinavian countries organise society and is characterized by strong employer and employee unions committed to seek consensus, universal welfare arrangements, relatively small income differences, and centrally coordinated collective negotiations. Compared to many other advanced economies, both Norway and Sweden can be categorised as generous and efficient welfare states. However, as we will see below, the compensation schemes available for individuals who lack employment differ, with Norway using more health-related benefits than Sweden. This may affect the composition of young adults that are out of work.

[6] Markussen and Røed (2014) cover the whole population while von Simson and Hardoy (2020) focus on youth.

Youth below age 30 who do not participate in a meaningful productive activity belong to the NEET (Not in Employment, Education or Training) population. Figure 1 shows the share of 'NEETs' aged 25–29 during 2005–2012 in selected OECD countries. Norway and Sweden have had very similar developments, also compared to other northern European countries like Denmark and Germany. Moreover, together with the Netherlands they have among the lowest share of NEETs among the OECD countries, although still amounting to a sizable fraction of the population (9–13 percent). However, the composition of NEETs differs somewhat. In particular, it is more common for young adults in Norway to not have completed upper secondary education. In 2009, 16 percent of individuals aged 25–34 in Norway lacked an upper secondary degree, compared to 9 percent in Sweden (OECD 2020). Lacking secondary education is a strong predictor of future difficulties on the labour market in both countries (ibid).

Figure 1 NEETs 25–29 years old, in percent of the population in the same age group, selected countries. Period 2005-2012.



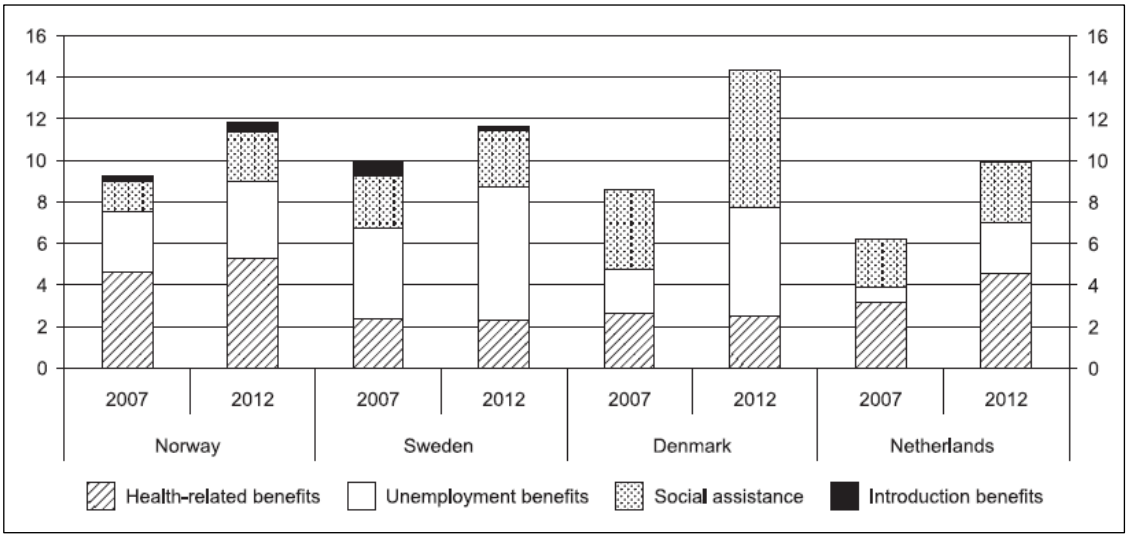
Source: OECD statistics.

Many young people who remain out of work and education have complex problems. They often have little work experience, little formal education, and many have mental health problems (OECD 2018; 2016). Sweden has seen a rising trend of mental health problems among young people during the past few decades, both in terms of self-reported problems, such as excessive worrying and anxiety, and hospitalization due to mental illness (National Board of Health and Welfare 2013). A similar development has been documented in Norway (Bakken 2020). In both countries, mental health conditions is the predominant reason for inflows to disability pension among young adults (Swedish Social Insurance Inspectorate 2011; Brage and Thune 2015).

In this context, it is interesting to get an overview of what benefits are available to the inactive youth population. Figure 2 shows the share of youth in out-of-work benefits in selected countries.

Norway and Sweden both had 9–10 percent of youth, aged 15–29, in out-of-work benefits in 2007 and nearly 12 percent in 2012 (NOU 2021). However, the distribution of benefits is different, which is likely to reflect differences in the policy mix between the two countries, but could also depend on underlying structural differences such as the unemployment level. Relatively more young individuals in Sweden claim unemployment insurance (UI) benefits compared to Norway, while youth in Norway are more likely to claim health-related benefits. The share of youth receiving social assistance is rather similar in both countries.

Figure 2 Out-of-work benefits, youth 15-29 in selected countries.



Source: NOU (2021).

There are also differences in the institutional framework that are worth highlighting. In Norway, all social security benefits (including UI benefits) are under the same umbrella, making it easier to ask for assistance, support and benefits. In Sweden, there are parallel structures: The PES offers labour market programmes and controls whether the unemployed fulfil the criteria needed to receive UI benefits. The Social Insurance Agency administers all social insurance benefits, e.g., temporary and permanent disability pension and sick leave benefits, and the municipalities are responsible for social assistance.[7]

[7] While the PES is responsible for the national labour market policies, most municipalities also offer programmes to recipients of social assistance; see Forslund et al. (2019). However, in this paper we focus on individuals registered at the PES who will have access to the broad supply of programmes offered there.

Table 1 Total expenditure on LMP measures (in euros and percent of GDP), and percent spent on different types of LMP measures 2008.

	Expenditure on LMP	% of GDP	Training	Employ-ment in-centives	Supported employment and rehab	Direct job creation	Start-up incentives
Denmark	2 280 000	2.4	23.7	13.8	62.5		
Germany	13 193 900	1.9	54.8	14.3	6.1	12.1	12.7
Netherlands	4 253 800	2.0	14.0	20.5	65.5		
Sweden	2 150 200	1.4	10.6	57.3	30.0		
Norway	1 286 000	0.7	49.8	5.9	33.7	9.9	0.7

Source: Eurostat and OECD. LMP measures are grouped in broad categories accommodating significant country differences. See Eurostat for detailed definitions.

Relative to the population size, expenditure on LMP appear rather similar in Norway and Sweden[8], although Norway spends a lower fraction of GDP; see Table 1 which shows numbers for 2008. However, according to how Eurostat categorises LMP, the distribution of measures differ substantially: Norway spent a much larger share on training – 50 percent compared to only 11 percent for Sweden. On the other hand, in Sweden 57 percent was spent on employment incentives, such as wage subsidies and work practice, compared to only 6 percent in Norway. Both countries spent as much on supported employment and rehabilitation. Norway also allocated a significant share on direct job creation, which was more or less absent in Sweden. By and large, these patterns have been stable this millennium. In Section 4 we will have a closer look at the mix of programmes offered to unemployed young adults with work impairment.

All in all, this section has highlighted that Norway and Sweden are similar in many respects when it comes to the situation of young adults who lack employment. But, as we will see, the two countries offer different policy mixes to assist young adults with reduced work capacity. These observations form the starting point for our comparative analysis. By creating similar datasets for a similar population, and estimating the same type of model, we will analyse whether the combination of policies in place has worked to enhance the employability of this group of unemployed. However, as we have also seen in this section, there are some additional notable differences between the countries: available compensation schemes are somewhat different and it is more common for young adults in Norway to not have completed an upper secondary degree. Such difference may also matter for our results and is something we will return to throughout the paper.

[8] The population of Sweden is about double that of Norway.

3 The estimation approach

A main challenge in all effect evaluations based on non-experimental data is to separate causal effects from spurious correlations. Those who receive treatment may have some observed or unobserved characteristics which may influence the probability of receiving treatment as well as the outcome of treatment. For instance, less healthy (motivated) individuals may be more likely to participate in LMPs as well as having a lower probability of finding work, leading to a negative correlation between programme participation and the job-finding rate. Failure to control for such heterogeneity in the form of self-selection into treatment would lead to biased estimates of the treatment effect.

We use the Timing-of-Events (ToE) approach formalised by Abbring and van den Berg (2003) to identify the causal effects of LMPs on subsequent transitions. Lombardi, van den Berg, and Vikström (2019) and Gaure, Røed, and Zhang (2007) show, using Monte Carlo simulations, that the ToE model is well suited for separating causal treatment effects from sorting effects. This framework utilizes information about the timing of treatment and the timing of outcome to distinguish causal effects from selection effects. The outcome and the treatment assignment are modelled jointly as a competing risks hazard rate, allowing for unobserved heterogeneity in both processes. Selection effects are then explicitly controlled for by allowing the unobserved determinants associated with each hazard rate to be correlated.

A fundamental assumption of the ToE approach is the no-anticipation assumption: individuals should not know in advance the exact moment of treatment, or they should not react on such information. If individuals know for sure that they will participate in a programme at a certain date, they may choose to reduce (or intensify)[9] their search for jobs while waiting for the programme to start. If this is not controlled for, the estimated treatment effects will be biased. The magnitude of the bias, however, is likely to depend on the time span between the moment individuals are informed about the possibility of LMP participation and the actual start of the programme, since a longer time span provides more room for individuals to act on this information. Furthermore, the assumption does not rule out that individuals may have knowledge about the determinants of the process of programme assignment and act on this information.[10]

We do not have access to information about notification of LMP participation and can therefore not rule out anticipation effects. However, this is unlikely to be a major problem. In the case of Norway, the supply of programmes is constrained and there are indications that assignment to programmes is based on availability, often on short notice, and with local

[9] Several studies find a so-called threat effect of program participation, leading to increased search effort before the program starts (e.g. Black et al 2003; Hägglund 2011; Maibom et al 2014).
[10] The no-anticipation assumption is not specific to ToE models, but also central in other treatment evaluations methods based on spell-data, such as matching; see e.g. discussion in Richardson and van den Berg (2013).

variations.[11] Although the same argument cannot be made for Sweden, Hall et al. (2022) find that anticipation effects among unemployed youth in Sweden tend to be concentrated to those with stronger labour market prospects; for individuals with a weak position on the labour market – which are the focus of our study – they find no significant anticipation effects before programme start. Moreover, the no-anticipation assumption does not rule out the possibility that some individuals know that they have a larger probability of participating in LMPs and act on this knowledge.

The model under consideration is a multivariate mixed proportional hazard rate model. We specify the following hazard rates:

$$(1)\quad \theta_P(t|x, c_t, v_P) = \lambda_P(t)\exp\left(x\beta_P + c_t\gamma_P + v_P\right)$$

$$(2)\quad \theta_O(t|x, \Delta_o(t), c_t, v_o) = \lambda_O(t)\exp\left(x\beta_O + \Delta_o(t) + c_t\gamma_o + v_o\right)$$

where x is a set of observed covariates[12], c is the youth unemployment in the municipality of residence, and v is the error term. All variables are included as flexibly as possible, preferably using dummy variables for each value. Equation (1) is called the selection equation and represents the hazard rate from unemployment to LMP participation, for programme type p. t is the time elapsed since the start of the unemployment spell (normalized to zero). $\lambda_P(t)$ and $\lambda_O(t)$ measure the baseline risk of having a transition to either LMP or work/education, which is independent of other covariates. The baseline hazard will be modelled as piecewise constant, with two-month intervals for the first 12 months, four-month intervals for durations of 13–24 months, and six-month intervals for durations over 24 months. We censor durations over 36 months due to few observations and transitions after this month.[13] All durations are measured in months, and we thus use a discrete version of the underlying continuous hazard rate.

Equation (2), the outcome equation, measures the hazard rate from unemployment to outcome o (work/education). Here we include the effect of LMP participation, measured by the indicator function $\Delta_o(t)$. This effect is further divided into an on-programme effect and an after-programme effect.[14] While participating in LMP, the unemployed is expected to have less time

[11] Lande and Selnes (2017) report that for about a third of cases it took more than a year from the time the unemployed individual's ability to work was assessed until a programme was initiated. Reasons for the delay were many: a program considered to be suitable was not available, the person was too sick, or negligence on the part of the PES. Furthermore, around half of registered work-impaired individuals lack activity plans, and follow-up is sporadic (Riksrevisjonen 2018).

[12] These include human capital and demographic variables, parental income and education among others.

[13] In Section 5.2 we show results when using different censoring times (27 months and 48 months, in addition to 36 months).

[14] For a transition to work/education to be categorized as an after-programme transition, the individual needs to first return to open unemployment after programme participation and thereafter make a transition to work/education.

available for job-search activities and may thus reduce search effort, often referred to as a 'lock-in' effect. After programme completion, the likelihood of getting a job may increase again, e.g., due to higher job search activity, increased formal or job-specific human capital, better information, or larger networks.

As mentioned previously, individuals who participate in LMP may have unobserved abilities that influence programme assignment as well as the probability of leaving unemployment for work/education, which will bias the estimated programme effect. Another common problem in duration analyses is the "weeding-out" effect. Some individuals may have certain unobserved characteristics which make them more likely to leave unemployment faster than others; hence individuals with long durations may be a selected subsample of the original population. This may lead to an underestimation of the duration dependence parameters and the proportionate response of the hazard to variations in a characteristic (including the programme effect).

To try to solve these problems, a set of time-invariant individual unobserved characteristics v, which are allowed to be correlated across transitions, is included in the model. The unobserved characteristics enter the model as random effects and are thus assumed to be uncorrelated with the observed covariates. However, Lombardi, van den Berg, and Vikström (2021) show that the ToE-model is relatively robust to correlations between observed and unobserved covariates, as long as the distribution of unobserved heterogeneity is flexibly specified, the sample size is large and there is some exogenous variation in the hazard rate. We follow the modelling framework suggested by Gaure et al. (2007) and let the unobserved heterogeneity follow a discrete distribution with an a priori unknown number of mass points. In addition, the inclusion of time-varying calendar variables induces exogeneity into the hazard rates, further strengthening identification (Brinch 2007; Lombardi, van den Berg, and Vikström 2021). The model is estimated by maximum likelihood. The estimation procedure starts with one mass point (no unobserved heterogeneity), and then more points are added sequentially. To avoid over- or under-correction for unobserved heterogeneity, we use the Akaike Information Criterion (AIC) to select the optimal number of mass points (Lombardi, van den Berg, and Vikström 2021).

4 Sampling, variables and descriptive statistics

4.1 Data, sampling and variables

Our databases consist of population-wide administrative registers with information on unemployment, participation in labour market programmes, employment, earnings, benefit uptake, education, demographics etc., provided by Statistics Norway, Statistics Sweden, and the PES in each country. The data has a panel structure, making it possible to follow individuals over

time with regard to transitions in and out of the labour market. Our starting point is the registers from the PES in Sweden and Norway. From these registers, we sample unemployment spells starting between January 1, 2002 and December 31, 2009[15], and include all individuals coded with reduced work capacity who have turned 25 but not yet 30 years old (at the start of the spell).[16] The pragmatic reason for focusing on this age group is that in Sweden all unemployed individuals younger than 25 years of age should be offered participation in guarantee programmes already after three months, which they cannot refuse if they want to keep receiving UI benefits.[17]

Common to the young adults in our sample is that they have some reduction in their work capacity that can be improved or overcome, and they are registered as unemployed job seekers at the PES. In Sweden, if the caseworker suspects that the client has reduced work capacity, he/she can initiate an evaluation conducted by specialists employed at the PES. A medical report or a report from another specialist (e.g., a psychologist) is often required, but not always. The client also needs to consent to be labelled as 'occupationally disabled'.[18] In Norway, there are two ways to obtain the code of work impaired: one is through a certificate of ill health issued by a general practitioner; the other is through an assessment done at the PES. Notable, in both countries getting this code is also likely to be related to the person's difficulties finding a job, as this code expands the number of tools available to the caseworker to help the client.[19]

The unit of analysis is spells of registered unemployment of individuals with reduced work capacity. We consider an unemployment spell to start when a person, who has not been registered at the PES for at least 60 days, registers as unemployed. If there is a break of less than 60 days between two consecutive unemployment periods, these periods are merged.[20] We use a rather broad definition of open unemployment: counselling, coaching and job search activities during unemployment are also categorized as open unemployment (see the appendix for details). Such measures, often referred to as follow-up measures or job search assistance, are mostly of short

[15] The time frame is chosen taking into account a break in the time series (2002) and a radical change of LMP in Norway (2010) as well as taking into account that time needs to elapse for programmes to be evaluated.
[16] We do not put any restriction on when the individual received the reduced-work-capacity code to be included in the sample as this condition may become apparent to the case worker some time after registering as unemployed.
[17] The program in place since 2007 is called the Youth Job Guarantee (see Hall et al (forthcoming) for an evaluation of this progamme). Between 1998 and 2006 a similar guarantee program, the Youth Guarantee, existed in many municipalities (see Forslund and Skans (2006) for an impact evaluation).
[18] See Angelov and Eliason (2018a) for a thorough description of the process.
[19] Country differences in benefit entitlements means that a larger proportion of work disabled unemployed are entitled to UI benefits in Sweden than in Norway. In Norway, on the contrary, receiving this code triggers vocational rehabilitation benefits not accessible as ordinary unemployed. We cannot disregard the possibility that differences in the process, or incentives, to obtain the code of work impaired would have implications for the sample selection, potentially giving rise to disparities in characteristics between the Norwegian and Swedish samples. We compare the characteristics of the two samples in the next section.
[20] In Sweden, some spells start with a code indicating that the individual is not yet available for jobs, e.g. due to parental leave or sick leave. In such cases, this part of the spell is not included. Instead, the unemployment spell is considered to begin when the person changes status to open unemployment.

duration meant to assist the unemployed in finding a meaningful activity.[21] Noteworthy, as opposed to unemployed individuals in general who often enter unemployment directly from a job, many of the work-impaired individuals in our samples have relied on different welfare benefits for some time, e.g. sick leave benefits or social assistance (see next section).

As openly unemployed, the young adults may be entitled to UI benefits, but not all are. UI benefits in Sweden depend on employment history while in Norway they require that earnings surpass a certain threshold.[22] Work impaired young adults in Norway are entitled to vocational rehabilitation benefits, with the same level of benefits as UI benefits. During the period registered at the PES, some young adults participate in LMPs. These measures encompass a large variety of interventions, with varying degrees of intensity, duration, and content. LMPs have changed over the period of analysis to accommodate volume and types of programmes to economic fluctuations and demand. Moreover, the supply of programmes reflects differences in policy objectives and means of achieving them in the two countries. While participating in LMPs the unemployed are entitled to benefits in both countries, and benefits may vary with type of programme and previous earnings/employment.[23] Following the international literature, we group LMPs into two broad categories. *'Train'* includes training courses of varying duration and certification (both preparatory and vocational), and in Norway it also includes ordinary education. The reason for also including this programme category for Norway is that it is available to unemployed with work disabilities under the same conditions and with the same benefits as labour market training courses. *'Place'* consists of measures providing work experience in the workplace, such as work practice and wage subsidies, of varying duration as well as degree of subsidy. (In the appendix we show how each individual programme in each country is categorized.) Two programmes within the same category that follow each other (or with a break of open unemployment lasting less than 60 days) are treated as the same programme. In the occurrence of transitions between the broad programme categories or a second transition to the same programme type (more than two months later), spells are censored. Spells where the unemployed enters programmes that are difficult to categorize as either *train* or *place* are also censored.[24]

[21] Also the Swedish program Vocational Rehabilitation is categorized as open unemployment, as its content often (but not only) includes counselling and coaching activities. In fact, a large share of the job seekers with work impairment are registered in this programme for a (usually short) period. This is probably related to the assessment needed to receive the work impairment code. Our results do not appear to be very sensitive to how these periods are coded; see section 5.2.

[22] During the period of analysis, the individual had to have worked at least 6 out of the 12 months preceding unemployment to be entitled to UI benefits in Sweden. The threshold for benefit entitlement in Norway was either a minimum of about 14,000 euros the previous year or nearly 30,000 euros the last 3 years (today's value).

[23] Differences in benefit entitlements may give rise to various incentives. However, exploring this is beyond the scope of this study.

[24] In the case of Sweden, these programmes include: Projects with Employment Orientation and Work Life Introduction. Both have rather few participants in our sample. In Norway, programmes directed at permanently disabled individuals, in the sheltered sector, are censored.

An unemployment period ends if the person leaves the PES register for more than 60 days, referred to as a permanent transition. In accordance with the intention of LMPs, we model explicitly two transitions, to ordinary education[25] and to regular unsubsidised employment.[26] All other transitions are censored. Spells lasting longer than 36 months are also censored. The reason for this is that Sweden had different 'guarantee programmes' in place during the period studied which ensured that individuals did not remain in open unemployment for very long periods.[27] This means that we have few observations to compare LMP observations with after about 2–2.5 years of unemployment in the Swedish sample. (However, in Section 5.2 we show that our results are not very sensitive to the choice of censoring time.) We use different data sources to code permanent transitions in Sweden and Norway. In the Swedish data, the caseworker always registers the reason why the client leaves unemployment (regular employment, education, other known or unknown reason), and we use this information to determine if the spell ends due to employment or education. In Norway, we use register data from several administrative registers, like the Employer/Employee register, Income register and Educational Register to determine why the spell ends.[28] For both countries, we also consider the spell to end due to a transition to employment if the individual remains in the PES register, but is coded as temporarily employed, employed by the hour, or part-time employed for at least 60 days.

The registers from both countries contain daily information, but as a final step before estimating our model we convert it to monthly data to facilitate estimation. The conversion to monthly data implies that spells with a transition to a programme during the first month of unemployment do not contribute to the identification of programme effects; we therefore exclude these spells. This excludes 4 percent of the spells for Sweden and close to 30 percent for Norway; see Table 2 below.[29]

[25] In Norway, ordinary education can be both an LMP and an outcome. The two states are distinguished by how they are registered in the data, i.e., by whether ordinary education is provided as a labour market programme or not.
[26] Evaluations of LMPs for individuals with work disabilities sometimes also consider subsidised employment a successful outcome (e.g. Angelov and Eliason 2018b). In our study, subsidised employment programmes constitute an important part of the treatment, and can therefore not be included as an outcome.
[27] Until June 2007, the rules stated that all individuals should be offered full-time activity within 27 months of unemployment, the so called 'Activity Gurarantee'. After July 2007, the 'Job- and Development Guarantee' offered activation for individuals who had either used up all their UI benefits or had been registered at the PES for more than 18 months. The initial phase of this program (about 5 months) however consisted of follow-up type activities (e.g., counseling or job seeking activities) which we define as open unemployment.
[28] A more detailed description of the outcomes is found in the appendix. Due to differences in register data between the countries it was not possible to use completely consistent measures. Instead, we have followed commonly used approaches to define transitions to employment/education in each country. An evaluation of pros and cons of these two types of data sources, and whether they matter for the effect sizes found, is beyond the scope of this study.
[29] To check whether excluding these spells affects our results, we have re-estimated the model on the Norwegian sample redefining the duration clock such that spells starting with an LMP are interpreted as being exposed to an LMP some time during the first month. Estimates for *train* become somewhat stronger and larger in absolute value, while estimates for *place* remain unchanged.

4.2 Descriptive statistics

Table 2 shows descriptive statistics for the full samples and the estimation samples. One first thing to notice, is that the full sample for Norway is much larger than that of Sweden in relation to the population size. A possible reason is that in Norway unemployed young people with very limited work experience are not entitled to either UI or vocational rehabilitation benefits, and ordinary LMPs are limited, potentially creating de facto incentives for caseworkers to provide programmes earmarked for the work disabled, which are more abundant (OECD 2018). This may lead to the 'work impaired' in Norway being a relatively stronger group (their work capacity may be less reduced) compared to Sweden. But there could be other institutional differences working in the opposite direction. For instance, disability benefits may be easier to obtain in Sweden, since they are not permanent (below age 30) as they are in Norway. This may lead to individuals with severe work impairment being less likely to appear in the Swedish compared to the Norwegian sample. However, as we will see below, none of the samples stand out as being in a stronger labour market position in terms of the characteristics we can observe in our data.[30]

It is relevant to note that the estimation samples are similar to the full samples despite the fact that we exclude 30 percent of the spells for Norway, suggesting that this adjustment should not affect the representativeness of the samples. The estimation samples consist of 26,464 Swedish and 22,337 Norwegian unemployment spells, comprising 20,338 Norwegian and 22,194 Swedish young adults aged 25 to 29.[31]

[30] Unfortunately, our data do not contain comparable health indicators and we can thus not rule out differences in health or severity of work impairment between the samples.
[31] The Norwegian data lacks information about the oldest cohorts born 1973–1975, meaning that we do not have a full sample of young adults aged 27–29 years.

Table 2 Sample descriptives of unemployed young adults with reduced work capacity

	Sweden		Norway	
	Full sample	Estimation sample	Full sample	Estimation sample
Individual characteristics				
Age (at spell start)	27.50	27.50	27.18	26.74
Male	0.540	0.537	0.519	0.524
Married (year of spell start)	0.147	0.147	0.150	0.150
Child (year of spell start)	0.360	0.359	0.426	0.428
Born in Sweden/Norway	0.818	0.817	0.853	0.842
Born in other Nordic country	0.011	0.011	0.014	0.014
Born outside the Nordic countries	0.171	0.171	0.134	0.144
Compulsory education	0.319	0.318	0.513	0.537
Upper secondary education	0.559	0.560	0.394	0.370
Post-secondary education	0.113	0.114	0.076	0.074
Missing/unknown education	0.008	0.008	0.017	0.018
Years employed, previous 3 years	1.231	1.235	1.425	1.386
Sickness benefits, previous year	0.315	0.313	0.210	0.200
UI benefits, previous year	0.285	0.287	0.106	0.111
Rehabilitation benefits, previous year	0.065	0.064	0.262	0.251
Social assistance, previous year	0.302	0.302	0.337	0.349
Disability benefits, previous year	0.089	0.088	0.017	0.015
Parental characteristics				
Mother education: compulsory	0.276	0.277	0.393	0.399
Mother education: upper secondary	0.442	0.441	0.381	0.372
Mother education: post-secondary	0.139	0.138	0.116	0.109
Mother education: missing/unknown	0.143	0.144	0.110	0.118
Father education: compulsory	0.287	0.287	0.310	0.314
Father education: upper secondary	0.382	0.382	0.431	0.421
Father education: post-secondary	0.109	0.108	0.129	0.124
Father education: missing/unknown	0.222	0.222	0.130	0.140
Mother's rank in income distr.	33.34	33.30	36.14	35.48
Father's rank in income distr.	47.58	47.54	59.40	58.99
Number of observations	27,487	26,464	31,451	22,337

Note: Data on disability benefits are missing for the first two years for the Swedish sample.

A comparison of the Swedish and Norwegian samples provides grounds to postulate that we are comparing rather similar samples. Some differences need mention, nevertheless. The Swedish sample has a slightly higher fraction of women and a somewhat higher share born outside the Nordic countries. Noticeable, a much higher fraction of the Norwegians has not completed upper secondary school. This could partly reflect differences between the education systems; Norway has overall a higher dropout rate than Sweden (see discussion in Section 2). On the other hand, the Norwegian sample has a stronger employment record during the three years preceding unemployment. Parental education is an important predictor of offspring completed education and labour market attachment and differences in this respect are small, with a somewhat higher education level among mothers in the Swedish sample while it is higher among fathers in Norway.

Both the fact that parental education and the share with higher education is quite alike point in the direction of rather similar labour market prospects for the two samples.

Differences in social security benefits prior to unemployment shown in Table 2 reflect differences in benefit systems between the countries, with a greater share of the Swedish unemployed having claimed UI benefits, while relatively more having claimed rehabilitation benefits in Norway. Moreover, since disability benefits are not permanent in Sweden, people enter and leave this status more frequently in Sweden than in Norway. Overall, the descriptive statistics suggest that there are no grounds to assert that the one target group is in a stronger labour market position than the other. Hence, although we cannot assert that the samples are comparable, we have reasons to believe that the institutional context play an essential role in determining how young people adapt and that our samples are, by and large, comprised of similar people confined by different settings.

Table 3 shows descriptives by programme category. Participants in *place* and *train* do not appear to be very different when it comes to age, family status, or foreign background, but *place* has a higher share of male participants than *train*, particularly in Sweden. A comparison across programme categories with respect to human capital variables shows that *place* participants stand out as having less education, less employment experience, and are more likely to have received social assistance benefits that do not depend on previous income compared to participants in *train* and those who never participate in LMPs. This is the case in both Sweden and Norway. There are small differences and no clear pattern when it comes to parental human capital variables across programme categories in both countries.

Table 3 Descriptive statistics by programme type

	Sweden			Norway		
	Place	*Train*	No LMP	*Place*	*Train*	No LMP
Individual characteristics						
Age (at spell start)	27.50	27.52	27.50	26.77	26.76	26.74
Male	0.622	0.561	0.480	0.541	0.520	0.522
Married (year of spell start)	0.141	0.150	0.149	0.147	0.176	0.145
Child (year of spell start)	0.342	0.367	0.368	0.434	0.425	0.428
Born in Sweden/Norway	0.797	0.804	0.834	0.808	0.778	0.860
Born in another Nordic country	0.010	0.013	0.011	0.015	0.015	0.013
Born outside the Nordic countries	0.193	0.183	0.155	0.177	0.207	0.127
Compulsory education	0.346	0.308	0.304	0.581	0.512	0.536
Upper secondary education	0.529	0.591	0.570	0.311	0.394	0.373
Post-secondary education	0.116	0.097	0.118	0.087	0.079	0.071
Missing/unknown education	0.009	0.004	0.008	0.020	0.014	0.019
Years employed, previous 3 years	1.118	1.298	1.286	1.136	1.519	1.361
Sickness benefits, previous year	0.272	0.333	0.332	0.172	0.244	0.194
UI benefits, previous year	0.241	0.315	0.307	0.131	0.141	0.102
Rehabilitation benefits, prev. year	0.060	0.052	0.070	0.188	0.141	0.282
Social assistance, previous year	0.344	0.293	0.280	0.395	0.299	0.354
Disability benefits, previous year	0.087	0.066	0.095	0.007	0.006	0.018
Parental characteristics						
Mother education: compulsory	0.276	0.265	0.281	0.395	0.355	0.410
Mother education: upper secondary	0.431	0.448	0.445	0.357	0.356	0.378
Mother education: post-secondary	0.137	0.126	0.143	0.095	0.118	0.109
Mother education: missing/unknown	0.157	0.161	0.131	0.153	0.171	0.102
Father education: compulsory	0.289	0.272	0.290	0.306	0.278	0.324
Father education: upper secondary	0.375	0.384	0.385	0.404	0.404	0.428
Father education: post-secondary	0.104	0.102	0.113	0.119	0.126	0.124
Father education: missing/unknown	0.232	0.242	0.211	0.171	0.191	0.125
Mother's rank in income distr.	32.99	32.31	33.76	34.98	36.38	35.37
Father's rank in income distr.	46.68	47.07	48.17	58.44	59.62	58.94
Number of observations	8,323	4,128	14,013	2,288	3,527	16,522

Note: Data on disability benefits are missing for the first two years for the Swedish sample.

Table 4 shows that nearly one in two of the Swedish young adults in our estimation sample participate in LMPs, compared to one in four in Norway.[32] *Place* appears to be much more used in Sweden than in Norway for our target group: two thirds of the participants participate in *place* in Sweden, compared to around 40 percent in Norway. On the contrary, about 15 percent of the sample in both countries participates in *train*.[33] Average spell duration is shorter in Sweden than

[32] Note that since our estimation sample excludes a large fraction of Norwegian programme participants (all those who began a programme already during the first month of unemployment), we cannot conclude that activation is generally less common in Norway.

[33] The difference in the use of *place* and *train* between Norway and Sweden holds also when looking at the full sample (rather than the estimation sample).

in Norway, 17 months and 22 months, respectively.[34] Average duration of participation in *place* is slightly longer in Norway (13 compared to 12 months), while the duration of *train* is substantially longer in Norway than in Sweden (12 compared to 5 months). This difference has to do with the characteristics of the different programmes, which we will discuss in some detail in the next section.

The lower part of Table 4 shows transitions to regular employment and education by programme category, during programme participation as well as after programme completion. One out of three in Sweden and one out of four in Norway leaves the register of unemployment to start regular employment, and 6–7 percent exit to start ordinary education. The share of spells that are censored due to participation in a second LMP is a lot larger in Sweden (15 percent) than in Norway (4 percent). The remaining observations, amounting to 44 percent in Sweden and 66 percent in Norway, are censored for other reasons. This is partly due to our censoring after 36 months, but also because some leave the registers for unknown reasons.

[34] Note that since we censor unemployment spells after 36 months the numbers presented here do not reflect complete spell (or programme) durations.

Table 4 Duration of unemployment and programmes, shares in programme participation and transition probabilities to outcomes states, by country.

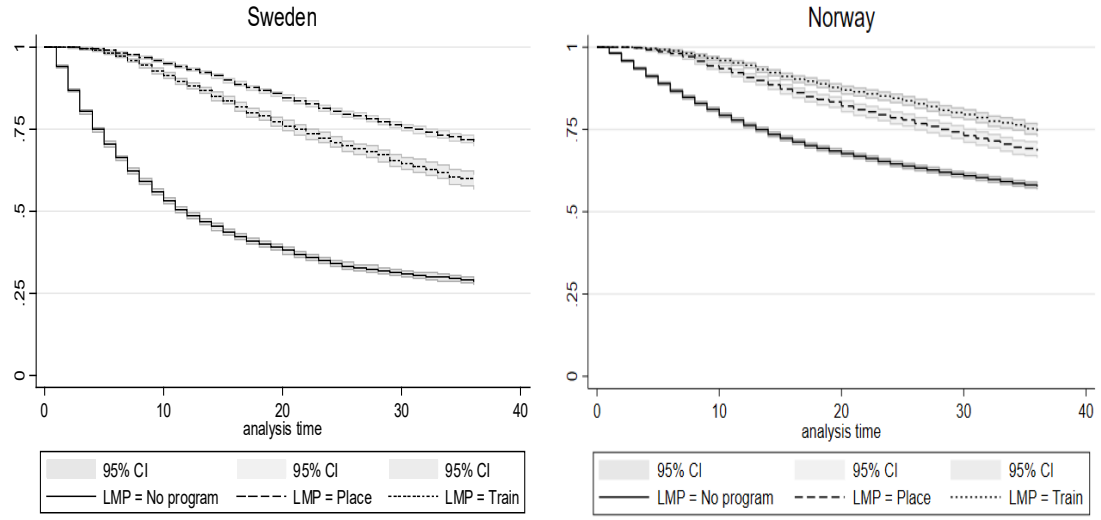
	Sweden		Norway	
	mean	sd	mean	sd
No programme	0.530	0.499	0.740	0.439
Place	0.315	0.464	0.102	0.303
Train	0.156	0.363	0.158	0.365
Duration of unemployment (months)	17.44	12.75	21.71	12.75
Duration before Place (months)	9.81	8.57	6.35	7.32
Duration before Train (months)	8.28	7.52	5.92	6.70
Duration in Place (months)	12.01	10.19	13.25	10.04
Duration in Train (months)	4.90	3.89	12.32	10.96
Transitions to regular employment	0.343	0.475	0.251	0.433
- *during Place*	0.034	0.182	0.015	0.123
- *after Place*	0.030	0.170	0.008	0.089
- *during Train*	0.011	0.105	0.009	0.092
- *after Train*	0.023	0.148	0.013	0.114
- *no programme*	0.245	0.430	0.206	0.404
Transitions to ordinary education	0.069	0.239	0.062	0.242
- *during Place*	0.003	0.057	0.002	0.047
- *after Place*	0.005	0.072	0.001	0.036
- *during Train*	0.001	0.033	0.007	0.081
- *after Train*	0.006	0.076	0.004	0.061
- *no programme*	0.046	0.208	0.049	0.215
Censored due to transition to second programme	0.153	0.360	0.039	0.195
Censored due to transition to programme other than Place or Train	0.010	0.100	0.015	0.122
Censored due to duration>36 months	0.187	0.390	0.322	0.467
Censored for other reasons	0.247	0.431	0.325	0.468
Observations	26,464		22,337	

Note: Censored for other reasons include the PES reporting «unknown reason» for Sweden. For Norway censored for other reasons means that the individuals are not found in either the employment or the education register after the unemployment spell ends.

Figure 3 shows survival curves by programme category. Half of the work impaired openly unemployed in Sweden were still unemployed after about a year, while the equivalent figure for Norway was three out of four. Three years later, roughly 25 percent of the non-participants in Sweden and 55 percent in Norway were still openly unemployed.[35] These differences could partly be a result of the use of 'guarantee programmes' in Sweden, preventing very long spells of open unemployment (see section 4.1). The figure also shows that individuals who participate in LMPs at some point during their unemployment period tend to have substantially longer spells compared to non-participants. This is expected as programmes are generally targeted at those most in need of further assistance, but the pattern may also partly reflect lock-in effects of programme participation.

[35] The finding is in line with Bragstad and Sörbö (2015) who find that many young people spend very long periods registered with work-impairment: over 40 percent were still registered with reduced working capacity three and a half years after initial registration in their sample.

Figure 3 Survival curves by programme participation status



The survival curves for individuals who participate in *place* are quite similar in both countries, with close to 75 percent still in unemployment after three years. For participants in *train*, we see substantially longer unemployment durations in Norway: after about three years, 75 percent of participants in *train* in Norway are still unemployed, compared to around 60 percent in Sweden. The observed patterns can partly be explained by differences in programme characteristics. Many of those in *train* in Norway participate in ordinary education programmes, which can last up to three years. However, we cannot exclude that possibility that differences in individual characteristics also matter for the observed patterns.

5 Results

5.1 Main results

We begin by evaluating the overall effect of the policy mix offered in each country, separating the programmes into *train* and *place*. Table 5 shows our main results. Model 1 presents the estimated impact using a specification of the outcome variable that measures success of each programme category as the accumulated impact on transitions to employment and education. Model 2 defines success only if programme participation increases the likelihood of a transition to regular employment. On the left we present results for Sweden and on the right for Norway.

Table 5 The effect of LMP during and after programme participation on the transition to employment and education together and on employment alone

Model 1: Transition to regular employment and ordinary education				
	Sweden		Norway	
	During LMP	**After LMP**	**During LMP**	**After LMP**
Train	-0.574***	0.229*	-0.808***	0.199*
	(0.125)	(0.130)	(0.102)	(0.106)
Place	-0.482***	0.795***	-0.256**	0.511***
	(0.091)	(0.103)	(0.117)	(0.132)
Model 2: Transition to regular employment				
Train	-0.552***	0.099	-1.047***	0.269***
	(0.135)	(0.142)	(0.093)	(0.083)
Place	-0.441***	0.794***	-0.046	0.739***
	(0.102)	(0.114)	(0.089)	(0.103)

Note: Estimates and standard errors (in parentheses) for the mixed proportional hazard rate model presented in Section 3. *** p<0.01, ** p<0.05, * p<0.1. All models include the same controls: gender, age, immigration background, being married, having children, education level, previous employment, each parents' earnings and education level, county, year and quarter, as well as the municipal youth unemployment rate (measured monthly). Observations are censored after 36 months. Model 1 has 4 mass points for both Sweden and Norway; Model 2 has 5 mass points for Sweden and 3 for Norway.

The sign of the estimates shows whether the estimated impact is positive or negative. Even though estimates cannot be interpreted directly, if the value of the interval for which we measure the effect is sufficiently small, and if the estimate of β is sufficiently small, then $\beta \approx (\exp(\beta)-\exp(0))*100$ approximates the percentage change of the effect of the covariate on the hazard rate. For instance, the value of 0.51, in the far right of the second row in Table 5, can be interpreted as approximately equivalent to a 67 percent increase in the likelihood of experiencing a transition to regular employment or ordinary education as a consequence of having participated in *place* in Norway.

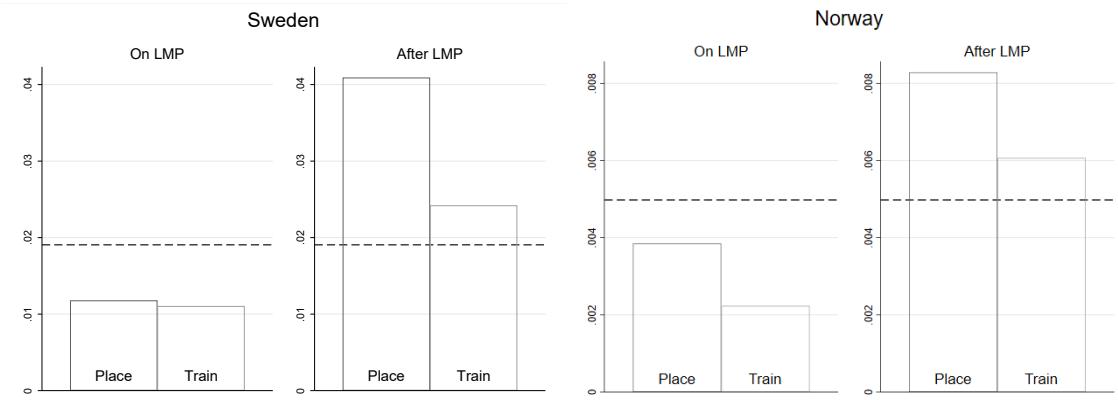
The first (Sweden) and third (Norway) columns in Table 5 show the well-established finding of lock-in effects while participating in programmes. While *place* and *train* have similar lock-in effects in Sweden, the lock-in effects are a lot more prominent for *train* than for *place* in Norway. This can be understood in the context that ordinary education is available as a LMP in Norway, but not in Sweden, and can last up to three years. The patterns of lock-in-effects are rather similar both when we look at effects on regular employment and ordinary education (upper part) and when we focus on regular employment alone (below).

As regards the after programme-effects, Column 2 (Sweden) shows that they are positive for both train and place, but the impact is substantially larger for place. Moreover, the Swedish estimates for place are almost identical irrespective of whether education is included in the criterion for success, suggesting that the impact is driven by transitions to regular employment and not to education. The opposite appears to be the case for training indicating that any positive impact of train seems to be driven by transitions to education only. The last column shows only

positive and significant estimates for Norway, indicating that both train and place have a positive impact, irrespective of the success measure used. As in Sweden, after-effects in Norway are largest for place. In contrast to Sweden, both estimates increase when education is removed as a measure of success, suggesting that it is employment which is driving the desirable results. Noteworthy, the after-effect on employment for place is nearly the same for both countries.

To facilitate the interpretation of the results, we have calculated monthly probabilities of experiencing a transition to work/education for a reference person; see Figure 4.[36] The reference person is 27 years old, male, native born, has no children, is not married, has been unemployed for 8–10 months, has completed upper secondary education, has one year of work experience (during the last 3 years), and lives in the Stockholm/Oslo area. His parents have upper secondary school as their highest level of education, and both have incomes in the lowest category of the parental income rank.

Figure 4 The effect on employment/education of participation in place and train, during and after programme participation. Sweden (left) and Norway (right)



Note: Calculated monthly probabilities for a reference person with a specified set of characteristics.

The dashed line shows the monthly conditional probability of having a transition to work/education for this reference person. The baseline is higher for Sweden than for Norway; this may reflect country differences in labour demand or in incentives generated by various benefit schemes. Differences in sample composition and the definition of employment may also play a role. The bars show how programme participation changes this probability, during and after participation in LMP, ceteris paribus. The figures show typical lock-in effect of LMP in both countries, but a stronger lock-in effect of *place* in Sweden than Norway. Regarding the impact after LMP participation, the results are remarkably similar in both countries: the likelihood of

[36] This is done by inserting the estimated parameters into the hazard rate equation. The observed covariates are set to their reference values, while the calendar variables and unemployment rate are set to their average values over the observation period. The unobserved heterogeneity is set to its average value.

entering employment or education is about double as high for a person that has participated in *place* compared to the reference person, and around 25 percent higher if having participated in *train*.[37]

So far, we have tried to reach a compromise between the policies of the two countries to highlight the impact of similar broad policy measures in the different settings. However, there are some differences between Norway and Sweden that should not be left unnoticed. These have mainly to do with the particularities of the spectrum of policies available to young adults with reduced work capacity in the two countries.

Model 3, in Table 6, shows separate estimates for the different sub-categories of programmes belonging to the *place* category while leaving the *train* category unchanged. *Place* consists of a variety of programmes that differ in terms of length, target group, and degree of subsidy. An important dividing line in Sweden is between *work practice* and different types of *wage subsidies.* Average duration is 3.8 months for *work practice,* 9.6 months for *regular wage subsidies*[38] and 16.3 months for *wage subsidies targeted at individuals with disabilities* (see Table A1). Moreover, since participants in *wage subsidies* are employed during participation, the programmes resemble real jobs to a much larger extent compared to *work practice*. In Norway, *work practice* and *wage subsidies* resemble, in broad terms, the Swedish divide, but both last about a year on average. *Supported employment* is often targeted at people with relatively more serious disabilities than the other programmes in *place* and average duration is 18 months.

The results for model 3 show the typical lock-in effects for most sub-categories in both countries. For Norway, however, *wage subsidies* seem to function as a springboard to working life also during participation. The after-effect of *work practice* is negative for Sweden, and positive but modest for Norway. The estimated after-effect for *wage subsidies* is positive, highly significant and large in magnitude for both countries. As regards *supported employment* in Norway, the after-effect is moderate and not stable, and we cannot exclude the possibility of no effect or a negative effect.[39] Overall, and in accordance with previous findings, our results indicate that programmes that more closely resemble real jobs seem to be most successful in both countries.

[37] However, in absolute terms the effects are larger for Sweden; note the difference in scales on the y-axis.
[38] Subsidized employment programmes that are not targeted specifically at individuals with disabilities.
[39] The estimates of model 3 for Norway are based on one mass point only, which means in practice that it hardly controls for unobserved heterogeneity. Had we used the ML rather than the AIC criterion to choose the preferred model, the estimate for the after-effect of *supported employment* would not be significant. Since model 3, which divides programmes into four categories for Norway, puts considerably strain on the data, we have also estimated an alternative specification for Norway where we add the two programme categories with the fewest participants (*work practice* and *wage subsidies*). For this specification the estimate for *supported employment* turns negative. Results can be obtained from the authors.

Table 6 The effect of LMP during and after programme participation on the transition to employment and education together. Programme types are divided into sub-categories.

Model 3: Sub-categories of place				
	Sweden		Norway	
	During LMP	**After LMP**	**During LMP**	**After LMP**
Train	-0.431***	0.392***	-0.871***	0.148***
	(0.122)	(0.126)	(0.058)	(0.057)
Supported employment	X	X	-0.939***	0.405*
			(0.170)	(0.243)
Work practice	-0.309**	-0.276**	-0.536***	0.245***
	(0.123)	(0.132)	(0.084)	(0.091)
Wage subsidies	-0.257*	1.541***	0.210***	1.091***
	(0.148)	(0.163)	(0.092)	(0.135)
Model 4: Sub-categories of train				
Labour market training			0.084	0.123
			(0.130)	(0.115)
Vocational labour market training	-0.094	0.475**	X	X
	(0.234)	(0.233)		
Preparatory training	-0.933***	0.095	X	X
	(0.159)	(0.157)		
Ordinary education	X	X	-1.094***	0.423***
			(0.111)	(0.119)
Place	-0.461***	0.785***	-0.203*	0.574***
	(0.085)	(0.094)	(0.116)	(0.120)

Note: Estimates and standard errors (in parentheses) for the mixed proportional hazard rate model presented in Section 3. *** p<0.01, ** p<0.05, * p<0.1. All models include the same controls; see Table 5. Observations are censored after 36 months. Model 3 has 6 mass points for Sweden and 1 for Norway; Model 4 has 3 mass points for both Sweden and Norway.

Model 4, in Table 6, instead shows separate estimates for different sub-categories of LMPs in the *train* category, while leaving the *place* category unchanged. *Train* for Sweden consists of two types of programmes: *vocational labour market training* and *preparatory training*. The former consists of training for specific professions where there is a shortage of trained workers, while the latter consists of courses that are more general and orientational in nature and which aim to prepare the job seeker not only for jobs but also for future participation in other LMPs or regular education. Average duration for both categories is about 4 months (see Table A1). *Preparatory training* turns out to be the most common type of training for the individuals in the Swedish sample; 11 percent of the individuals participate in this type of training compared to 4 percent for *vocational labour market training*. In Norway *train* consists of *ordinary education* and *labour market training*. While *ordinary education* can last up to 3 years, labour market training consists of shorter courses (5 months on average). The Norwegian labour market training consists of both preparatory and vocational courses, and our data does not allow us to separate these from one another (hence, in model 4 they belong to the same sub-category).

The results indicate that the two sub-categories of training programmes have very different impacts on transitions to jobs and regular education. In Sweden the lock-in effect is much larger

for *preparatory programmes*[40], and these programmes also do not seem to improve outcomes after they are completed. *Vocational labour market training*, on the other hand, has a clear positive after-effect.[41] Still, it is smaller in size compared to the *place* programmes. Estimates for Norway indicate that it is *ordinary education* that drives the positive after-effect found for the *train* category, while *labour market training* has no statistically significant after-effect.[42] Overall, the results for model 4 suggest that the success of training measures seems to be linked to whether or not they provide certified qualifications.

5.2 Sensitivity analyses

In our main analyses, participation in *follow-up* measures is considered part of open unemployment. The reason being that *follow-up* measures provide mainly coaching, counselling, mapping, short courses to learn how to write a CV, etc. The duration in *follow-up* is also generally much shorter. Hence, one could argue that these activities do not provide concrete qualifications/work experience but are more of a preparatory and supportive nature. However, since such categorisation is not obvious, we investigate further whether treating these programmes differently in the analysis changes our results. In the top part of Table 7, we show results for our main model specification (model 1), but where we instead censor all observations with a transition to *follow-up* measures (we refer to this specification as model 5). The results show that the lock-in effects remain rather similar for both countries compared to the results obtained for model 1. The after-effect for Sweden remains larger for *place* than for *train*, but the difference between the two programme categories becomes smaller.[43] In Norway both effects become slightly larger indicating that participation in *follow-up* prior to *train* or *place* drives the estimates slightly downwards. We can thus conclude that the overall patterns for model 1 are rather stable when it comes to changes in the composition of reference group.[44]

[40] That we do not find evidence of any lock-in effect for *vocational labour market training* may be due to that individuals who transition to jobs directly after the programme (during the same month as the programme ends) are coded as finding jobs *during* the program.

[41] The finding that that *preparatory training* does not speed up transitions to employment to the same extent as *vocational labour market training* is in line with results presented in de Luna, Forslund, and Liljeberg (2008) for unemployed persons in general.

[42] Notice though, that this may be due to that because of small sample issues it is not possible to investigate the effect on transitions to education separately from the effect on employment. Von Simson and Hardoy (2020) study the impact of programmes for youth 18–23 with work impairment in Norway and find that *labour market training* has a positive effect on transitions to education but not to employment.

[43] The Swedish sample is altered quite a lot to meet this condition. Since quite many job seekers with work impairment are registered in the programme *vocational rehabilitation* for a shorter period before participating in other LMPs, this change of coding implies that we now censor many participants in both *train* and *place* before programme participation. The remaining sample is likely to be a selected group of work disabled.

[44] In Table 1B in the appendix we present estimates from two additional analyses for Norway that investigate the sensitivity of our results to how follow-up measures are treated; we either control for participation in these measures or include them as a separate programme category. The results indicate that the specification used in Table 5 captures the relevant patterns. These models were not possible to estimate on the Swedish data.

Table 7 The effect of LMP during and after programme participation on transitions to employment and education. Different sensitivity analyses.

	Sweden		Norway	
Model 5: Follow-up is censored				
	During LMP	**After LMP**	**During LMP**	**After LMP**
Train	-0.547***	0.453***	-0.757***	0.250 ***
	(0.144)	(0.154)	(0.103)	(0.104)
Place	-0.383***	0.664***	-0.198*	0.588 ***
	(0.118)	(0.130)	(0.109)	(0.121)
Model 6: Observations are censored after 27 months				
Train	-0.509***	0.330**	-0.826 ***	0.191***
	(0.129)	(0.136)	(0.074)	(0.077)
Place	-0.490***	0.713***	-0.247***	0.529 ***
	(0.098)	(0.110)	(0.074)	(0.097)
Model 7: Observations are censored after 48 months				
Train	-0.554***	0.249*	-0.764 ***	0.269**
	(0.124)	(0.129)	(0.105)	(0.112)
Place	-0.556***	0.742***	-0.069	0.749 ***
	(0.082)	(0.090)	(0.126)	(0.142)

Note: Estimates and standard errors (in parentheses) for the mixed proportional hazard rate model presented in Section 3. *** p<0.01, ** p<0.05, * p<0.1. All models include the same controls; see Table 5. In model 5 observations are censored after 36 months. Model 5 has 2 mass points for Sweden and 4 mass points for Norway; Model 6 has 3 mass points for both Sweden and Norway; Model 7 has 5 mass points for Sweden and 4 mass points Norway.

Another aspect we have investigated further is the choice of censoring time. The 'guarantee programmes' in place in Sweden meant that there are very few untreated individuals to compare LMP participant with after about 27 months of unemployment (see section 4.1). In Norway we have the opposite situation, where many young adults wait long before starting a programme. This means that transitions after around 27 months should not contribute much to the estimated effects in the Swedish case, independently of if we prolong the observation period or not, while for Norway we drop a lot of relevant information by censoring early. Choosing to follow observations for a maximum of 36 months is a compromise between the two regimes. Results from model 6 and model 7 in Table 7 show that no major changes to the estimates occur as we allow more or less time to elapse (censoring after 27 vs. 48 months), suggesting that we successfully capture the relevant patterns in model 1. Still, we can observe that censoring after 48 months gives stronger positive after-effects for Norway, indicating that also those that remain in the PES system longer may experience a successful transition.

The Swedish data contain information on the type of work impairment that the unemployed are coded with.[45] In Table 8 we add these this information as additional control variables to our baseline model. This can be seen as a test of whether our model specification is successful in capturing health-related heterogeneity. It is reassuring to see that the overall pattern is similar in

[45] The individuals in our sample have one (or more) of 13 categories of work impairment. The most common being impaired mobility (24.7%); mental work-related disability (21.5%); and social-medical disability (16.7%).

this analysis. The after-effect for *place* remains larger than for *train*, although the differences are again somewhat smaller.

Table 8 The effect of LMP **in Sweden** during and after programme participation on transitions to employment and education together. Controlling for type of work impairment.

	During LMP		**After LMP**	
Train	-0.441***	(0.133)	0.370***	(0.136)
Place	-0.572***	(0.091)	0.667***	(0.099)

Note: Estimates and standard errors (in parentheses) for the mixed proportional hazard rate model presented in Section 3. *** p<0.01, ** p<0.05, * p<0.1. The model includes the control variables listed in Table 5 in addition to dummy variables for categories of work impairment. Observations are censored after 36 months.

6 Conclusions and remarks

Successful policies that can mitigate the rising numbers of work impaired young adults who are outside the labour market are in great demand in many countries. This study compares the impact of labour market policies targeted at unemployed work-impaired young adults (aged 25–29) in Sweden and Norway, two rich advanced economies with highly developed welfare states and vast experience in implementing active labour market programmes. Differences exist between the two countries regarding incentives and disincentives of welfare arrangements, including the portfolio of policies targeted at young unemployed adults with reduced work capacity. In Sweden, LMPs targeted at this group predominantly consist of programmes providing work practice/experience, while in Norway qualifying/educational programmes dominate.

We do our outmost to construct comparable data sets of unemployed young adults with work-impairment, who registered at the public employment service (PES) during 2002–2009, and we follow their unemployment spells for a maximum of four years. In both countries, the PES plays a crucial role in defining the target group; being registered as work-impaired is related to both the person's health and expected labour market prospects. Descriptive statistics indicate that the two groups are rather similar in terms of characteristics that are likely to be important for their labour market prospects. However, we can of course not exclude the possibility of compositional differences in some (for us) unobserved dimensions (e.g., physical or mental health). Using detailed longitudinal administrative data, we can follow these young adults in and out of active and passive labour market policies, and in and out of the labour market and education. We estimate a proportional hazard rate model with competing risks using the framework proposed by Abbring and van den Berg (2003). A special feature of the model is that it controls for unobserved heterogeneity allowing for a flexible number of mass points.

Following a well-established distinction of programme types in the literature, we divide LMPs into programmes providing experience in the workplace (*place*), and training/educational programmes (*train*). We run separate country analyses and investigate how the programme

portfolio targeted to young unemployed adults with work disabilities have worked to enhance their employability. In line with previous studies, we find lock-in effects of programme participation on the probability of transitioning to regular employment or education in both countries. In Sweden, lock-in effects are similar for both programme categories. In Norway, we find stronger lock-in effects for *train*, mainly driven by participation in ordinary education as a LMP which can last to up to three years, but less so for *place*. We find that *place* has a positive impact on transitions to regular employment/education after programme completion in both countries, doubling the likelihood of such a transition relative to non-participation. The after-effect for *train* is also positive in both countries, but considerably smaller in magnitude.

Programme specific analyses shed light on policy particularities. In the case of Sweden, *train* programmes are intended to either meet shortages of staff in professions of high demand (vocational labour market training) or are more general or orientationally oriented (preparatory training). We find that only vocational training has a positive impact on transitions to employment/education after completion. In the case of Norway, the two major programmes in train are ordinary education and labour market training (which can be either general or vocational). Our results show that ordinary education is the main driver of the positive after-programme effect for *train*. Moreover, our results show that the positive effect of *train* increases as we allow for a longer follow-up time. As regards *place*, when we separate wage subsidies from the other workplace related programmes, we find that wage subsidies is the major driver of positive effects in both countries. The other specific programmes in *place*, such as work practice and supported employment have more uncertain impacts.

Our data does not permit us to investigate the separate impacts of programme types on transitions to education alone. However, by comparing results from our main specification with a regression that focuses on ordinary employment (only) as a measure of success, some interesting results emerge. For Sweden, the impact of train becomes insignificant while the impact of place is just as strong. This is indicative of a positive effect of *train* and no effect of *place* on transitions to ordinary education. For Norway, the estimates for both *place* and *train* become stronger, suggesting that both programme categories might have a negative effect on transitions to education, if anything.

We carry out several sensitivity analyses, by, e.g., censoring data differently and including health-related information, and conclude that the overall patterns found are rather robust to model specifications. For Norway, later censoring results in more positive effects, and as ordinary education offered as an LMP can last up to three years it is possible that the after-programme window does not capture the full effect on employment if censoring too early. It is important to highlight that we study the duration of unemployment until the first transition to regular

employment/education takes place. Previous studies have found that educational/training programmes tend to have more positive effects on both employment and earnings with a longer follow-up horizon (e.g., Card, Kluve, and Weber 2018; Markussen and Røed 2014; van den Berg and Vikström 2021). Hence, it is possible that some programme-effects would have turned out more positive if we had followed individuals even longer.

Overall, our results for young adults with work disabilities support the main findings in the international literature for the unemployed population at large. The closer programmes are to the needs in the labour market, both in terms of qualifications and work experience, the more likely it is that programme participation leads to a successful transition. This is the case for both Sweden and Norway. The fact that the results are similar for both countries – despite some important differences in policy priorities and institutions – suggest that they may also extend to other Northern European countries.

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Appendix

Table A1. Share participating and duration[1] in major sub-groups of programmes

	Sweden		Norway	
	mean	sd	mean	sd
Place				
Work practice	0.116	0.320	0.064	0.245
Regular Wage subsidies	0.045	0.206	0.020	0.141
Supported employment			0.016	0.127
Wage subsidies targeted at disabled	0.154	0.361		
Duration in Work practice (months)	3.815	2.517	11.945	9.372
Duration in regular Wage subsidies (months)	9.593	6.968	12.819	9.870
Duration in Wage subsidies targeted at disabled (months)	16.262	10.426		
Duration in Supported employment (months)			18.571	10.818
Train				
Labour market training	0.156	0.363	0.078	0.268
Vocational labour market training	*0.042*	*0.202*		
Preparatory training	*0.114*	*0.317*		
Ordinary education			0.079	0.271
Duration in Labour market training	4.004	3.115	5.222	5.532
Duration in Vocational labour market training	4.589	3.709		
Duration in Preparatory training	3.786	2.831		
Duration in Ordinary education			19.263	10.496
Observations	26,464		22,337	

Note: 1) The numbers presented do not reflect complete programme duration as observations are censored after 36 months.

Table A2. Categorisation of programmes

	Sweden	Norway
Place		
Work practice	Work Practice (*Arbetspraktik)* International Practice Scholarship (*Interpraktik*) Trial Opportunity (*Prova-på-plats*) Lift (*Lyft*) Skill Development (*Praktisk kompetensutv.*)	Work practice (*Arbeidspraksis*, *Hospitering*)
Wage subsidies, regular	Recruitment Incentives (*Anställningsstöd*) Plus Jobs (*Plusjobb*) New Start Jobs (*Nystartsjobb*) Entry Recruitment Incentive (*Instegsjobb)* Job- and Development Programme, 3rd phase (*Jobb- och utvecklingsgarantin, fas 3*) Start-up Grants (*Start av näringsverksamhet*)	Wage subsidy (*Lønnstilskudd*)
Wage subsidies, targeted at disabled	Wage Subsidy (*Lönebidrag*) Sheltered Public Employment (*Offentligt skyddat arbete*)	---
Supported employment	---	Supported employment (*Arbeid med bistand*)
Train	Vocational Labour Market Training (*Arbetsmarknadsutbildning*) Preparatory Training (*Förberedande utb.*)	Labour market training (*Arbeidsmarkedsopplæring*) Ordinary education (*Utdanning*)

Note: *'follow up programmes'* are considered part of open unemployment. In Sweden, follow-up includes activities within guidance and placement services, in-depth assessment and guidance, vocational rehabilitation, and the first two phases of the Job- and Development Guarantee. In Norway *follow up* includes clarification, counselling, follow-up and job search courses.

Defining outcomes

Employment. In Sweden transition to employment takes place if either (i) the person has left the PES register (and not returned for at least 60 days) and the caseworker has registered that the reason is regular employment, or (ii) the person remains in the PES register, but is coded as temporarily employed, employed by the hour, or part-time employed for at least 60 days. In Norway a transition to employment takes place if the person has (i) left the PES register (and not returned for at least 60 days) and is registered in the employment register with a monthly wage larger than 5000 NOK within the next three months, (ii) left the PES register (and not returned for at least 60 days) and is registered in the income register with a yearly wage income that corresponds to a monthly wage larger than 5000 NOK when dividing the yearly income on the number of months not spent in unemployment, or (iii) the person remains in the PES register, but is coded as part-time employed for at least 60 days.

Education: In Sweden a transition to education takes place if the person has left the PES register (and not returned for at least 60 days) and the caseworker has registered that the reason is regular

education. In Norway a transition to education takes place if the person has left the PES register (and not returned for at least 60 days) and is registered in the education register with an ongoing education within the next three months.

Additional sensitivity analysis

In model A we include *follow-up* as a separate programme category. In model B, we include *follow-up* as a control variable.[46] Results show stable lock-in effects, in line with the results for model 1. Estimates for the after-effect show that *place* and *train* are stable across specifications, and similar to those of model 1. Follow-up measures seem to have no impact on the transition to employment or education.

Table IB: The effect of LMP during and after programme participation on the transition to employment and education in Norway. Different specifications of follow-up measures.

Model A: Follow-up included as a separate LMP category				
	During LMP		**After LMP**	
Train	-0.877 ***	(0.058)	0.159***	(0.057)
Place	-0.336***	(0.057)	0.472*	(0.072)
Follow-up	-0.137	(0.200)	0.068	(0.189)
Model B: Follow-up included as a control variable				
Train	-0.812*	(0.094)	0.197**	(0.095)
Place	-0.265***	(0.095)	0.508***	(0.107)

Note: In Sweden *follow up* includes activities within guidance and placement services, in-depth assessment and guidance, vocational rehabilitation, and the first two phases of the Job- and Development Guarantee. In Norway *follow up* includes clarification, counselling, follow-up and job search courses. In our main specification, these programmes are included in the open unemployment period. Estimates and standard errors (in parentheses). *** p<0.01, ** p<0.05, * p<0.1. The models include the controls listed in Table 5. Observations are censored after 36 months.

[46] Model A could not be performed for Sweden because it is very common to participate in *follow-up* before entering *place* and *train*. Hence, a large share of the spells with *train* and *place* would have been removed. Model B could not be estimated for Sweden either as the model did not converge.