Young disability beneficiaries

A pertinent policy issue of today

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1. Rapidly increasing disability beneficiary caseloads

The fast increase in the disability beneficiary caseload over the past few decades in combination with rapid growth in the spending on disability benefits is a major concern in a majority of developed countries. Already before the onset of the recent economic crisis, in 2008, disability was more prevalent than unemployment, and spending on disability benefits was much higher than spending on unemployment benefits (OECD, 2010). The current jobs crisis is expected to have further weakened the employment prospects of people with health problems or disability.[1]

As remarked in several contexts, this trend in disability rolls is counterintuitive in view of the strong decline in physically demanding work and the continuous improvement in the health status of the working-age population. Simultaneously, however, it is widely recognized that a key driver behind the rapidly growing numbers of disability beneficiaries are chronic problems which are typically difficult to assess objectively, such as psychiatric diagnoses. Indeed, mental ill-health is today the biggest single cause for a disability benefit claim (e.g. OECD, 2010). In for instance Denmark and Sweden, mental health problems account for almost half of all new claims. This also contributes to explaining the concern expressed by, *inter alia*, Dansk Arbejdsgiverforening (2013).

An extraordinarily challenging aspect related to mental ill-health is that mental health problems often seem to start at a relatively young age. According to OECD (2010) figures for 2008, the share of new disability benefit recipients with mental health problems is highest among young people: about 70% of all claims due to mental ill-health are among those aged 20–34. One reason for this skewed age-related distribution might be the fact that conditions with a mental health dimension often seem to emerge before the age of 25 (e.g. Eurofound, 2010).

The situation seems most worrying in Denmark where mental health problems cover close to 80% of the inflow into disability benefit schemes in the 20–34 age-groups with other problems thus accounting for only around one-fifth of all new claims within this young age-group. The situation is described to be only slightly better in Finland and Sweden with the corresponding share being about 70%. In Norway it is lower at some 55%, implying that here other problems explain almost half of all new disability benefit claims of this particular age-group. Moreover, the increase in mental health problems has, at least in certain countries, proved to be especially marked among young women. Among the Nordic countries, this holds true for Finland in particular. Similar trends have, in effect, also been reported for the USA (Ben-Shalom & Stapleton, 2013).

[1] Apart from OECD (2010) the European debate is well illustrated also in e.g. Greve (2009) and Eichhorst et al. (2010). Autor and Duggan (2006), Autor (2011) and Moore (2014), among others, are illustrative examples of the corresponding US debate.

Moreover, employment rates of people with a disability are in general substantially lower compared to people without a disability, and particularly low for those suffering from mental ill-health. Additionally, disability benefits are still often treated as lifelong pension schemes. According to the OECD (2010), this implies that once a permanent disability benefit is awarded, the probability that the beneficiary will return to work is in most cases close to nil. Hence, when a person acquires a disability benefit at a young age, he/she can be expected to stay on it for a substantial number of years. This, in turn, represents a substantial cost to society in terms of lost productivity as well as increased burden on social protection systems.

Breaking this benefit dependence of young people would demand strong integration measures not only due to their weaker disability-induced working capacity, but also because they usually have a low education and mostly lack work experience.[2] Indeed, replacing the disability pension for young people by a more active regime is in several countries, including the Nordic ones, considered as a topic of utmost importance. However, for such activation measures to be efficient they need to draw on comprehensive information on the various barriers to labour market inclusion that young people with health problems face, as well as profound evaluation outcomes on which measures work and which do not.

This knowledge base is still very scant, though. As a matter of fact, also our knowledge on the labour market performance of disabled compared to non-disabled young people is mostly non-existing.[3] This, in turn, may be a direct consequence of the extent of health problems and disabilities impacting on young people's work capacity being in general poorly documented, as illustratively shown in, for instance, Eurofound (2010). A major reason for this unsatisfactory situation is often stated to be the strong focus in national as well as pan-European policies on youths, on the one hand, and people with disabilities, on the other. This dichotomy is argued to have contributed to concealing the growing problem of disabilities and incapacity benefit claimants among young people and, hence, also to a weak understanding of the causes fuelling these trends.

All in all, young disability beneficiaries are for several major reasons a particularly pertinent policy issue of today. This seems to hold true especially when it comes to the Nordic countries. Indeed, the worrying patterns and trends characterizing the Nordic countries have recently been comprehensively illustrated in a report by the Swedish Social Insurance Inspectorate (2013). The present chapter aims to move behind these general outcomes for selected Nordic countries[4] (Denmark, Finland and Norway) by analysing and comparing the situation of a cohort of youths turning 16 in 1998. These young people are tracked on an annual basis during a 10-year period, up to age 26 (in 2008). The data allows us to identify changes in the

[2] In Finland, for instance, young people typically become disability benefit recipients straight after completing compulsory education and mostly also stay there on a more or less permanent basis. See e.g. Asplund & Vanhala (2014).
[3] While a growing number of national as well as international studies provide information on the labour market situation of people with disabilities, this information is seldom reported by age groups.
[4] An extended version of this chapter will be produced when corresponding results for Sweden exist.

young persons' labour market status, including being a disability beneficiary. Additionally it provides rich information on, *inter alia*, their individual characteristics and family background.

The chapter continues with a brief presentation of the disability benefit system in place in respective countries under study (in Section 2). Here, the emphasis will logically be on the disability schemes directed towards young people and the extent to which these arrangements have eventually been reformed since 1998, that is, the year when the youngsters belonging to our cohort under study turned 16. Section 3 outlines the national datasets used in the subsequent analysis. The presentation of results starts, in Section 4, with a general description and cross-country comparison of how the disability beneficiary status evolves up to age 26 among the young people belonging to the cohort under scrutiny. Thereafter, the focus turns to disentangling the role of the young persons' background for having the status of a disability beneficiary as a young adult (at age 26). While being aware of the underlying causes forming complex and multi-dimensional patterns, this chapter will exclusively address three issues, all of which can be considered to be of crucial policy relevance: first, the role of intergenerational transmission of benefit dependence (Section 5); second, the influence of different post-compulsory-school transitions and especially of risky trajectories (Section 6); and third, the role of financial incentives for awarding a disability pension as illustrated by the Danish system with municipalities having a key role in deciding on disability benefits and the state covering the main part of the costs (Section 7). Section 8 discusses the main results and policy implications.

2. Growing numbers of young disability beneficiaries despite substantial reforms

The conspicuous increase in the number of young people taking up disability benefits is remarkable in view of the reforms undertaken in order to slow down the inflow to disability benefit schemes. In this section, we provide a brief description of the disability benefit arrangements in place in each country when our cohort under study turned 16 (in 1998), as well as of major reforms undertaken since the late 1990s with respect to adolescents and young adults.

DENMARK:

To be eligible for disability pension, the person has to have a physical or psychical illness that reduces his/her work ability permanently. A disability pension can be granted from age 18 and stops at retirement age. The right to receive disability pension is, as a general rule, dependent on Danish citizenship and residence in Denmark. Eligibility for a full pension requires that the pensioner has been a Danish resident at least 4/5 of the years after the pensioner turned 15 to the time when the pension is granted.

There is only one disability pension scheme in Denmark, which is financed out of general public revenue. No requirement of previous work experience has to be fulfilled in order to obtain disability pension

and neither is the level of the pension related to previous work income which is, in effect, also the case for public old-age pensions. This is in contrast to many other countries, where some amount of work experience is a prerequisite for receiving disability pension and where the level of the pension is related to previous earnings. Disability pensions are granted by the municipalities, which also differs from practices in most other countries. Most cases start with an application from persons who want to obtain disability pension, but municipalities can also initiate cases for persons who reside in the municipality. The decision of the municipality can be appealed to an appeal agency *(ankestyrelsen)*. A substantial revision of the disability pension system was enacted in 2013. A main provision is that persons below the age of 40, as the point of departure, cannot obtain disability pensions. In line with the 2003 reform of the Swedish disability system for young people, the Danish reform aims at improving the rehabilitation of young people with disabilities and at providing them, in the first place, with a so-called resource plan *(ressourceforløb)* for a limited time period (up to five years).

Prior to 2003, disability pensioners were classified in categories according to their residual work ability and the level of the pension was dependent on categorization (highest, middle, enhanced ordinary and ordinary disability pension). Starting in 2003 the categorization was abandoned for new entrants to the disability pension system and only one type of disability pension is granted. Persons on the old scheme can apply to enter the new scheme.

A special trait of the Danish system is the so-called flexible-job scheme, which is also targeted to persons with permanently reduced work capacity. The scheme consists of a wage subsidy that amounts to either 1/2 or 2/3 of the salary. The wage subsidy is paid to employers for whom the persons participating in the flexible-job scheme work. Persons in this scheme are not included as pensioners in our analysis.

FINLAND:

The young people recorded to be disability beneficiaries in the Finnish dataset used in the subsequent analyses receive a pension benefit according to the registers compiled jointly by the Finnish Centre for Pensions (ETK) and the Social Insurance Institution of Finland (Kela). A disability pension may be granted either in the national pension scheme or in the statutory earnings-related pension scheme.[5] The latter covers all employees, self-employed persons and farmers whose employment exceeds the minimum requirements laid down by law. The liability to take out insurance under the earnings-related pension legislation starts at the beginning of the month following the person's 18th birthday. The national pension scheme, in turn, covers all persons aged 16 to 64 who have permanently resided in Finland for at least three years after turning 16. However, exceptions from this required period of residence are awarded to: (1) those having become incapable of working before the age of 19 while resident in Finland and (2) those receiving a disability

[5] The presentation of the Finnish system is based on ETK and Kela (2012) and Swedish Social Insurance Inspectorate (2013).

allowance for persons under the age of 16 when turning 16.[6] In contrast to the earnings-related pension, the national pension is funded by the state and paid at a flat rate with income testing.

Irrespective of the scheme under which the disability pension is awarded, the following applies. The person needs to have an illness which significantly reduces his/her work ability. The pension is awarded either until further notice or for a specific period of time, in which case it is (since 1996) called a cash rehabilitation benefit. This time-limited benefit is granted if it can be expected that treatment or rehabilitation can, at least in part, improve the person's working capacity. Accordingly a cash rehabilitation benefit is always to be accompanied by a treatment or rehabilitation plan. A major difference between the two pension schemes, however, is that while the disability pension can be granted only as a full pension under the national pension scheme, it may be awarded either as a full or a partial pension under the statutory earnings-related pension scheme. Awarding of partial (full) disability pension requires that the person's working capacity has been reduced during at least one year by two-fifths (three-fifths) or more due to illness, disability or injury. The decision process also takes into account circumstances such as the claimant's earnings capacity, educational level and age.

The overall structure of the Finnish pension system has remained basically intact during the time period analysed, that is, since the late 1990s. Yet, the two parallel systems have been subject to a number of reforms over the past decades. One major change to the pension legislation was made in 2005, resulting in the further differentiation of the earnings-related and national pensions. When it comes to young persons, one reform is worth mentioning in this context as it clearly affected the medical requirements for disability pension eligibility under the national pension scheme. In particular, from August 1, 1999 onwards, a national disability pension was no longer granted to a person under the age of 18 until his/her prospects for vocational rehabilitation had been clarified. By April 1, 2002, this age limit was increased to 20 years thus covering all persons aged 16 – 19. Among the exceptions to this rule are: (1) if a young person is unable to participate in vocational rehabilitation and is also unlikely to benefit from such activities due to ill health; (2) if a young person has received sickness benefit for the maximum payment period; (3) if a young person has been rendered incapable of working already before the age of 15. Permanently blind persons as well as persons permanently without mobile ability are always considered incapable of work, though. In the earnings-related pension scheme, on the other hand, it is required that the incapacity for work can be estimated to last for at least one year.

In view of the fact that the cohort under study turns 16 when the follow-up period starts (in 1998), it is obvious that the national pension option is the only arrangement available to them for a number of

[6] Further exceptions to the rules governing residence-based pension provision are entailed in EC, Nordic and bilateral arrangements.

years, either in the form of a permanent disability pension or (since August 1999) a time-limited cash rehabilitation benefit. Only after they have turned 18 can they apply for a disability pension under the statutory earnings-related pension scheme provided that their employment fulfils the minimum requirements laid down by law. It is noteworthy, though, that the minimum requirement for previous earnings was markedly reduced in 2005, which resulted in a notable increase in the earnings-related pension beneficiary caseload.

NORWAY:

The Norwegian disability insurance scheme is divided into a temporary and a permanent program. Eligibility for either program requires that the person must have reduced work capacity of at least 50 per cent due to physical or mental health problems, certified by an authorized physician. In addition, the applicant must have been a member of the national insurance program for at least 3 years (everybody who is a resident in Norway is a member), and must be between 16 and 67 years of age. The health problem must be the main cause for the reduced work capacity (excludes primary social causes), and the work capacity must be reduced by at least 50 per cent on a long-term basis.

The general rule is that after 12 months on sick leave, one can apply for either temporary or permanent disability benefits. Claimants normally receive a benefit amounting to approximately 66 per cent of their past earnings (with both minimum and maximum benefit thresholds). Persons with no previous work experience may receive a minimum amount according to the guidelines established for the old-age pension. Youth under the age of 26 who are granted a permanent disability pension are entitled to a special pension which is higher than the minimum amount. The Norwegian disability insurance scheme also provides for a partial disability pension, where the pension is reduced in proportion to the loss of work capacity. The partial disability pension may be combined with work or other types of benefits.

In the period under consideration, the temporary disability insurance (TDI) program consisted of three different benefits of limited duration: medical and vocational rehabilitation benefits, and time-limited disability pension (from 2004).[7] The purpose of the rehabilitation benefits, generally granted for a period of 52 consecutive weeks, is to provide income maintenance for persons who are undergoing active treatment with prospects of improving their vocational potential. If the health problems persist beyond this additional year, the person may apply for a disability pension. While vocational rehabilitation is supposed to have been tried before being granted disability pension, the majority of disability pension entrants have never participated in any vocational rehabilitation.

In addition to the rehabilitation benefits, there are two types of disability pensions which are relevant for the youth cohort under study: a time-limited disability pension and a permanent disability

[7] In 2010, the three benefits (medical and vocational rehabilitation, and time-limited disability pension) were combined into one: The Work Assessment Allowance.

pension. The time-limited disability benefit is granted if there is any possibility for improved work capacity in the future, and may be received for a period of one to four years. If there is no scope for improvement, the permanent disability pension will be granted. Normally, a permanent disability pension lasts until it is replaced by an old-age pension at the age of 67, and there is no re-testing of the individual's work capacity. As shown in chapter 7 of the report, this particular feature is of decisive importance when trying to understand the differences in disability observed across the Nordic countries.

3. Brief presentation of national datasets used

As indicated earlier, the results reported in this chapter are derived from analysing the full cohort of young people that turned 16 in 1998. The outcome of these young persons with respect to disability beneficiary status (in the following, simply referred to as 'pensioner') is described, examined and compared across the three Nordic countries under study – Denmark, Finland and Norway. The information used is entirely gathered from various register databases administered by the Statistical Bureau in the respective country.

These 16-year-old youngsters are traced up to the age of 26, implying that our period of investigation covers the years 1998 to 2008. In our data we can identify their labour market status on an annual basis and, hence, also track changes in this status especially with respect to becoming and staying a pensioner. However, the information on labour market status readily available in the national data used in the subsequent analyses has been adjusted in one crucial respect: the main activity of a young person as provided in the national data is re-coded to being a full-time student if, according to supplementary register information, s/he has been enrolled in an educational institution for most of the year. By means of this re-coding we obtain a more accurate picture of a young person's true activity (status) in each year and, hence, also of eventual changes in this status over the 10-year period investigated. While the effect of this re-coding varies across our three Nordic countries depending on the way in which the main activity is defined and constructed in each national data, the impact is by no means negligible. On the contrary, due to the strong prevalence of part-time work while studying in the Nordic countries the re-coding concerns a substantial number of full-time students who happened to be (temporarily) employed or unemployed at the particular point in time for which the register information on the main activity was compiled. Unsurprisingly, the young person's pensioner status is seldom, if at all, affected by this re-coding.

In addition to the main activity, our national datasets contain rich information about the young persons but also on their family background. Details on the individual and family background information utilised in the subsequent analyses are provided in the context it is used.

4. Pensioner status evolution up to age 26

As noted above, the information on each young person's main annual activity (labour market status) is readily available in the national data on which our analyses are based. However, for the purposes of these analyses we have, as described in the previous section, re-coded the registered annual status for those young persons who, as it turns out, are actually full-time students. The conditions for being recorded in the national data as a pensioner were, in turn, described in Section 2. In this section we will look into the frequency of having a pensioner status in the cohort under study, that is, those young people who turned 16 in 1998.

The first country-specific graphs, presented in Figure 1, provide a general picture of the development of our cohort's main activities from age 16 up to age 26. More precisely, the three graphs show the relative shares of different major statuses for each year between 1998 and 2008. The overall pattern is highly similar for the three Nordic countries under study: the relative share of full-time students (yellow area) declines with age whereas the share of those with an employment contract (brown area) increases. At the age of 26 a large majority of the cohort's young people was employed: 61.2 per cent in Denmark, 60.8 per cent in Finland and 59.5 per cent in Norway. In Denmark 28.3 per cent were still studying on a full-time basis. The corresponding share for Finland and Norway is only slightly smaller – 25.4 and 23.3 per cent, respectively.

[Figure 1 containing three graphs about here – ordering: Denmark, Finland, Norway; covers one page]

The main activities of those young persons who are neither studying nor working are divided into three broad categories: unemployed, pensioner and inactive (residual group labelled 'other'). At the age of 26 these categories, taken together, cover 10.5 per cent of the Danish cohort, 13.9 per cent of the Finnish cohort and as much as 17.2 per cent of the Norwegian cohort. A conspicuous feature, common to all three Nordic countries, is that this share is remarkably similar to the corresponding share when the cohort turned 20. This implies that non-studying and non-working activities tend to cement already after the age of 20.

Compared to the relative shares of the other four main statuses – full-time student, employed, unemployed and inactive (other) – the cohort share with pensioner status remains quite small in the 10-year period investigated. If looking at the situation at three different ages – 16, 20 and 26 – the pensioner share evolves as follows: 0.0 (disability pension is not awarded before age 18), 1.1 and 1.6 per cent for Denmark; 0.7, 0.8 and 1.6 per cent for Finland; and 0.0, 0.6 and 2.1 per cent for Norway. Hence, both the largest share at age 26 and the strongest growth since age 16 is obtained for Norway. While these relative shares stand out as rather minor, the absolute numbers of young people concerned raises some concern: at the age of 26 almost 790 young persons were recorded to have pensioner status in the Danish cohort, 1.060 in the Finnish cohort and 1.043 in the Norwegian cohort. If these numbers are treated as typical cohort aver-

ages, already ten consecutive cohorts would produce a substantial caseload of young disability beneficiaries. Moreover, a majority of these young pensioners have a low education level. Still five years after completed basic education, about 71 per cent out of these 1.060 young Finns had no post-compulsory degree. The corresponding share is, however, even higher (81 per cent) for Norway and as high as 85 per cent for Denmark.

5. Intergenerational transmission of young persons' pension dependence

This section presents some basic results concerning family background and pensioner status at age 26. Family background reflects the situation prevailing when the young person turned 16 (in 1998).[8] As a first step, we will measure family background by use of a small set of traditional family background measures (such as the parents' education level) common to all three Nordic countries under study. In the next step, we explore the possible presence of a so-called pensioner-status transmission process, that is, an evident relation between the young person's pensioner status at age 26 and a pensioner status of his/her parents. As a final step we combine these two sets of family background information in order to assess their relative importance when it comes to the relation between family situation and the child's labour market status at age 26.

5.1 Parents' income and education matter

Intergenerational transmission from parents to children has for long been an important academic as well as political issue. Special attention has thereby been paid to the parents' educational and income levels.[9] We therefore start by exploring the role of these traditional measures for family background. In other words, we ask whether there is a clear-cut relation between the family situation as measured by education and income and the child's probability of being a pensioner at age 26. The parents' education and income refer to the year when the child turned 16.[10]

The parents' formal educational level is measured by means of three categories: basic, secondary and higher education. Also the (gross) income level of parents is split into three categories: low, middle and high wage-income. While the information on educational level is given separately for the mother and the father, the wage-income refers to the household-level income, i.e. the sum of the parents' wage-income. Table 1 shows country-specific shares of each category separately for 26-year-old pensioners and non-pensioners.

[8] The information on parents is linked to the young persons of our cohort and is included in our analyses as such with no account made for the 'relation' of the parents, that is, whether they live together or not.
[9] See e.g. Björklund et al. (2010), and Black and Devereux (2011) for a comprehensive review of results within this area.
[10] The Finnish data contains parental education information for the year 2010 only (when the child turns 28).

Table 1. Distribution of parental background for 26-year-old pensioners and non-pensioners

		DENMARK		FINLAND		NORWAY	
Educational level		Status at age 26		Status at age 26		Status at age 26	
of the mother		Pens.	Non-pens.	Pens.	Non-pens.	Pens.	Non-pens.
	Basic	51.1	35.5	28.6	21.3	43.5	31.8
	Secondary	29.3	36.2	47.0	44.3	39.5	43.0
	Higher	19.6	28.3	24.4	34.4	17.0	25.2
of the father							
	Basic	42.6	27.0	37.2	30.0	37.6	24.0
	Secondary	41.6	48.7	39.5	39.9	45.6	50.0
	Higher	15.8	24.3	23.3	30.1	16.8	26.0
Household wage income							
	Lower	54.6	33.0	46.8	33.0	53.2	32.9
	Middle	26.5	33.4	29.9	33.5	27.8	33.5
	Upper	18.9	33.5	23.3	33.5	20.0	33.6

The three educational-level categories correspond to ISCED 1–2, 3–4 and 5–6, respectively.

The three wage income categories refer, respectively, to the lowest, middle and highest one-third of the wage income scale.

As is evident from Table 1, young pensioners' family background differs typically quite remarkably from the family background of young non-pensioners. The largest differences between the pensioner and the non-pensioner group are observed for Denmark and the smallest for Finland. Conspicuous features of the 26-year-old pensioner group are, *inter alia*, the dominance of low-educated mothers (Denmark and Norway) and lower-income households (all three Nordic countries).

The results obtained from running a statistical model on this parental information lend further support to the contention that family background is linked to the child's pensioner status at age 26 in an important way.[11] More precisely, a low educational level of the parents tends to increase the child's pensioner status probability at age 26 in both Denmark and Norway. In both countries, however, the father's education seems to have a slightly stronger impact than the mother's education. The effects of parents' education are negligible for Finland. Compared to parental education, the link to the child's pensioner status at age 26 is clearly stronger when it comes to the household wage-income level. Moreover, this correlation shows up for all three countries. With respect to the magnitude of this relation, the correlation is weakest for Finland and strongest for Norway while Denmark falls in-between.

5.2 Clear relation between child's and parents' pensioner status

[11] Full estimation results in relation to parental education and income are presented in the Appendix of this report (Table A1). It may be noted that our results differ to some extent from those reported in previous studies (e.g. Bratberg et al., 2013; Dahl et al., 2013) mainly because of differences in the set-up of the data and the model framework.

Next we turn to the parents' pensioner status and pose the question whether or not this status is likely to be heritable in the Nordic countries. In contrast to education and income, however, intergenerational transmission from parents to children of a pensioner status does not necessarily measure transmission of welfare dependence *per se*, as unobserved family traits might be correlated across generations. A leading example is genetic components of health giving rise to diseases which make individuals qualified for disability pensions. The correlations between child and parental pension statuses reported below can therefore be seen as providing an upper bound of welfare dependence across generations.[12] Potential mechanisms for transmitting welfare dependence from one generation to the next include a reduction of the stigma affiliated with receiving a pension, parental provision of information relevant for obtaining a pension, and different parental investment in children between pensioner and non-pensioner households (Moffitt, 1992).

The magnitude of this particular intergenerational correlation is assessed for two of our Nordic countries under study, that is, Denmark and Finland (the parents' pensioner status is unidentifiable in the Norwegian dataset). While the child's pensioner status refers to disability benefit, the parents' pensioner status covers any kind of pension. However, since the parents' pensioner status is measured when the child turned 16, most parental pensions are likely to be related to health problems or disability.

In Section 4 above, the cohort's pensioner share at age 26 was reported to be 1.6 per cent both in the Danish and the Finnish cohort. Of these 787 young Danes, 12.1 per cent had a mother who was a pensioner when they turned 16. For the cohort's 26-year-old non-pensioners the corresponding share was 4.2 per cent. The share with a father receiving a pension was 8.7 per cent for young pensioners and 3.1 per cent for young non-pensioners. Of the 1.060 young Finns on pension benefits at age 26, 7.8 per cent had a mother and 9.3 per cent a father on pension when they turned 16. Among the 26-year-old non-pensioners the corresponding shares were 3.9 and 7.2 per cent, respectively. Hence, in both countries the parents of young pensioners are clearly more likely to have a pensioner status than the parents of young non-pensioners, although the differences in shares are notably higher for Denmark than for Finland. Another outstanding difference between the two countries is that Denmark reveals a higher probability of the mother but Finland a higher probability of the father being a pensioner irrespective of the child's labour market status at age 26. Finally, only a minor share of the cohort's young people had both parents on pension benefits when they turned 16: 2.4 per cent of the Danish young pensioners (0.5 per cent among the young non-pensioners) and 2.9 per cent of the Finnish young pensioners (0.9 per cent among the young

[12] In order to assess the causal effect of parental pension dependence on the pension dependence of children, it would be necessary to disentangle the effect of unobserved family background from the effect of pension dependence. While an attempt to disentangle these effects is made in Dahl et al. (2013), such an analysis is outside the scope of this study.

non-pensioners). However, this is also the expected outcome provided that the pension statuses of parents are unrelated, as they most likely are in a majority of cases.

In our statistical analyses we include information on parents' pensioner status stepwise.[13] This procedure provides information not only on the independent role of the mother's and the father's pensioner status but also on the potential presence of a non-negligible interdependence between the parents' pensioner status. First we include in our statistical model information on the mother's pensioner status when the child turned 16. For both Denmark and Finland, this family situation indicates a significantly higher probability of the child being a pensioner at age 26 (compared to the mother not being on pension). A separate analysis involving only the father's pensioner status also points to an important link to the child's pensioner status probability at age 26. For Denmark the role of the mother's and the father's pensioner status is approximately of the same size. For Finland, on the other hand, the effect of the parents' pensioner status is not only much weaker compared to Denmark but additionally the Finnish results point to a much stronger relation with the mother's than the father's pensioner status.

Including in the statistical model both the mother's and the father's pensioner status affects these outcomes only marginally, which is only to be expected in view of the relatively few young persons in our cohort having both parents on pension benefits when turning 16 (see above). Yet, we do see a minor decline in probabilities for both countries which might be interpreted in support of a moderate positive correlation between the pension statuses of parents.

5.3 The single most critical factor is the mother's pensioner status

Finally we include in the same statistical setting information on parental educational and income levels as well as pensioner status. As information on parents' pensioner status is not readily available in the Norwegian dataset, this analysis can be undertaken for Denmark and Finland only.

In brief, the results indicate the following. While the relation between the child's family situation at age 16 and his/her pensioner status at age 26 weakens according to the results obtained for Denmark, nonetheless, all critical parental dimensions remain highly significant. This holds true for the mother's and father's pensioner status, a low educational level of the mother and the father, and a low household wage-income level. Moreover, the parents' pensioner status continues to have the strongest effect while their educational level has the weakest influence.

In the case of Finland, the combined assessment of the role of parental pensioner status and educational and income levels changes our previously reported findings only marginally. The link between the mother's pensioner status and the child's pensioner status at age 26 weakens but stays strongly significant,

[13] Full estimation results in relation to parents' pensioner status are presented in the Appendix of this report (Table A2).

while the role of a lower household wage-income level remains significant and unchanged. The other family background describing factors have a negligible impact. As for Denmark, the single most important factor seems to be the mother's pensioner status.

6. Post-compulsory-school trajectories and young persons' pension dependence

In this section we focus on the relation between the young persons' pensioner status at age 26 and their post-compulsory-school trajectories, that is, their school-to-work transition experiences after completion of primary education. Indeed, the transition from compulsory education can be seen as one of the most demanding transitions in the career path of young people. A majority of youngsters progressing from primary school will face complex and multi-dimensional challenges. For young persons with health problems or disabilities, additional barriers may turn up in the form of, for instance, societal attitudes and direct and indirect discrimination. In such cases, appropriate and coordinated systems and services to support the young person's access to the labour market are of crucial importance, as the multitude of measures targeted at this particular group of young people to promote their labour market participation has shown (e.g. Eurofound, 2010). However, as became evident in the previous section, also family factors have a strong bearing in this context.

We start with a brief presentation of our cohort's post-compulsory-school transition pathways from age 16 up to age 20. Next we investigate whether there is a clear-cut relation between their pensioner status at age 26 and this critical 5-year period in their lives. Finally we assess whether their pensioner status at age 26 is solely the outcome of previously experienced school-to-work transitions or whether family background continues to play a decisive role.

6.1 Large variation in individual post-compulsory-school trajectories

Figure 1 above displayed the overall distribution of our cohort's young people across five main activities – full-time student, employed, unemployed, pensioner, other (inactive) – for each year between 1998 (cohort turns 16) and 2008 (cohort turns 26). However, these relative shares cannot tell us anything about the situation experienced in these years by each young person. Instead we need to look more closely into their main activity in each year and, based on this information, construct for each of them an individual post-compulsory-school trajectory. This individual trajectory then reveals in which activity the young person has mainly been engaged in each year investigated. We thereby obtain a sequence of main activities for each young person in our cohort. For our present purposes, we restrict these individual trajectories to cover the 5-year period following immediately upon completion of basic education, that is, from age 16 up to age 20.

This idea on which our subsequent analysis is based can be illustrated by means of a simple example. Presume that three of our youth cohort members experience, from age 16 up to age 20, the following sequences of main activities (statuses):

- Sequence one: 1 1 1 2 1
- Sequence two: 1 1 2 1 1
- Sequence three: 1 2 5 4 4

The young person in sequence one is a full-time student at ages 16, 17 and 18, employed at age 19, and again a full-time student at age 20. The person in sequence two is a full-time student at all ages except for age 18 when s/he is employed. The person in sequence three, finally, is a full-time student at age 16, employed at age 17, in the residual inactivity category 'other' at age 18 and shows up as a pensioner at age 19 and also at age 20.

In reality, the potential combinations of statuses and, hence, the possible number of individual sequences are evidently enormous and accordingly difficult to handle without the help of some specific technique for categorizing them into a reasonable number of groups (clusters).[14] While the individual sequences assigned to each cluster should be as similar as possible, the clusters themselves should logically differ as much as possible from each other. From our illustrative example above, it is clear that sequences one and two are very similar while sequence three is highly different. This means that individuals one and two should be categorized into the same cluster while individual three should go into a different cluster.

Figure 2 presents the individual post-compulsory-school trajectories of each young person in our cohort, starting from their main activity at age 16 and ending with their main activity in the year they turned 20. As can be seen from the three graphs contained in the figure, there is considerable variation in individual trajectories in all three Nordic countries under study. Simultaneously the graphs illustrate well the impact of the countries' differently organized secondary-level education. In particular, in Denmark, where the apprenticeship system has a long tradition, the transition from school to work seems to be much smoother than in Finland and Norway, where secondary education is organized in a more 'school-based' manner.

[Figure 2 containing three graphs about here – ordering: Denmark, Finland, Norway; covers one page]

The strong dominance in Figure 2 of spells (sequences) mainly spent either in full-time education or in employment, however, conceals effectively most of the spells spent by our youth cohort members on disability benefits. In Figure 3, we have therefore retained only those young persons who have experienced at least one year on disability benefits (pensioner status) when aged 16 to 25. The reason for now extend-

[14] The technique we use for describing clusters of typical post-compulsory-school trajectories is called sequence and cluster analyses (see e.g. Martin & Wiggins, 2011).

ing the individual trajectories up to age 25 instead of using age 20 as a cut-off, as in Figure 2, is the dynamics in young people's disability benefit status that this extension reveals. Moreover, by covering the whole 10-year period we are able to better illustrate how strikingly similar the overall pattern of individual trajectories is across the three countries for those young people having experienced at least one year with pensioner status when turning 25.

[Figure 3 containing three graphs about here – ordering: Denmark, Finland, Norway; covers 1 page]

As shown in Figure 3, most of them spend several years in post-compulsory education before facing serious ill-health or disability resulting in a shift to pension benefits. A substantial number also start working before the onset of this kind of problems. A majority, however, seems to encounter serious health problems already before turning 19 or 20. This seems to hold true especially for Denmark and Finland.

A particularly outstanding feature in the Finnish cohort is the relatively large number of young people moving to pension benefits straight after completing primary education and, moreover, on a rather permanent basis. Of all young people having spent at least one year on disability benefits while aged 16 to 20, more than one in four had spent the whole 5-year period as a disability beneficiary. For Norway we find no such cases in our cohort while this comparison is not relevant for Denmark, as no young persons below the age of 18 are awarded pension benefits.

6.2 *Strong link to individual post-compulsory-school trajectories*

Before reporting our main results concerning the relation between the young persons' early post-compulsory-school trajectories and their labour market status at age 26, we will present some descriptive information on the clusters into which our cohort's individual trajectories have been grouped before being included in our statistical model. A major challenge in this context is to construct a reasonable number of clusters which are not only common but also highly relevant for all three countries under study.

Based on country-specific clustering of the large set of individual post-compulsory-school trajectories displayed in the three country graphs included in Figure 2 above, we have identified a total of ten common clusters fulfilling well the crucial conditions of high relevance and frequency in all three Nordic countries. In other words, all individual trajectories starting at age 16 and ending at age 20, as shown in Figure 2, are grouped into ten representative clusters. These ten clusters are briefly presented in Table 2 along with key descriptive information for each country.[15]

Table 2. Major groupings of individual post-compulsory-school trajectories and the distribution of the cohort's young people across these clusters

[15] A graphing of the ten clusters, separately for each country, can be found in the Appendix of this report (Figure A1).

group	patterns		Share DK	FI	NO
1	1 1 1 1 1	Student track	61.4 %	46.8 %	63.9 %
2	1 1 1 2 2	Student-employment track	17.9 %	31.6 %	22.6 %
3	1 5 5 1 1	Student-inactivity-student track	5.5 %	2.4 %	3.9 %
4	5 1 1 2 2	Delayed-student-employment track	5.2 %	6.2 %	1.9 %
5	2 2 2 2 2	Employment track	3.9 %	2.8 %	0.8 %
6	1 1 1 4 3	Student-disability-unemployment track	1.4 %	3.2 %	3.6 %
7	1 1 2 3 4	Student-employment-disability track	1.5 %	3.6 %	1.4 %
8	2 2 3 4 3	Employment-unemployment-track	0.6 %	0.4 %	0.2 %
9	4 4 4 4 4	Pensioner track	0.2 %	0.6 %	0.0 %
10	5 5 5 5 5	Inactivity track	2.4 %	2.4 %	1.6 %

The young persons' main activities are labelled as follows:
1 = full-time student; 2 = employed; 3 = unemployed; 4 = pensioner status; 5 = other (inactive).

The post-compulsory-school trajectory cluster most strongly related to our cohort's young people having pensioner status at age 26 is cluster 9 in Table 2, that is, the cluster compiling heavily pensioner-status dominated trajectories following straight upon completion of basic education.[16] It is, therefore, hardly surprising that, in all three countries, this particular cluster comes out with the overwhelmingly strongest link to pensioner status also at age 26. The second strongest relation concerns cluster 8, the employment-unemployment-track, which is dominated by unemployment spells coupled with time spent on disability benefits. Thereafter follows cluster 10, the inactivity track, which mainly comprises spells outside both education and working life. The weakest link to a pensioner status at age 26 is, in turn, displayed by solid school and employment trajectories, viz. clusters 1, 2 and 5.

However, as shown in Table 3, these general patterns characterize Finland and Norway but not necessarily Denmark. While there are distinct commonalities across the three Nordic countries also in this respect (notably in relation to those two clusters having, respectively, the strongest and the weakest link to pensioner status at age 26), Denmark comes out with a clearly different pattern especially in relation to certain clusters. For example, the employment–unemployment track (cluster 8), which is found to be quite strongly related to a higher probability of pensioner status at age 26 in both Finland and Norway, is in Denmark outstripped by the student–unemployment–disability track (cluster 7). Likewise, while a solid employment track (cluster 5) is in Finland and Norway highly unlikely to end up in pensioner status at age 26, it seems to represent a more risky trajectory for Danish youngsters. In Denmark, a delayed–student–employment track (cluster 4) stands out as a much better choice for avoiding the risk of becoming a young pensioner.

[16] Full estimation results in relation to individual post-compulsory-school trajectories are presented in the Appendix of this report (Table A3).

Table 3. Ranking of the strength of the relation of the ten post-compulsory-school trajectory clusters to the probability of the young person having pensioner status at age 26

Track	DENMARK	FINLAND	NORWAY
9. Pensioner track	**1**	**1**	**1**
8. Employment-unemployment-track	3	**2**	**2**
10. Inactivity track	4	3	3
6. Student-disability-unemployment track	5	5	4
7. Student-employment-disability track	**2**	6	5
4. Delayed-student-employment track	**8**	7	6
3. Student-inactivity-student track	7	4	7
5. Employment track	6	**8**	**8**
2. Student-employment track	**9**	**9**	**9**
1. Student track	reference group		

1 = strongest relation; 9 = weakest relation; ranking according to results for Norway

Most likely the institutional systems in place and the reforms undertaken since the late 1990s (see Section 2) can explain at least part of these rather conspicuous differences in outcomes between Denmark, on the one hand, and Finland and Norway, on the other. Untangling the underlying reasons is, however, not possible within the framework of this study.

6.3 Both post-compulsory-school experiences and family background play a role

Finally we extend our statistical model including the ten post-compulsory-school trajectory clusters with information on family background, with the view of exploring whether the young persons' post-compulsory-school trajectories simply reflect crucial variations in their family situation at age 16 or whether these trajectories continue to play a role also after controlling for key differences in family background. We start by adding information on parents' educational and income levels using the same measures as in Section 5.

The overall impression from this exercise is that not much happens to our results. The link between a young person's pensioner status at age 26 and his/her post-compulsory-school track before turning 21 remains unchanged. Accordingly, also the ranking of clusters when it comes to their relative importance in this respect, as presented in Table 3 above, stays the same. The previously outlined relation between family background, measured by parental educational and income levels, and the child's pensioner status at age 26 weakens after the inclusion of the ten clusters but remains in many cases significant in magnitude. This holds true especially for Norway while the link to the family situation weakens even further for Finland. The most outstanding change in results occurs for Denmark, where the influence of parental education and income becomes almost as weak as for Finland after the inclusion of the ten trajectory clusters. This weakening in the role of family background indicates that there is a non-negligible relation between family back-

ground and the child's post-compulsory-school trajectory especially in Denmark. In Norway, both factors continue to be strongly and independently linked to the child's labour market status at age 26. In Finland, finally, post-compulsory-school trajectories stand out as far more important than family background as measured by parents' education and income.

The outcome is more or less the same when adding further information on the parents' pensioner status (for Denmark and Finland). The link between the parents' pensioner status and the child's pensioner status at age 26 weakens but does not disappear. More precisely, while the link to the father's pensioner status turns close to negligible, the mother's pensioner status remains a family background factor of notable importance. All in all, these findings thus imply that the family-situation-related patterns outlined in Section 5 do become weaker when adding information on the child's post-compulsory-school trajectory up to age 20, but are in certain respects still of considerable relevance when trying to understand the mechanisms underlying the child's pensioner status at age 26.

As a final exercise, we delete from our analysis all cohort members who were – temporarily or permanently – on disability benefits when aged 16 to 20. This means that we merely retain those 26-year-old pensioners who encountered problems of ill-health or disability only after turning 21. Naturally, one consequence of this re-definition of our target group is that the early pensioner-dominated track (cluster 9) disappears for all three countries. Simultaneously the number of 26-year-old pensioners in our cohort drops from 787 to 501 for Denmark, from 1.060 to 143 for Finland and from 1.043 to 831 for Norway. Put differently, of those young people having pensioner status at age 26 a considerable number started experiencing serious ill-health or disability already before turning 21. This holds true especially for Finland with only 13.5 per cent of the cohort's 26-year-old pensioners left after this deletion. For Denmark, on the other hand, almost 64 per cent are retained and for Norway as much as close to 80 per cent.

These percentages show that notably in Denmark and Norway, a substantial share of those young people ending up as pensioners at age 26 experience serious health problems only after age 20. The question then is whether or not differences in early post-compulsory-school trajectories (not involving disability benefit experiences) and family background play a role also in their case. Our results imply that they do. For Norway, the change in results from excluding young people having been on disability benefit already before turning 21 is minor: the strength of family background remains virtually intact while the role of the different trajectory clusters weakens only slightly with no re-ordering of clusters compared to the situation outlined in Table 3. This is only to be expected in view of the slight reduction in the target group after deletion of those having encountered health problems or disability already before age 21.

The outcome is similar for Denmark with respect to trajectory clusters: a slightly weakened impact but no change in relative importance across clusters. The role of family background remains weak except

for the mother being on pension benefits. The same findings with respect to the family situation are obtained for Finland. However, in contrast to Denmark and Norway, the role of post-compulsory-school trajectories changes quite remarkably when focusing on those 26-year-old Finnish pensioners who started experiencing health problems only after age 20. In particular, the link to pensioner status at age 26 turns weak for a majority of the trajectory clusters. The only outstanding exceptions are the inactivity (cluster 10) and student–inactivity–student (cluster 3) tracks. However, these findings should be contrasted against the fact that excluding all young people with serious health problems before turning 21 leaves us with a very small number of young people with, as it seems, very specific kinds of problems.

7. Financial incentives and the pension awarding process

A crucial element in the debate about disability pensions is the behaviour of agencies and the process associated with awarding these pensions. Hence, one way to halt the increasing disability beneficiary caseload would be to try to influence the agencies and institutions awarding the pensions.

In contrast to the other Nordic countries, Danish municipalities can influence the awarding of disability pensions. While the municipalities pay a share of social assistance expenditures, the state finances most of the expenditure related to disability pensions. Indeed, empirical investigations for Denmark reveal differences in the propensity of municipalities to award disability pensions (e.g. Kolodziejezyk et al., 2010). Municipalities with a high propensity have, as a consequence, been reproached for not doing enough to prevent people from transiting to disability pensions.

We try to shed further light on this topic by adding to our statistical model information on municipality affiliation for our 26-year-old pensioners in the Danish cohort. Our results point to significant cross-municipality differences in the numbers of these 26-year-old pensioners.[17] The outcome is thus in line with previous findings for Denmark. However, this procedure raises questions of a measurement error problem with respect to municipality affiliation. For the outcome to be reliable there needs to be a close connection between transition to pensions and population at risk. It is not evident that municipality affiliation measured at age 26 provides a sufficiently close link between these two occurrences. As an alternative we measure pensioner status at age 26 and municipality affiliation at age 16. Now there is no longer a significant difference in the numbers of 26-year-old pensioners between municipalities, implying that there is no difference across municipalities in their propensity to award disability pensions.

[17] Full estimation results concerning cross-municipality differences are presented in the Appendix of this report (Table A4). Note that these results refer to an earlier cohort, turning 16 in 2003. Similar calulations for the cohort turning 16 in 1998 provides similar but weaker support for the conclusions made in this section.

The municipality of Copenhagen provides an illustrative example. In 2003, the pensioner ratio at age 26 was 0.31, which was substantially below the average ratio (1.1 per cent) of the country. Hence, Copenhagen comes out as a municipality with a low propensity to award disability pensions (cf. e.g. Nielsen, 2013; Kolodziejezyk et al., 2010; Dansk Arbejdsgiverforening, 2013). When municipality affiliation is measured at age 16, the share of 26-year-old pensioners increases to 1.16, which is slightly above the country average. The main reason for this dramatic change is a substantial increase in the denominator of the ratio when using age 26 instead of age 16 as the point of reference: the size of the youth cohort residing in Copenhagen increases from 2.070 at age 16 to 9.656 at age 26. This is mainly due to a strong inflow of students to Copenhagen coupled with the fact that students are expected to have a relatively low probability to transit to disability pensions.

8. Concluding remarks and discussion

This chapter has tried to shed new light on young pensioners in the Nordic countries and also on mechanisms that are likely to strongly influence the probability of youngsters ending up as disability pensioners already when young adults. More precisely, we have analysed and compared the situation in three Nordic countries and examined the role of two major sets of potentially influencing factors. The first set relates to the family situation when the child turns 16. The second set covers the young persons' experiences after completing basic education up to age 20. These experiences are approximated by means of post-compulsory-school trajectories showing the main activity of the young person at each age covered (16 to 20). By this split of underlying mechanisms we presume that actions of 16-year-olds do not affect to any significant extent their family situation, whereas their choices and preferences concerning early post-compulsory-school activities may have important consequences for their labour market, including pensioner, status in the short and longer term.

Our analyses concern one specific cohort of young people. They turned 16 in 1998 and we follow them up to the year they turned 26 (in 2008). This means that their labour market careers started in a period of strong economic growth, which should have improved their employment prospects. Since we are interested in young pensioners, we focus in our analyses on those young people in our cohort who had pensioner status when turning 26. These young people represent 1.6 per cent of the Danish and Finnish cohorts and 2.1 per cent of the Norwegian cohort. The distribution of these young pensioners across genders is close to even, as is also the gender distribution for all the other pensioner-related dimensions examined in the chapter. The gender aspect is therefore not given specific attention in our analyses.

According to our results, both family background and early post-compulsory-school activities are linked to the child's probability of having pensioner status at age 26. While these two mechanisms are to

some extent closely related, both continue to have an impact on the child's labour market outcome at age 26 also when accounted for simultaneously. Moreover, this overall pattern is not changed when splitting our group of 26-year-old pensioners into those having experienced ill-health or disability already before turning 21 and those having encountered serious health problems only after age 20. A significant role is still retained for both intergenerational transmission of pension dependence and school-to-work transitions entailing risky elements.

These results are interesting also from a policy point-of-view. Policy interventions can be made both to improve the family situation and to secure a successful transition from school to work. Our findings imply that much is still to be done in these respects when it comes to young people with ill-health or disabilities. In particular, medical and vocational rehabilitation has a long and renowned tradition in the Nordic countries. But more recently notably vocational rehabilitation activities have also been criticized for not improving the employability and employment of the treated (e.g. Blomgren & Hytti, 2013; Härkäpää et al., 2013; Lindh, 2013). Our results can be interpreted as lending further support to this contention. Moreover, major organisational changes in the way disability pensions are awarded, including the use of financial incentives, do not seem to have a major impact on the disability beneficiary caseload, as shown by our analysis of the Danish system.

However, our results also raise new questions of critical importance. Most notably, while we have concentrated on investigating the situation of those young people ending up as pensioners at age 26, there are obviously also young people not becoming young pensioners despite having a similar family background and similar post-compulsory-school experiences, including serious ill-health or disability. There are certainly several reasons for looking more closely also into this group of young people. However, of particular interest in this context are the mechanisms underlying their highly different labour market outcomes as compared to the young people that we have focused on in this chapter. Is there, for instance, a clear difference in the extent (what, how and when) to which these young people have participated in employability promoting activities?

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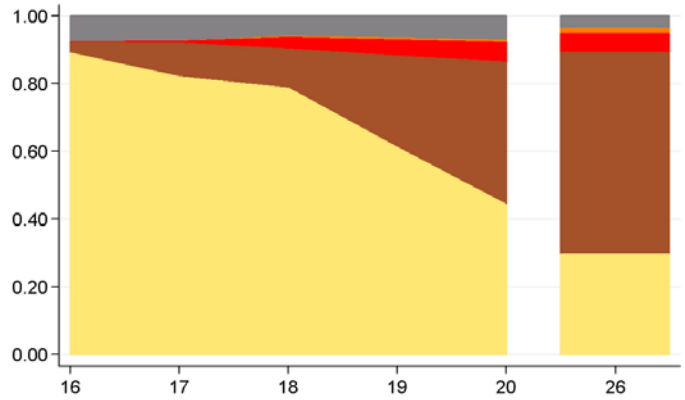
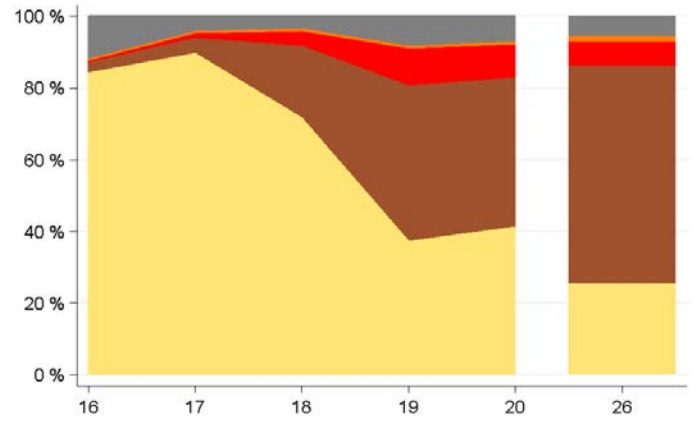
Figure 1. Shares of main activities

Denmark



Finland



Norway

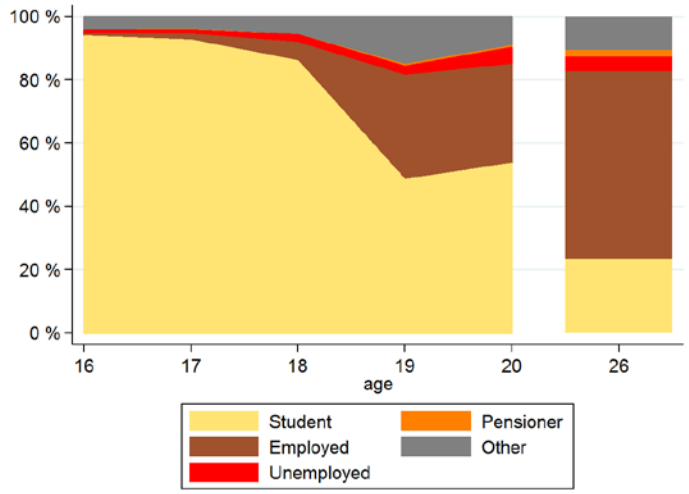
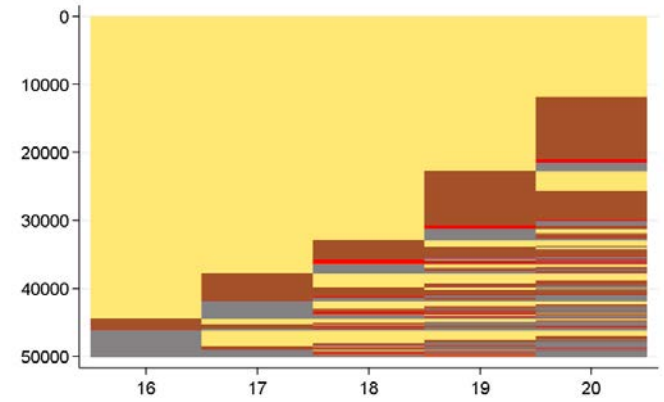
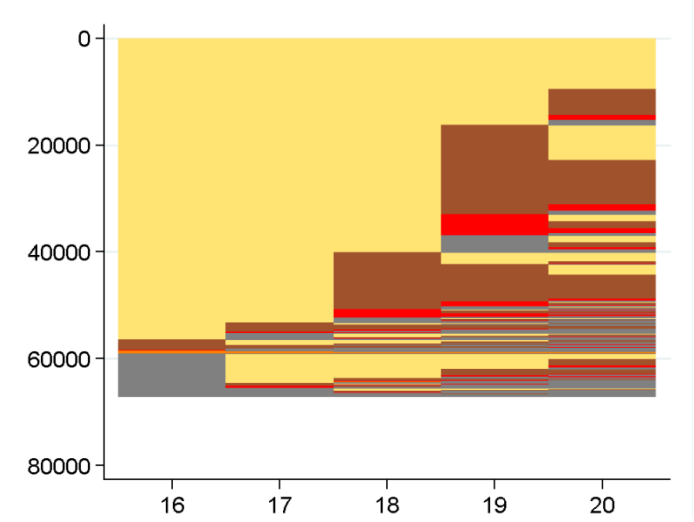


Figure 2. Individual post-compulsory school trajectories

Denmark



Finland



Norway

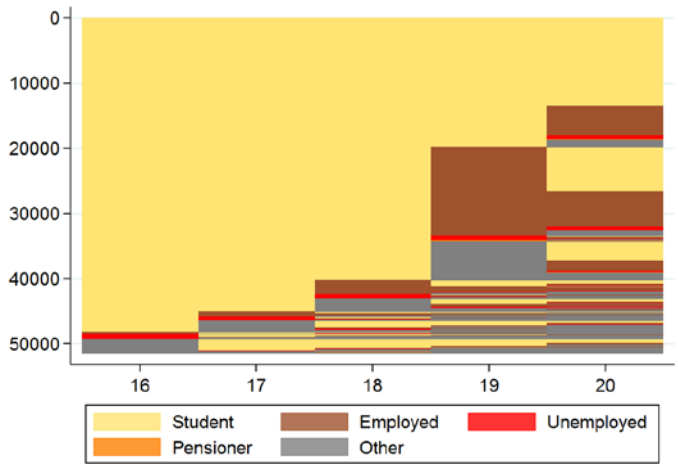
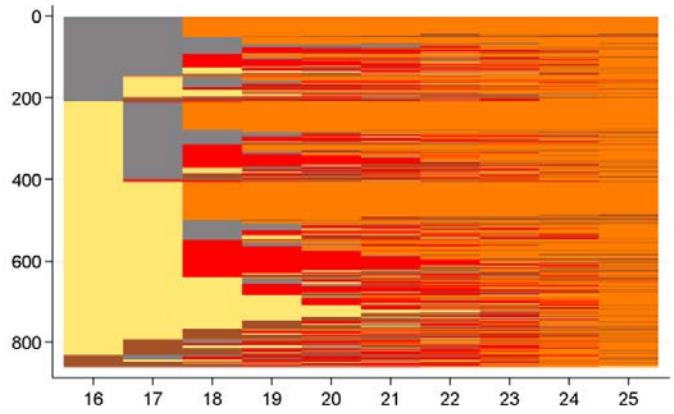
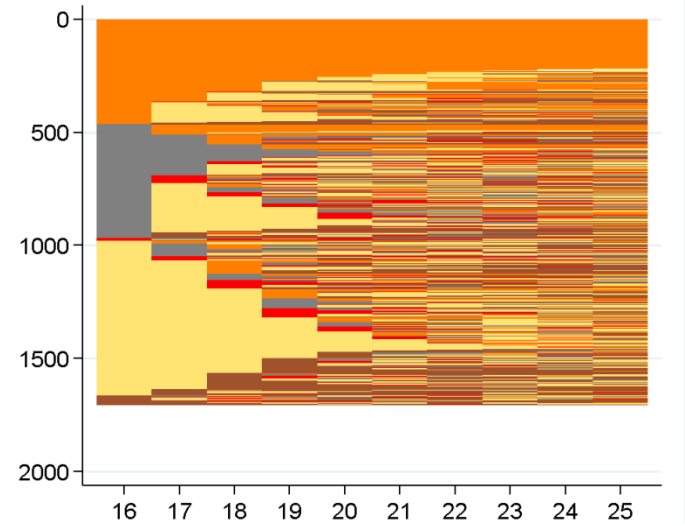


Figure 3. Individual post-compulsory school trajectories of those who have been on disability benefit at least once between ages 16-25.

Denmark



Finland



Norway

APPENDIX

Table A1. Estimation results in relation to parental education and income.

	Denmark	Finland	Norway
Female	-0.002	-0.004***	0.002
	(0.001)	(0.001)	(0.001)
Mother's education			
ISCED 1-2	0.006***	0.003*	0.004**
	(0.001)	(0.001)	(0.002)
ISCED 5-6	0.001	-0.003**	-0.001
	(0.001)	(0.001)	(0.001)
Father's education			
ISCED 1-2	0.007***	0.002	0.009***
	(0.002)	(0.001)	(0.002)
ISCED 5-6	0.001	0.001	-0.001
	(0.001)	(0.001)	(0.001)
Household income			
Low	0.010***	0.007***	0.014***
	(0.001)	(0.001)	(0.002)
High	-0.002	-0.002	-0.002
	(0.001)	(0.001)	(0.001)
Constant	0.008***	0.016***	0.012***
	(0.001)	(0.001)	(0.001)
r2	0.004	0.002	0.005
bic	-64241	-86181	-54438
N	44749	65866	50791

Table A2. Estimation results in relation to parents' pensioner status.

	Denmark 1	Denmark 2	Denmark 3	Denmark 4	Finland 1	Finland 2	Finland 3	Finland 4
Mother pensioner	0.027***		0.025***	0.019***	0.017***		0.016***	0.013***
	(0.005)		(0.005)	(0.005)	(0.004)		(0.003)	(0.003)
Father pensioner		0.026***	0.022***	0.015**		0.005*	0.003	0.001
		(0.005)	(0.005)	(0.005)		(0.002)	(0.002)	(0.002)
Female				-0.002				-0.004***
				(0.001)				(0.001)
Mother's education								
ISCED 1-2				0.005***				0.003
				(0.001)				(0.001)
ISCED 5-6				0.001				-0.003**
				(0.001)				(0.001)
Father's education								
ISCED 1-2				0.006***				0.002
				(0.002)				(0.001)
ISCED 5-6				0.001				0
				(0.001)				(0.001)
Household income								
Low				0.008***				0.007***
				(0.001)				(0.001)
High				-0.002				-0.002
				(0.001)				(0.001)
Constant	0.013***	0.013***	0.012***	0.008***	0.015***	0.016***	0.015***	0.015***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)
r2	0.002	0.001	0.003	0.006	0.001	0	0.001	0.002
bic	-64209	-64175	-64245	-64291	-86081	-86044	-86073	-86111
N	44749	44749	44749	44749	65834	65834	65834	65834

Table A3. Estimation results in relation to individual post-compulsory-school trajectories.

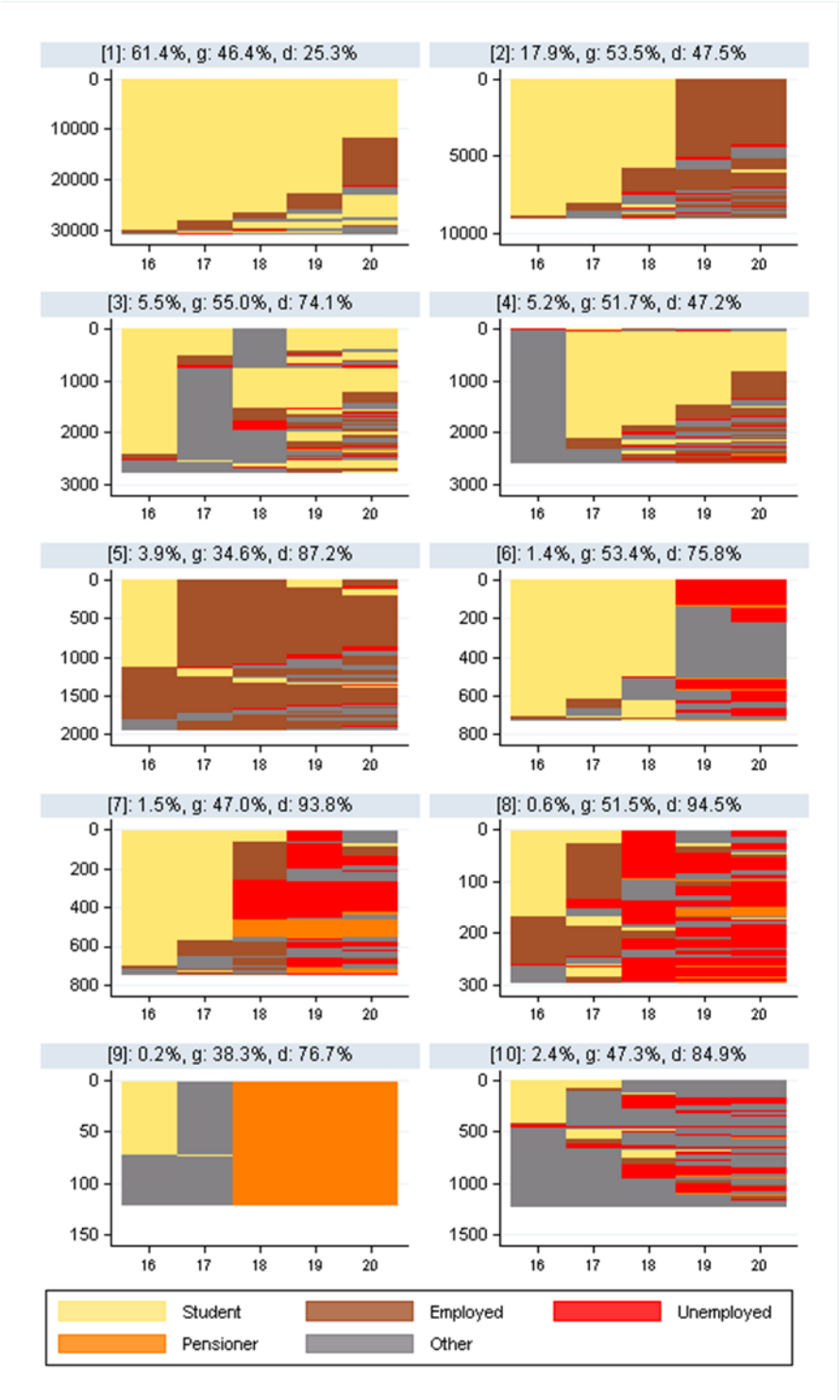
	Denmark 1	Denmark 2	Finland 1	Finland 2	Norway 1	Norway 2
Female	-0.002	-0.002	-0.004***	-0.004***	0.002	0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Mother's education						
ISCED 1-2		0.001		0		0.003*
		(0.001)		(0.001)		(0.002)
ISCED 5-6		0		-0.002*		-0.001
		(0.001)		(0.001)		(0.001)
Father's education						
ISCED 1-2		0.003*		0.001		0.007***
		(0.001)		(0.001)		(0.002)
ISCED 5-6		0		0.002		-0.001
		(0.001)		(0.001)		(0.001)
Household income						
Low		0.003*		0.003**		0.012***
		(0.001)		(0.001)		(0.002)
High		0		-0.001		-0.001
		(0.001)		(0.001)		(0.001)
Pathways						
2. Student-employment	0.004***	0.004***	-0.005***	-0.006***	-0.005***	-0.006***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
3. Student-inactivity-student	0.009***	0.008***	0.024***	0.023***	0.011***	0.009**
	(0.002)	(0.002)	(0.004)	(0.004)	(0.004)	(0.004)
4. Delayed-student-employment	0.006**	0.006**	0.010***	0.010***	0.034***	0.029***
	(0.002)	(0.002)	(0.002)	(0.002)	0.007	(0.007)
5. Employment	0.010***	0.009**	-0.002	-0.003	0.000	-0.005
	(0.003)	(0.003)	(0.002)	(0.002)	(0.006)	(0.006)
6. Student-disability-unemployment	0.081***	0.080***	0.015***	0.015***	0.046***	0.043***
	(0.011)	(0.011)	(0.003)	(0.003)	(0.006)	(0.009)
7. Student-employment-disability	0.226***	0.225***	0.011***	0.010***	0.044***	0.038***
	(0.017)	(0.017)	(0.003)	(0.003)	(0.009)	(0.008)
8. Employment-unemployment	0.156***	0.154***	0.064***	0.062***	0.066**	0.057*
	(0.024)	(0.024)	(0.016)	(0.016)	(0.030)	(0.029)
9. Pensioner	0.877***	0.876***	0.896***	0.896***	0.587***	0.574***
	(0.031)	(0.031)	(0.014)	(0.014)	(0.127)	(0.126)
10. Inactivity	0.132***	0.130***	0.062***	0.060***	0.054***	0.047***
	(0.012)	(0.012)	(0.007)	(0.007)	(0.009)	(0.009)
Constant	0.004***	0.002	0.010***	0.010***	0.016***	0.012***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
r2	0.212	0.212	0.322	0.323	0.014	0.026
bic	-74676	-74631	-111646	-111607	-54865	-54967
N	44749	44749	65866	65866	50791	50791

Table A4. Estimation results concerning cross-municipality differences.

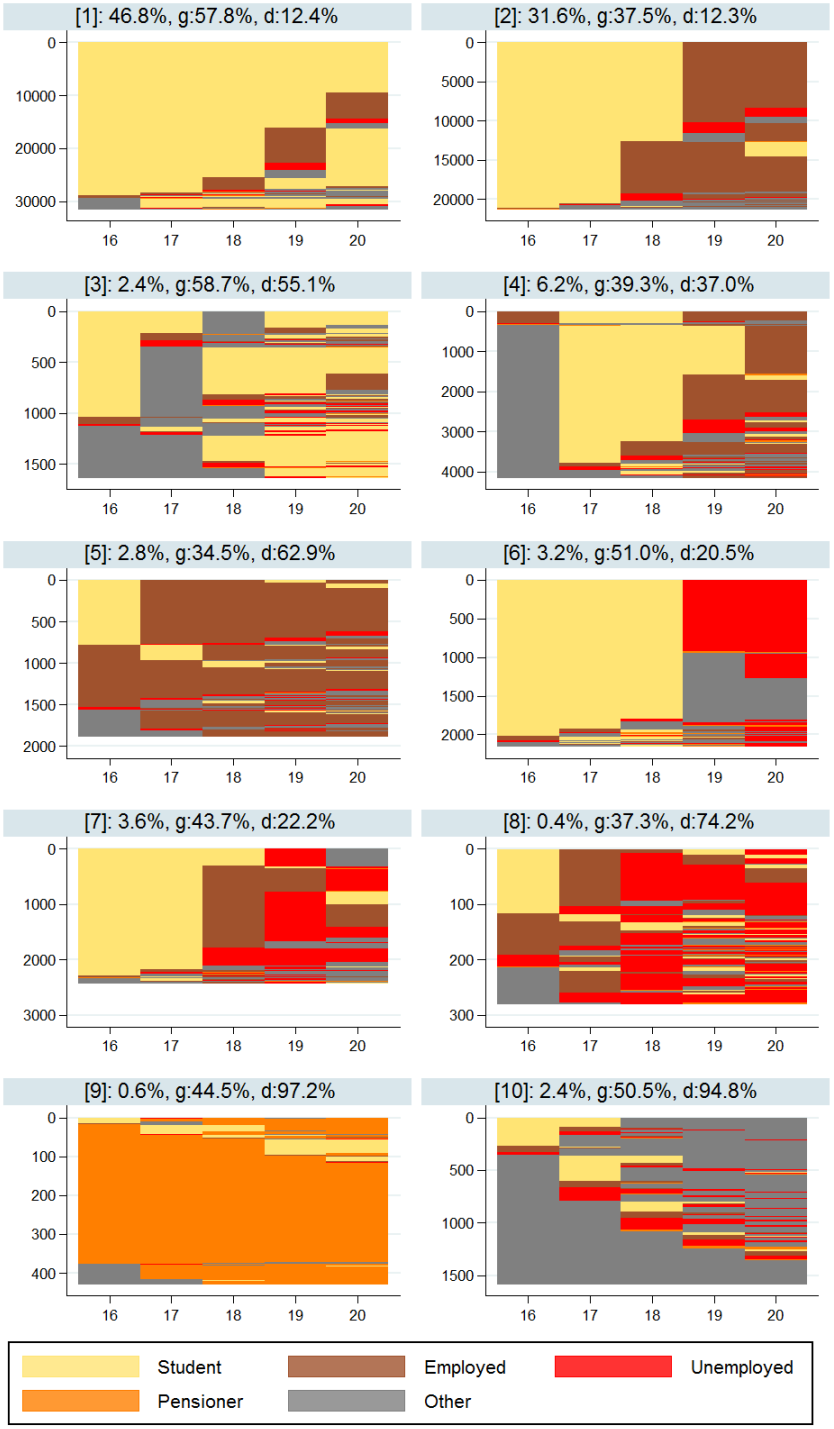
	Denmark	
Municipality attachment at	Age 26	Age 16
Constant	-0.004*	0.002
	(0.002)	(0.003)
Mother pensioner	0.014***	0.014***
	(0.002)	(0.002)
Father pensioner	0.009**	0.009***
	(0.003)	(0.003)
Broken Family	0.009***	0.009***
	(0.001)	(0.001)
Mother teenager	-0.001	-0.001
	(0.002)	(0.002)
Female	-0.001	-0.001
	(0.001)	(0.001)
Mother's education		
ISCED 1-2	0.002	0.002*
	(0.001)	(0.001)
ISCED 5-6	0.002	0.001
	(0.001)	(0.001)
Father's education		
ISCED 1-2	0.003*	0.003**
	(0.001)	(0.001)
ISCED 5-6	0.002	0.000
	(0.001)	(0.001)
Mother's income		
High	0.005***	0.006***
	(0.001)	(0.001)
Low	-0.001	-0.002*
	(0.001)	(0.001)
Father's income		
High	0.003**	0.003**
	(0.001)	(0.001)
Low	0.000	-0.001
	(0.001)	(0.001)
Municipality dummies	Yes	Yes
r2	0.017	0.011
bic	-86 852	-86 508
N	51 547	51 547
Equality of municipality dummies, p-value	0.000	0.332

Figure A1. The ten clusters at age 16-20.

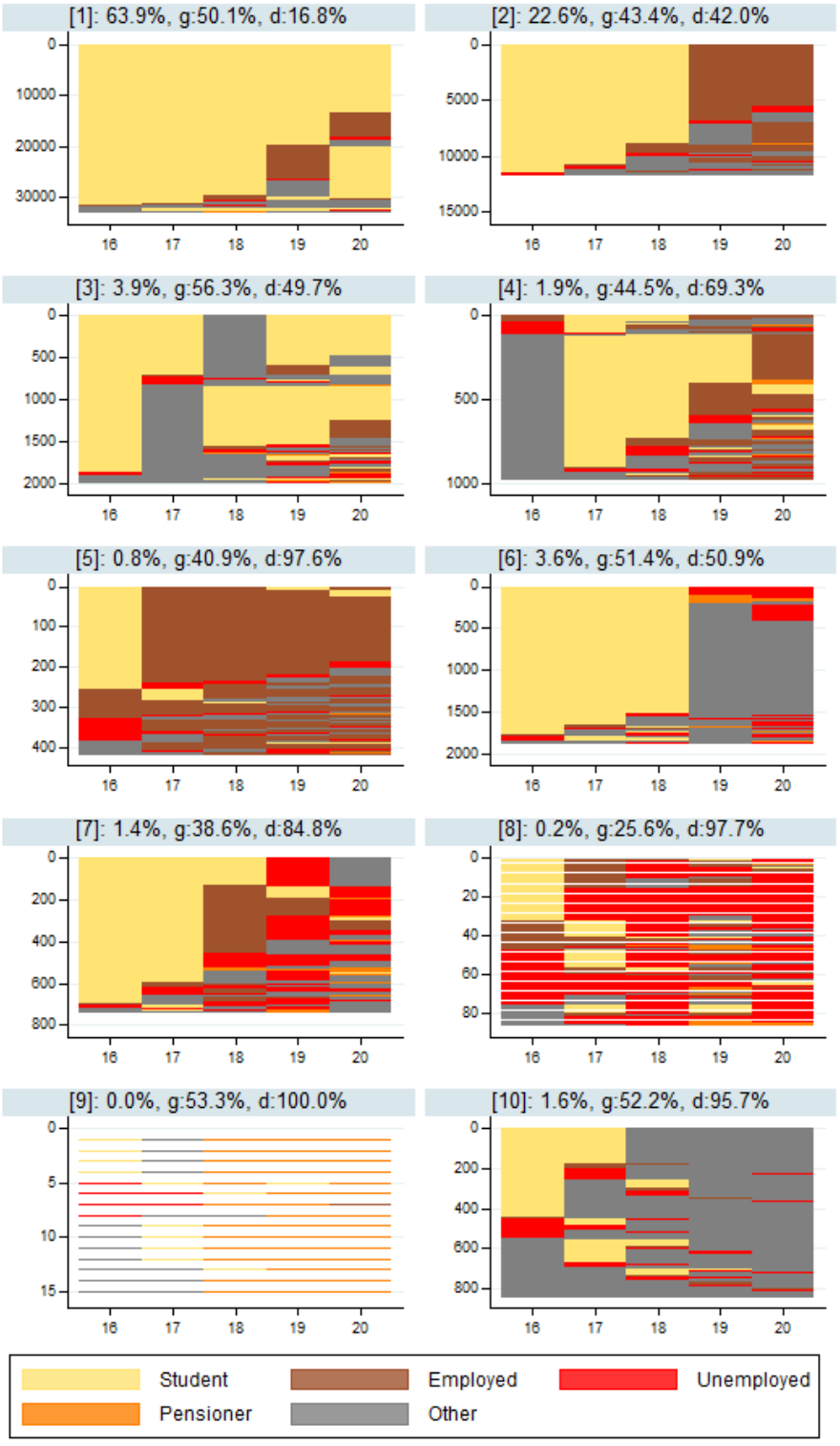
Denmark



Finland


[1]: 46.8%, g:57.8%, d:12.4%
[2]: 31.6%, g:37.5%, d:12.3%
[3]: 2.4%, g:58.7%, d:55.1%
[4]: 6.2%, g:39.3%, d:37.0%
[5]: 2.8%, g:34.5%, d:62.9%
[6]: 3.2%, g:51.0%, d:20.5%
[7]: 3.6%, g:43.7%, d:22.2%
[8]: 0.4%, g:37.3%, d:74.2%
[9]: 0.6%, g:44.5%, d:97.2%
[10]: 2.4%, g:50.5%, d:94.8%
16
17
18
19
20
Student
Employed
Unemployed
Pensioner
Other

Norway


[1]: 63.9%, g:50.1%, d:16.8%
[2]: 22.6%, g:43.4%, d:42.0%
[3]: 3.9%, g:56.3%, d:49.7%
[4]: 1.9%, g:44.5%, d:69.3%
[5]: 0.8%, g:40.9%, d:97.6%
[6]: 3.6%, g:51.4%, d:50.9%
[7]: 1.4%, g:38.6%, d:84.8%
[8]: 0.2%, g:25.6%, d:97.7%
[9]: 0.0%, g:53.3%, d:100.0%
[10]: 1.6%, g:52.2%, d:95.7%
16
17
18
19
20
Student
Employed
Unemployed
Pensioner
Other