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Early retirement from the labour market among immigrants and natives: A register-based study of Norway

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Abstract

This study investigates early exit from the labour market among natives and immigrants in Norway, and to what extent this be explained by push, pull, or other factors. To answer these questions, we use high-quality Norwegian register data that contain information on the entire resident population of Norway for the period from 1992 to 2015. We estimate transition rate models in a competitive risk framework. The analyses show that natives have a much higher labour force participation rate than immigrants when they are 50 years old. However, for those in the labour force, the exit rates are higher among Norwegian-born individuals. There are differences concerning which exit routes the groups follow. The analyses indicate that both push and pull mechanisms are active and that institutional and family factors are essential. Early retirement should not be seen as a voluntary choice before the end of working life.

Keywords
Early retirement, immigrants, register data, survival analysis

Introduction

At the same time as the number of older individuals is increasing and birth rates are decreasing in most European countries, early retirement from the labour market remains prevalent (OECD, 2017). This combination of trends has led many to consider the low labour market participation rate among older workers to be one of the most critical challenges facing modern welfare states today (see e.g. Esping-Andersen, 1999). A relatively new feature in many European countries is that immigrants make up a growing proportion of the older population, which, among other trends, has led to concerns about increasing poverty and inequality (see e.g. Heisig et al., 2018). Currently, there are many studies on early retirement, but few of these compare immigrants and natives. The purpose of this study was to provide empirical evidence on this issue. The questions we address are as follows: do natives and immigrants leave the labour market at different times and through different routes, and if so, to what extent can this be explained by push, pull or other factors? To answer these questions we use high-quality Norwegian register data that contain informa-

tion on the entire resident population of Norway for the period from 1992 to 2015. We estimate transition rate models in a competitive risk framework that allows us to investigate whether immigrants and natives of either gender exit from the labour market at different ages or via different routes.

Theory and previous research

There are two main models in the explanation of early retirement from the labour market (Ebbinghaus & Radl, 2015; Hofäcker & Radl, 2016). The first is the pull (economic) theory that sees early retirement as a rational decision that workers make to maximize their lifetime income ('expected utility') based on an assessment of future streams of wages and pension. Given that workers are assumed to value leisure over work, it has been hypothesized that workers leave the labour market when pension systems, or other systems such as the disability pension, provide adequate compensation for labour income. In contrast to the idea that retirement is an individual and voluntary choice made under certain constraints, the push (sociological) theory sees an early exit from the labour market as an involuntary result of structural forces such as globalization, technological changes, industrial restructuring and unemployment. Today, the general view seems to be that these theories are complementary, and a previous Norwegian study has shown that they are both relevant for understanding early exit (mainly for disability pensions) among unskilled labour immigrants who arrived in Norway in the early 1970s (Bratsberg et al., 2010).

Even though there is much evidence that push and pull factors are important, there is also much evidence that these explanations are incomplete. In recent years, many comparative studies have shown that early retirement must be understood in light of a broader institutional context, where there is complex interplay between gender, the family, the labour market and the welfare state (see e.g. Blossfeld et al., 2011; Hofäcker et al., 2016; Heisig et al., 2018). Many studies have shown that in line with the gender structure of societies, women in general tend to be at a relative disadvantage to men with regard to pensions and the ways in which they leave the labour market (see e.g. Ginn & Arber, 2001; Dahl et al., 2003). Other gender/family evidence that challenges the market-based explanations is that husbands and wives tend to co-ordinate their retirement decisions (see Moen et al. 2006; Denaeghel et al., 2011; Syse et al., 2014). There have been two explanations of such tendencies. The first is the (economic) preference argument that leisure (i.e. spending time with one's spouse) is valued more highly than income from work. The second is the (sociological) argument that couples share life circumstances (e.g. health, class, labour market situation).

There is a sizeable body of research evidence that immigrants from Africa and certain parts of Asia, as well as refugees, perform especially poorly in the European labour market compared with the native population (see e.g. Heath & Cheung, 2007; Heisig et al., 2018). The human capital theory has been important in explaining such findings, with its focus on individual 'resources' such as education, language proficiency and labour market experience (Chiswick, 2005; Borjas, 1994). Another explanation has been that they reflect discrimination, either in the form of employers' subjective tastes (i.e. preferences/prejudices) or rational (statistical) calculations (see e.g. Birkelund et al., 2017; Heath & Cheung, 2007). Health is also likely to be an important factor. There is much evidence that health problems play an essential role in the process of early retirement (see e.g. Blekesaune, 2019; Syse et al., 2014), and that immigrants from poorer countries have worse health in general than the native population (see e.g. Hansen et al, 2014; Claussen et al., 2009).

Institutional context

As in many other Western countries, there exist various institutional arrangements that make it possible for older workers in Norway to leave the workforce. The disability pension has for many years been the main income source for individuals of working age who are permanently outside the labour market. All residents between the ages of 18 and 66 years who have been members of the National Insurance Scheme (NIS) for at least three consecutive years before the onset of disease, illness, or injury are eligible for a disability pension. As a rule, legal residents of Norway (i.e. not only citizens) are obligatory members of the NIS. The ability to work must be permanently reduced by at least 50 per cent, and this must be certified by a medical doctor and verified by the social security administration. In addition to health and age, the local labour market situation may also be relevant in the evaluation process. The disability pension should provide the same income as that the individuals would have received if they had continued to receive the retirement pension.

Based on a tripartite agreement between the major association of employers, employees and the state, a contractual early retirement scheme known by the abbreviation AFP has existed in Norway since 1989. The original intention was that it should provide a more dignified exit from the labour market than the disability pension, primarily for older blue-collar workers with physically strenuous jobs. The age of eligibility for the AFP scheme has gradually decreased from 66 to 62 years, and more workers have gained access. Today, all public sector workers and around half of all private sector workers—around 80 per cent of workers—have access to the AFP scheme. To be entitled to the AFP, a person must have worked for a firm or organization that participated in the central tariff agreement for at least seven of the nine years before the person turns 62. The calculation of AFP follows the same principles as that for the disability pension but provides some extra benefits. It may be noted that the AFP allows much more choice than the disability pathway. The legal decision to retire through the AFP is made by each worker, and there is no medical or institutional control mechanism with the attached negative and stigmatizing experiences, as is the case for the disability pension.

A retirement pension consists of three elements: a retirement pension from NIS, a private and state occupational pension from the employer, and any additional pension individuals may have. Individuals have the right to retire with a retirement pension when they reach the age of 67. Workers in occupations considered especially physically or psychologically demanding have the right to retire before they are 67 years old. For instance, policy and military officers and fire workers can retire when they are 60 years old, and nurses, train drivers, bus drivers, and cleaners can retire when they are 65 years old. They can draw their pension from age 57 and age 62, respectively, if the sum of their age and years in service is 85 years or more. A new pension reform introduced in 2011 allows workers with long working careers to receive retirement pensions at the age of 62 years (for a policy description see Grødem & Hippe, 2018, 2019; Hippe & West Pedersen, 2019). While most OECD countries have increased the pension age or plan to do so, Norway has replaced the formal retirement age of 70 years with an optional retirement age between the ages of 62 and 75 years. This reform has made it possible to combine income from work and the retirement pension, thereby breaking the link between pension claims and retirement. The main intention was for the reform to make it more profitable to remain in employment longer, and the evidence indicates that this objective has been achieved (Hernæs et al., 2016). Following the pension reform in 2011, the AFP system in the private sector has changed; among a number of changes, it has become possible to combine the AFP with income from work/a pension. There has been no change in the AFP scheme in the public sector. Unfortunately, AFP eli-

gibility cannot be identified in our data. As the reform is still in an early phase and we only have data until 2015, we are unfortunately not in a position to investigate the impact of pension reform (see Grødem & Hippe, [2021] and Halvorsen & West Pedersen [2019] for simulations on the distributional impact of the reform, and Midtsundstad [2020] for a more general reflection).

Data and methods

Data and sample

The data for this study come from the longitudinal FD-Trygd database from Statistics Norway. This high-quality database covers all residents of Norway over the age of 16 years from 1992. Because these data come from public registries, problems such as missing cases and sample attrition are negligible. Like other studies in this field (see e.g. Blossfeld et al,. 2011), we have organized the data as yearly panel data (from 1994 to 2015), so we can follow individuals over periods of up to 16 years. Except for gender and country of origin, all independent variables are time-variant. The sample has been restricted to workers aged between 50 and 66 years. Self-employed people were excluded because the AFP and benefits in the NIS such as unemployment benefit are not available to them. We also excluded individuals who received disability pensions before the age of 50 years. Because there is limited opportunity to investigate the situation before 1992 (i.e. problems with left censoring), we have also excluded individuals born before 1942. This limits our opportunities to investigate cohort differences. Another limitation is that we do not have occupational information for the period we study, nor do we have information about which schemes workers have available nor if they fulfil the requirement to access them. Such information could have provided us with a fuller understanding of the situation of different groups of immigrants and natives.

Variables

Our dependent variable measures duration of work by individuals aged 50 years to early retirement or when censoring occurs, owing to death, emigration, age (> 66 years) or the end of our observation period (year > 2015). Following the institutional design of the NIS, we distinguish between three mutually exclusive exit routes: 1) disability pension, 2) AFP in the private/public sector and 3) retirement/occupational pension (i.e. before age 67 years). We have defined individuals as retired when their occupational income is lower than their (total) pension income. We attempted to include unemployment/sickness absences in a separate exit category, but this was not successful. Relatively few people were in these positions in the last years before they turned 67 years of age, and those in younger age groups who received such benefits often returned to work after receiving them.

As discussed above, there is much evidence that immigrants from Africa and certain parts of Asia are in a worse position than the native population in relation to several dimensions. To capture this, we rely on Statistics Norway's standard for the designation of people's country of origin, which distinguishes between natives and the two main immigrant groups based on their country of birth. Group 1 includes immigrants from EU/EFTA countries, North America, Australia and New Zealand. Group 2 consists of immigrants from (a) European countries outside the EU/EFTA, (b) Asia, (c) Turkey, (d) Africa, (e) South and Central America and (f) Oceania outside Australia and New Zealand. Investigation of the 10 largest immigrant groups in general confirms that this classification system captures the general situation (See Appendix 1). To be classified as an immigrant, a person must be born outside

Norway to parents who were both born outside Norway.

The likelihood of exit from the labour market has been shown in previous studies to decrease with increasing education and income. Income has been used in previous research as an indicator of economic incentives (Bratsberg et al., 2010). Education is a resource (i.e. a form of human capital) that should be expected to extend people's work careers and influence their labour market position (i.e. it is a push factor). As can be seen from Table 1, lack of education is a larger problem among Group 2. Nevertheless, the problem is not as significant as one might expect (cf., e.g. Bjugstad & Holseter, 2017) because we study older people in the workforce. Given this situation, we have classified such people together with those who have elementary school education.

We include two variables that are more specific measures of push factors. First, the average annual local unemployment rate in municipalities where individuals live was added from the NSD database (http://www.nsd.uib.no). The second push variable is 'industry', which was represented by seven dummy variables. Information about occupation was not included as they only was available after 2003.

To measure health, we have included a variable to indicate periods of long-term sickness absence (i.e. of more than 16 days). Long-term sickness absence must be documented by a medical doctor, typically by workers' general practitioners (GPs). Given that most citizens have close contact with their GPs, the reliability and validity of this health measure should be good. Because the disability pension for workers always starts with one year of sickness absence and requires further rehabilitation efforts, direct transition from sickness absence to a disability pension according to the institutional system is unlikely. Therefore, after investigating several solutions, we have lagged the sickness absence variable to reflect the situation four years previously.

The family variables included in this study are marital status, children and the retirement status of spouses. In the literature, children and marital relationships (including registered partners) are generally seen as health-protective factors (especially for men) (Dahl, Hansen & Vignes, 2015).

While previous studies of the issue of partnership synchronization have measured whether a partner receives a pension, we distinguish between a partner's disability pension and a regular pension (retirement pension/AFP). This allows us to investigate whether couples leave the labour market at the same time and through the same or different routes. Furthermore, it allows us to investigate the degree to which couple synchronization is a matter of choice (i.e. retirement pension/AFP) or health problems (i.e. disability pension).

Descriptive statistics for all variables in our analysis and details on their construction are provided in Table 1. Given the purpose of this study, it was not feasible to model and include all historical changes in the institutional system in the period studied (i.e. pension reform and changes in rules governing immigration). However, in our regression analysis, we include year as a control variable to take care of such factors.

Table 1: Variable definitions and descriptive statistics. Sample: work income > BA and no disability pension when 50 years old.

	Norway	Group 1	Group 2
Age (years; means and st. dev.)	55.0	55.0	53.9
	3.8	4.0	3.5
Gender (women = 1, men = 0) (%)	48.4	49.9	46.3
Children (yes = 1, no = 0) (%)	89.9	80.4	86.6
Unmarried (%)	10.1	8.0	4.2
Married/registered partner (%)	69.9	69.2	75.9
Divorced/separated/widow(er) (%)	20.0	22.8	19.9
Partner pension (yes = 1, no = 0) (%)	3.6	4.3	4.1
Partner receives disability pension (yes = 1, no = 0) (%)	8.1	6.0	9.4
Education missing (%)	0.2	2.3	3.3
Primary school (%)	43.4	25.8	33.4
High school (%)	24.1	20.8	23.9
University/college (%)	32.4	51.2	39.4
Sickness absence when 47 years old (%)	17.3	16.9	23.3
Unemployment municipality (means and st. dev.)	3.0	3.0	3.1
	(1.2)	(1.2)	(1.0)
Income (NOK, means and st. dev.)	493201	507854	428400
	(389386)	(362512)	(224933)
Manufacturing, construction (%) (NUS = 3, 6)	15.4	14.5	15.1
Wholesale, retail (%) (NUS = 7)	7.2	5.6	4.8
Transport (%) (NUSC = 8)	9.8	7.5	6.9
Information, finance, and insurance (%) (NUS = 10–12)	9.7	6.6	4.9
Professional, admin., service (%) (NUS = 13, 14, 19)	22.8	24.6	19.2
Education, health soc. service (%) (NUS = 16, 17)	25.2	30.4	33.9
Other (%) (NUS = 1, 2, 4, 5, 9,15, 18, 20, 21)	9.9	10.8	15.2
Total (*n*)	7.585.730	211.034	147.010

Note: Variables show means for all years in the sample when not retired.

Group 1 immigrants from EU/EFTA, North America, Australia, and New Zealand).

Group 2 immigrants from non-EU/EFTA European countries, Asia, Turkey, Africa, South and Central America, Oceania not including Australia and New Zealand.

BA: Basic amount in the National Insurance system.

Methods

In line with many previous studies, we use discrete-time event history models to study early retirement. Because the exits from the labour force that we consider are in most cases permanent (for evidence from a sequence analysis, see Hansen & Lorentzen, 2018), we use a single-spell model. In the first explorative analysis, we estimate the survival and hazard

rates using the Kaplan estimator. To estimate the different regression models, we use the piecewise constant exponential model, which, together with logistic regression, is the most commonly used model in early retirement research. Estimations performed with logistic regression and the Cox model provided similar results (result not shown). Because gender may interact with many of the variables studied, we have estimated separate regression models for men and women.

Results

Descriptive findings

Before we turn to the analysis of early retirement, it is of interest to consider the general situation for the whole population. Figure 1 shows the historical situation for the period from 1992 to 2015 concerning income and pensions, as this variable was constructed in this study. First, we see that the labour force participation rate is quite high, and there is even some evidence that it increases during our observation period. For those permanently outside the labour market between the ages of 50 and 66, the disability pension is the primary income source. It is also interesting to note that while there is a tendency for the number receiving the disability pension and in the 'other' category has been lower in recent years, receipt of the AFP, and after 2011 the retirement pension, has become more common. Naturally, these figures provide no conclusive evidence, but it seems reasonable to see these figures in light of the institutional change that we have described, which has made voluntary routes more easily available. The labour market situation in this period has been relatively good, and that Norway was not struck as hard by the economic crises in 2008 as many other countries were.

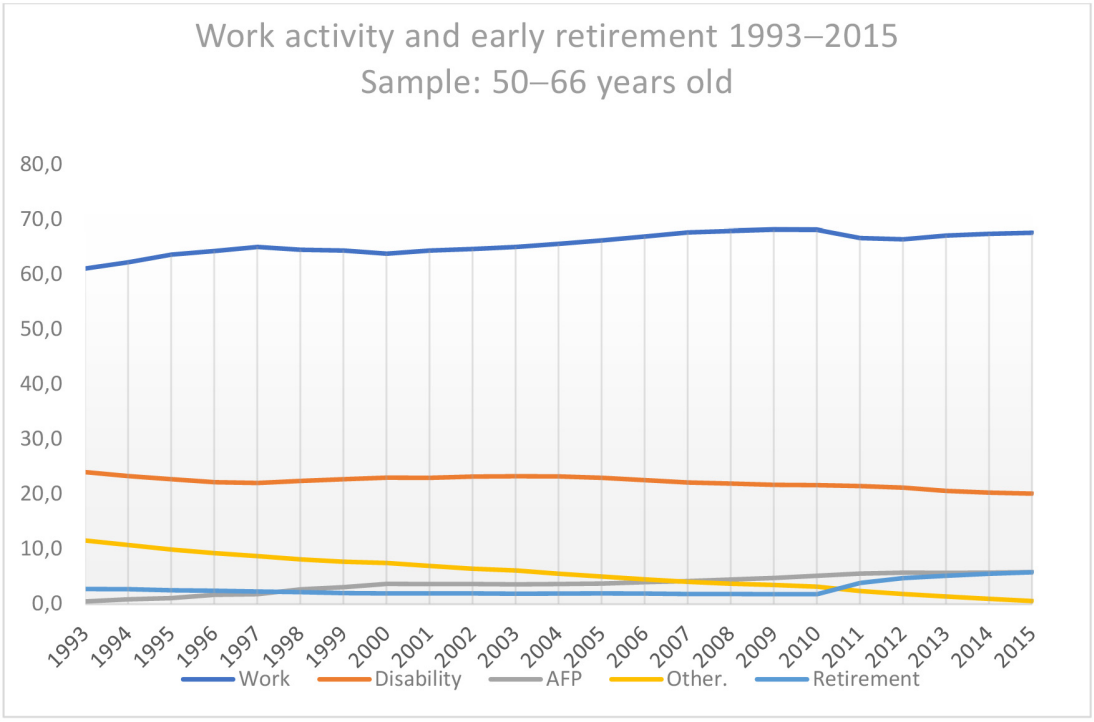

Figure 1. Work and early retirement by year. Residents of Norway (population) aged 50–66 years, 1992–2015.

Figure 2 provides information about the labour force participation rate for the country groups we study for individuals of each gender in the population in our observation period at the ages of 50 and 66 years. We measure the labour force participation rate using income above the Basic Amount (BA) in the NIS. Three points can be noted. First, for all groups, the labour force participation rate decreases as individuals become older. Second, there is a sharp decrease in the labour force participation rate for those aged over 62 years. Thus, age is essential, but institutional factors are also important. Third, gender and birth country matter. As expected, we see that for all country groups, the labour force participation rate is higher among men than women, and immigrant groups—especially Group 2—have a lower labour participation rate than do natives.

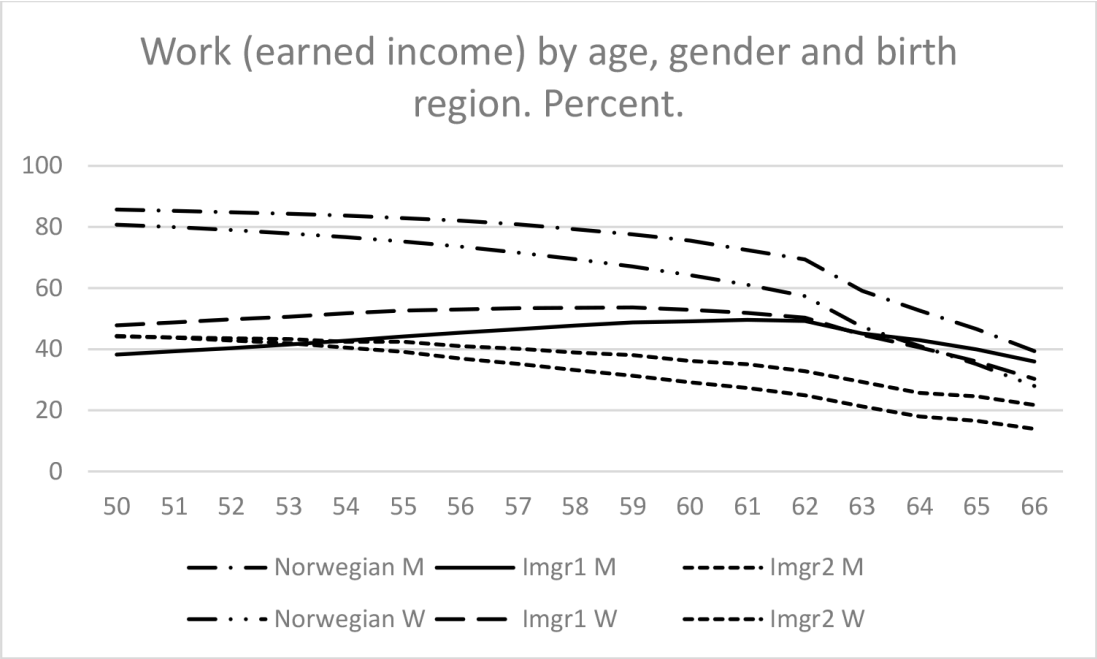

Figure 2. Work by age, gender, and birth country. Residents of Norway (population) aged 50–66 years, 1992–2015.

The data in Figure 2 describe the situation for all residents of Norway at different ages. They do not show individual transitions. In the remainder of our paper, we focus on individuals who had a pensionable income above the BA when they were 50 years old (and were not self-employed) and follow them as they age. We begin with some explorative analyses of early retirement without specifying the exit route used. Because our sample consists of individuals in work when they were aged 50 years, the earliest they can leave the labour force is age 51 years.

Figure 3 shows the survival function and hazard rates. The survival function indicates that the work participation rate decreases with age. According to the survival function, when individuals are age 66 years, approximately 85 per cent of those who were in work when they were age 50 years have left the workforce. Furthermore, Figure 3 reveals a marked drop in the survival function when individuals are age 62 years.

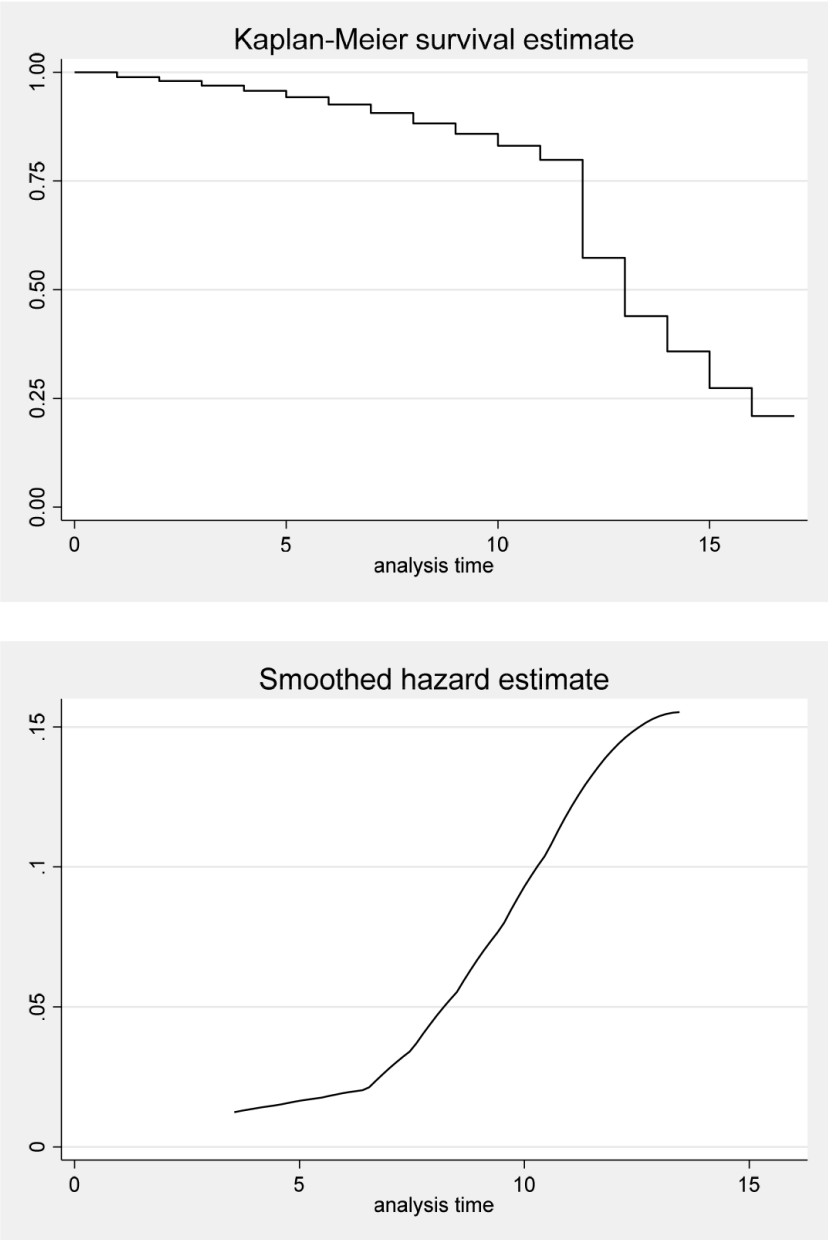

Figure 3. Early exit through disability, AFP, pension. Sample: individuals in the labour force aged 50 years.

Figure 4 shows the survival and hazard rates for the three birth country groups. For all groups, the work participation rate declines with age. That the curves are close together in the earlier years is not unexpected given that we start our analysis with individuals who are in work when they are age 50 years. Interestingly, we see that the differences between the groups change over time. Despite indications that immigrants in Group 2 are most likely to leave the labour market at an early age, retirement is most common among the Norwegian-born population. Obviously, this must be understood in light of the different labour force participation rates, i.e. the selection mechanism.

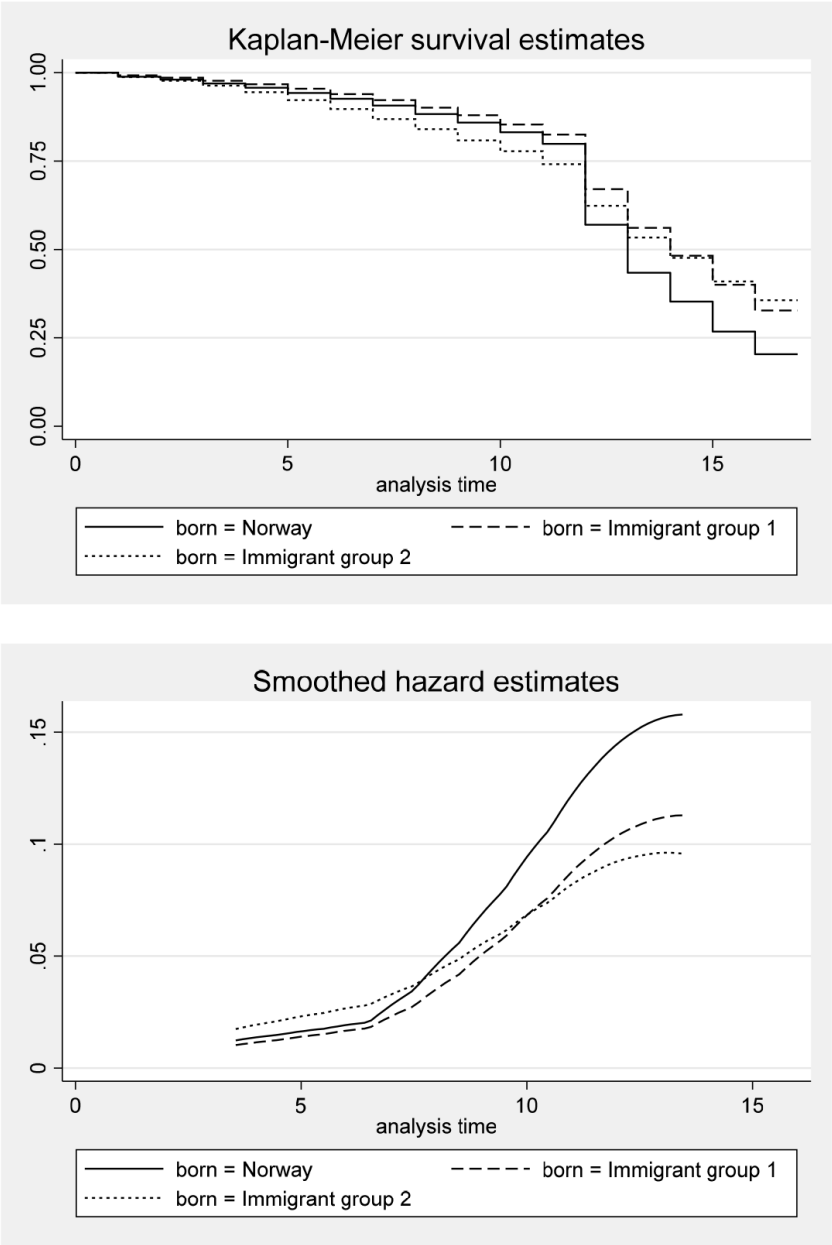

Figure 4. Early exit by birth country. Exit: disability, AFP, pension or other. Sample: individuals in the labour force aged 50 years.

The next question is whether there are differences between groups concerning exit routes. We start this investigation with a general description of the survival curves for the three exit routes. As Figure 5 shows, the disability pension is the main exit route until individuals are about age 62 years. Then, the AFP and later, the retirement pension, take over as the most important routes.

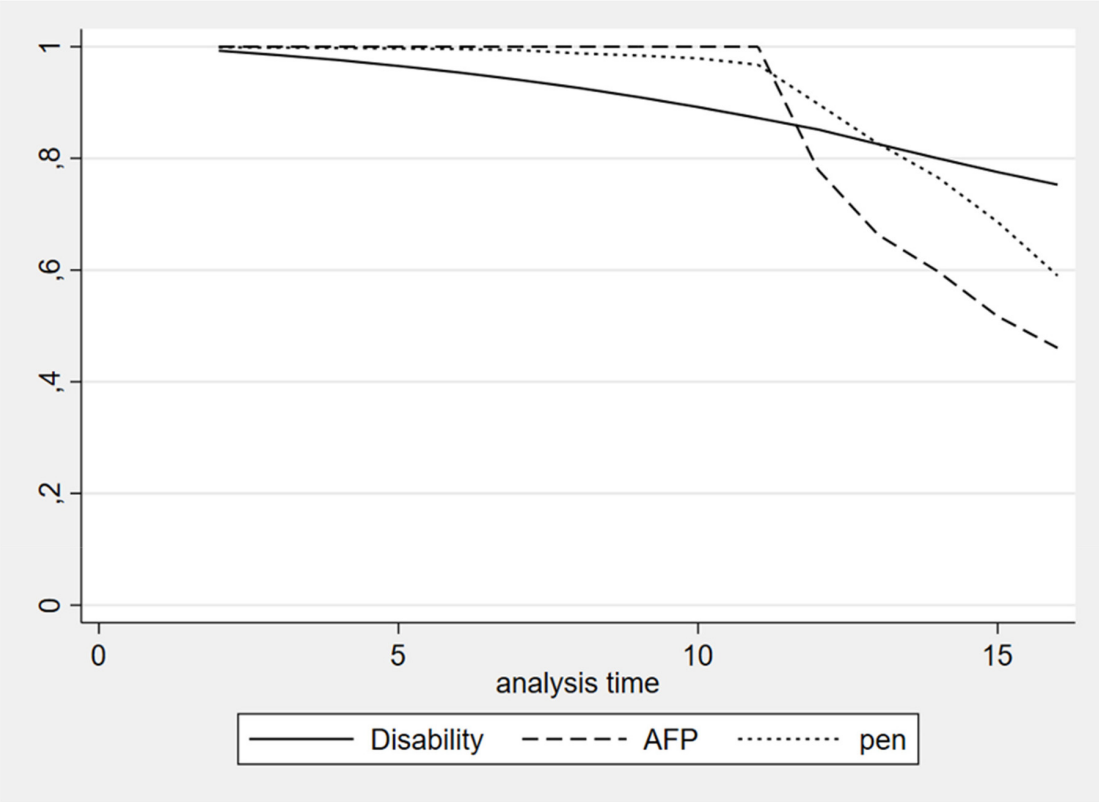

Figure 5. Early exit. Exit routes: disability, AFP, pension or other. Sample: individuals in the labour force aged 50 years.

The general picture seems to be that the labour force participation rate declines most sharply among Norwegian-born individuals. Figure 6 A, B and C shows that the picture is quite similar when one looks at the specific exit routes. Natives are more likely than the two immigrant groups to leave the labour market through any of the three channels. These findings indicate that health selection is important (i.e. middle-aged, and older immigrants with health problems are less likely than natives to be part of the labour market). However, the difference between immigrants and natives may also be attributable to differences in access to exit channels (i.e., natives have better access to AFP and retirement pension).

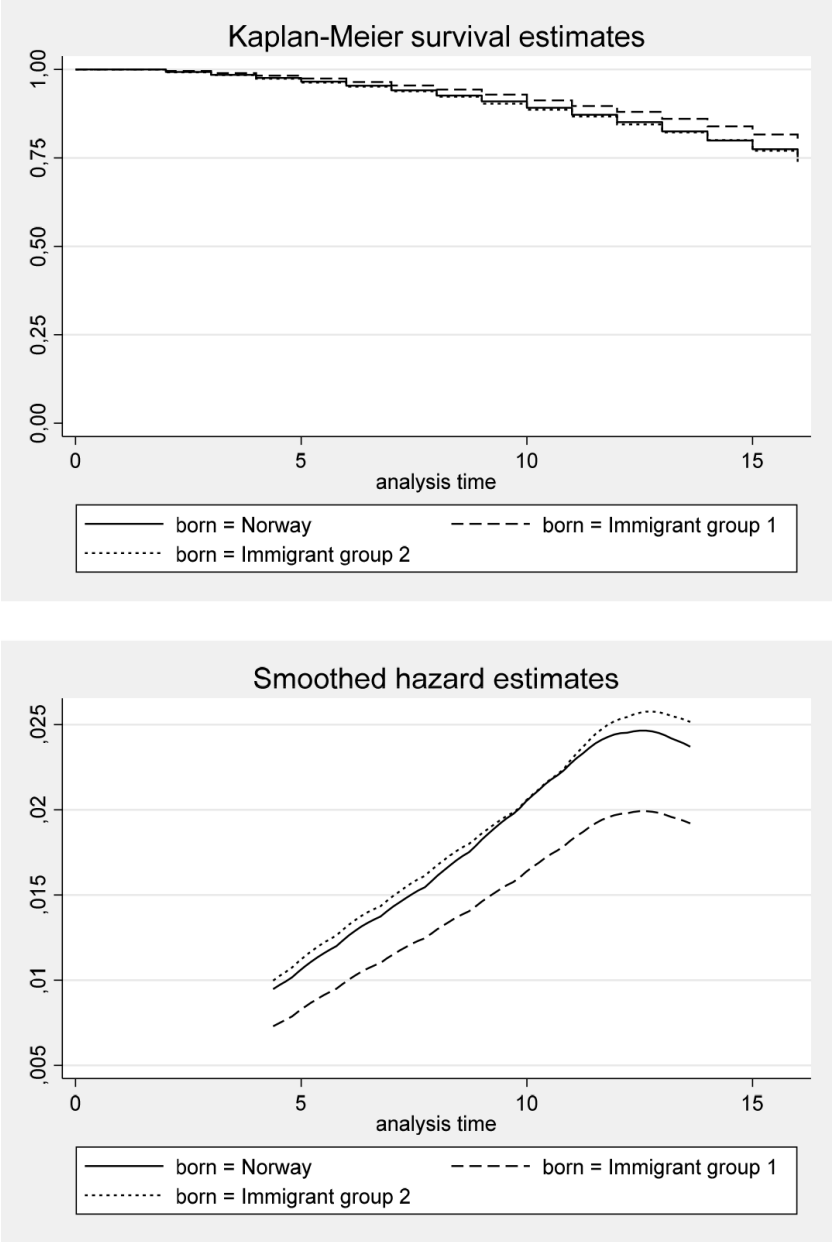

Figure 6A. Early exit: disability pension by birth country. Sample: individuals in the labour force aged 50 years.

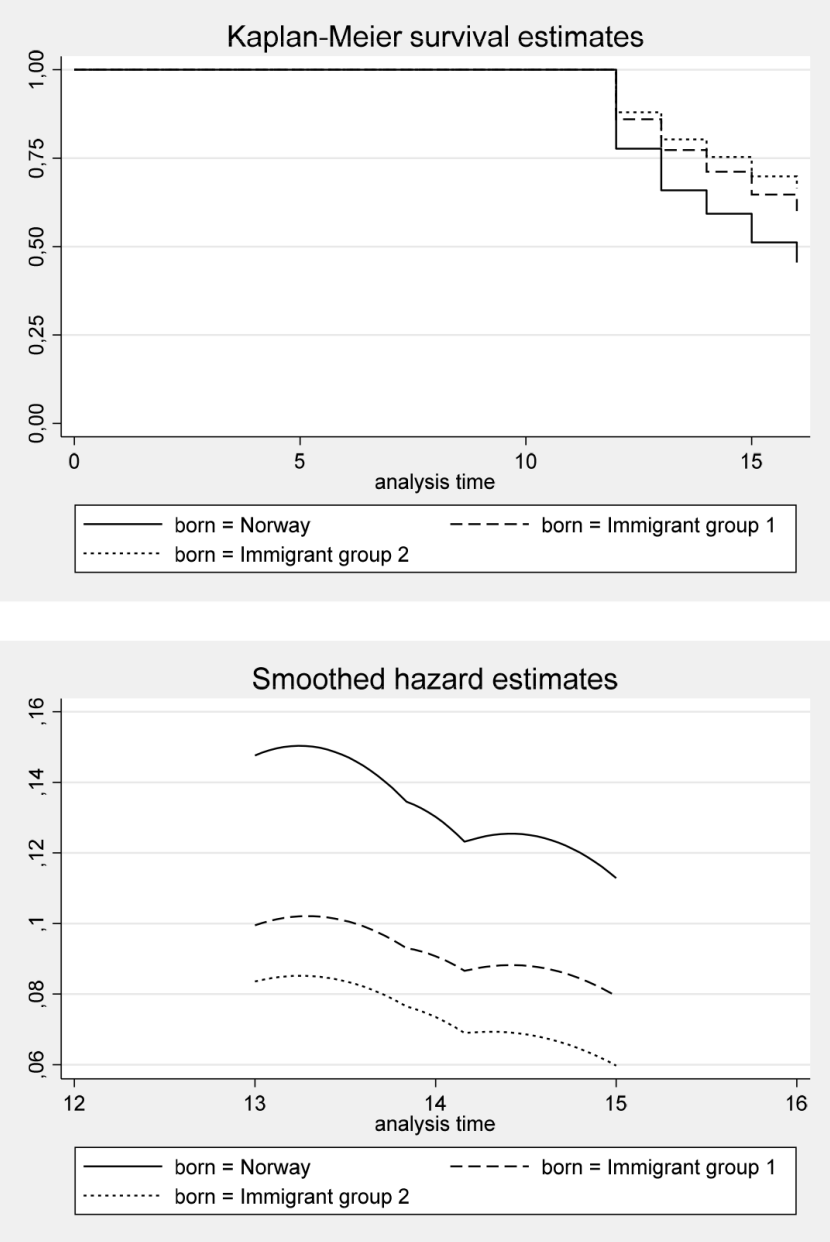

Figure 6B. Early exit: AFP by birth country. Sample: individuals in the labour force aged 50 years.

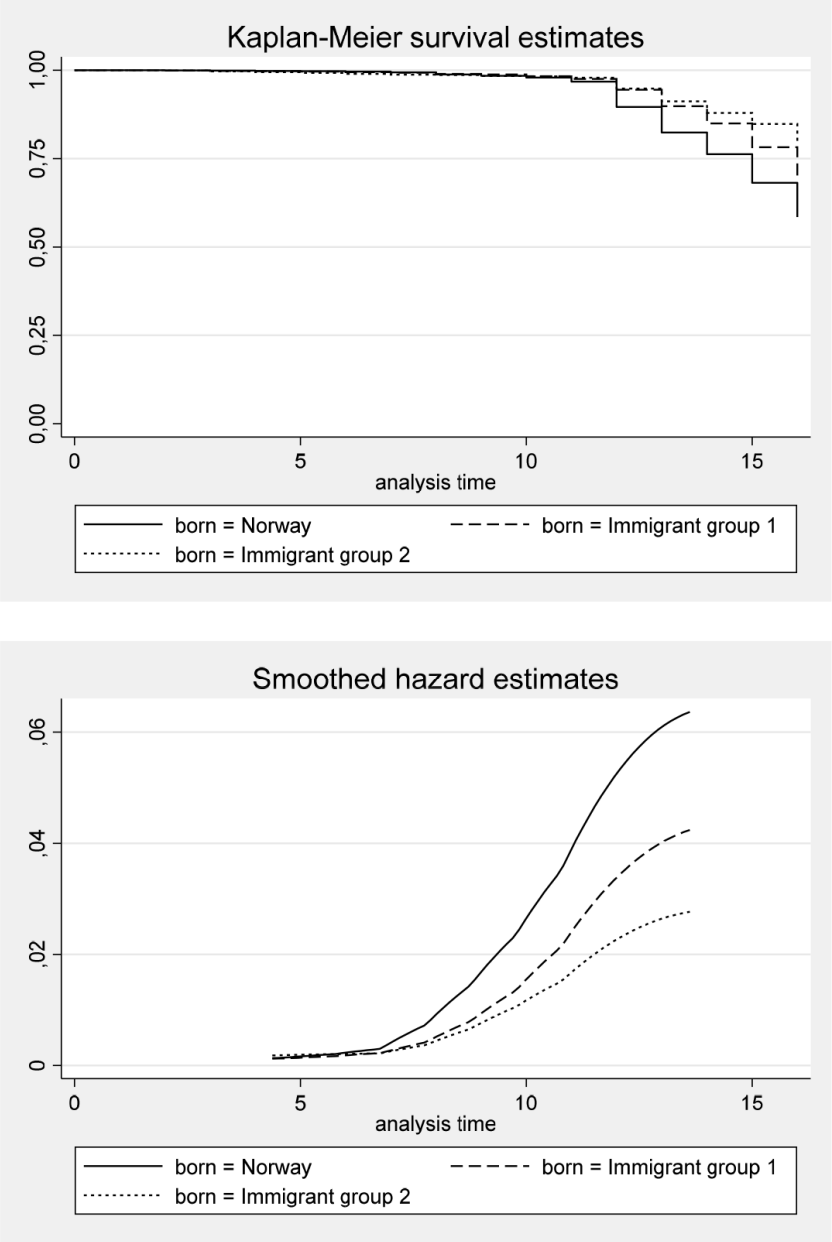

Figure 6C. Early exit: retirement pension by birth country. Sample: individuals in the labour force aged 50 years.

Regression analysis

In this section, we investigate the retirement process by utilizing an exponential regression model. We provide separate estimates for transition into a specific type of retirement and censor others. Hazard ratios may be 0 and may exceed 1. Values below 1 imply that the effect is negative (i.e. lower risk of early retirement) and values above 1 mean that the coefficient is positive (i.e. higher risk of early retirement). Tables 2 and 3 provide separate results for men and women, respectively. In the first model, we study the transition to a disability pension for all workers aged over 50 years; in the next three models, we analyse the various outcomes in a competing risk framework. Considering the institutional description and the descriptive results, these last three models are restricted to individuals who did not retire at age 61 years. All models included controls for age (as yearly dummy variables) and year (dummies) (results not shown).

If we look at the first column (those who are age 50 years or older), immigrants generally have a lower hazard rate for receiving a disability pension than do those born in Norway. The results in the second column are similar, but the difference is only significant between native women and women belonging to Group 1. It is also interesting to note that refugee origin seems unimportant. A separate analysis of only those from refugee backgrounds indicated that this is likely to be a result of overlap between country groups and coming from a refugee-sending country (HR = 0.77; Z = −7.62, p = 0.000).

Table 2: Piecewise constant exponential model of employment exit. Disability pension (age 50+ years) and competing risk models (age 61+ years). Sample: men.

	Disability 50+	Disability 62+	AFP 62+	Pension 62+
Group 1 (= 1)	0.77***	0.93	0.67***	0.65***
	(0.03)	(0.07)	(0.03)	(0.03)
Group 2 (= 1)	0.92*	0.82	0.62***	0.45***
	0.77***	0.93	0.67***	0.65***
From refugee country (=1)	1.07	1.06	0.77**	0.34***
	(0.07)	(0.22)	(0.09)	(0.06)
Sickness lag 4 (= 1)	2.87***	2.46***	1.03**	1.07***
	(0.03)	(0.07)	(0.02)	(0.02)
Primary school (= 1)	1.20***	1.19***	1.01	0.97**
	(0.01)	(0.04)	(0.01)	(0.02)
University/college (= 1)	0.70***	0.77***	0.88***	0.79***
	(0.01)	(0.03)	(0.01)	(0.01)
log income	0.46***	0.42***	0.86***	0.75***
	(0.00)	(0.01)	(0.01)	(0.01)
Unmarried (= 1)	1.08***	1.02	0.94**	0.82***
	(0.02)	(0.07)	(0.03)	(0.03)
Previously married (= 1)	1.13***	1.12***	0.92***	1.04**
	(0.02)	(0.04)	(0.01)	(0.02)
Children (= 1)	0.94***	1.07	0.97	1.24***
	(0.02)	(0.06)	(0.02)	(0.04)
Partner pension (= 1)	1.15***	1.18***	1.26***	1.08***
	(0.05)	(0.06)	(0.03)	(0.03)
Partner disability (= 1)	1.57***	1.57***	1.09***	1.02
	(0.02)	(0.05)	(0.02)	(0.02)
Wholesale, retail	0.96**	1.07	0.53***	1.35***
	(0.02)	(0.05)	(0.01)	(0.03)
Transport	0.83***	0.94	0.53***	1.29***
	(0.01)	(0.04)	(0.01)	(0.03)

	Disability 50+	Disability 62+	AFP 62+	Pension 62+
Information, finance	0.87***	0.73***	0.79***	1.52***
	(0.02)	(0.04)	(0.02)	(0.04)
Prof. service	0.79***	0.95	0.56***	1.18***
	(0.01)	(0.04)	(0.01)	(0.03)
Education, health soc. service	1.06***	1.13***	0.63***	0.92***
	(0.02)	(0.05)	(0.01)	(0.02)
Other	0.83***	0.81***	0.66***	1.03
	(0.02)	(0.04)	(0.01)	(0.02)
Unemployment in municipality	1.05***	1.07***	0.98***	1.00
	(0.01)	(0.02)	(0.01)	(0.01)
Constant	0.10***	0.08***	0.35***	0.04***
	(0.01)	(0.01)	(0.02)	(0.00)
Observations	3,357,341	241,371	241,371	241,371

Note: All models include controls for age (dummies) and year (dummies). Standard errors (SE) are in parentheses. ***, **, and * indicate the 0.1%, 1%, and 5% significance levels, respectively.

Table 3: Early retirement. Disability pension (all) and competing risk models for individuals older than 61 years. Exponential regression model. Sample: women.

	Disability 50+	Disability 62+	AFP 62+	Pension 62+
Group 1 (= 1)	0.86***	0.85**	0.72***	0.68***
	(0.03)	(0.06)	(0.03)	(0.03)
Group 2 (= 1)	0.81***	0.84	0.63***	0.51***
	(0.04)	(0.13)	(0.06)	(0.06)
From refugee country (=1)	1.34***	1.16	0.76*	0.32***
	(0.09)	(0.27)	(0.12)	(0.09)
Sickness lag 4 (= 1)	2.83***	2.50***	1.00	1.15***
	(0.02)	(0.05)	(0.01)	(0.02)
Primary school (= 1)	1.14***	1.08**	1.01	0.99
	(0.01)	(0.03)	(0.02)	(0.02)
University/college (= 1)	0.88***	0.99	1.07***	1.57***
	(0.01)	(0.04)	(0.02)	(0.04)
log income	0.50***	0.61***	1.27***	0.82***
	(0.00)	(0.01)	(0.02)	(0.01)
Unmarried (= 1)	1.10***	1.13*	0.85***	1.17***
	(0.02)	(0.07)	(0.03)	(0.05)
Previously married (= 1)	1.21***	1.18***	0.68***	1.11***

	Disability 50+	Disability 62+	AFP 62+	Pension 62+
	(0.01)	(0.04)	(0.01)	(0.02)
Children (= 1)	0.98	1.16***	0.92***	0.86***
	(0.02)	(0.06)	(0.02)	(0.03)
Partner pension (= 1)	1.15***	1.23***	1.13***	1.11***
	(0.02)	(0.03)	(0.02)	(0.02)
Partner disability (= 1)	1.47***	1.58***	0.98	1.06*
	(0.02)	(0.05)	(0.02)	(0.03)
Wholesale, retail	0.95**	1.07	0.47***	1.21***
	(0.02)	(0.06)	(0.02)	(0.06)
Transport	0.85***	0.99	0.56***	1.07
	(0.02)	(0.06)	(0.02)	(0.07)
Information, finance	0.93***	0.76***	1.11***	1.90***
	(0.02)	(0.06)	(0.03)	(0.10)
Prof. service	0.88***	1.06	0.64***	1.34***
	(0.02)	(0.05)	(0.02)	(0.06)
Education, health soc. service	0.92***	1.00	0.60***	1.60***
	(0.02)	(0.05)	(0.01)	(0.07)
Other	0.84***	0.88**	0.71***	1.30***
	(0.02)	(0.05)	(0.02)	(0.06)
Unemployment in municipality	1.04***	1.05***	0.99	1.03***
	(0.00)	(0.01)	(0.01)	(0.01)
Constant	0.05***	0.04***	0.20***	0.02***
	(0.00)	(0.00)	(0.01)	(0.00)
Observations	3,146,398	251,023	251,023	251,023

Note: All models include controls for age (dummies) and year (dummies). Standard errors (SE) are in parentheses.
***, **, and * indicate the 0.1%, 1%, and 5% significance levels, respectively.

Discussion

The purpose of this study was to shed light on early retirement among natives and immigrants in Norway and the impact of push, pull, gender and other factors on early exit from the labour market. As expected, the labour force participation rate was lower among immigrants in Group 2, especially women, than among those in Group 1 and natives. However, in terms of early retirement as a process of exiting work, natives were more likely to retire than the two immigrant groups. We believe that two mechanisms drive these results. First, while most natives are still working when they are 50 years old, the labour force participation rate is much lower among immigrants. Thus, immigrants who work at this age are likely to be a more selective group. In line with this, our results have shown that natives have a higher exit than disability rate when we look at those aged over 50 years, while there is no

difference between these groups when we investigate those aged over 60 years. Second, natives are more likely to exit through the AFP and retirement pension when these exit routes are available. In the validation of our results, we found that selection not only is a matter of who participates in the labour market when they are middle-aged among immigrants, but also raises questions of labour market mobility and access to retirement schemes.

One central issue in the literature has been the degree to which early retirement is a result of pull (voluntary) or push (involuntary) factors. Given that the disability pension—in contrast to the AFP and retirement pension—requires medical certification, it seems reasonable to argue that early retirement should not be seen as an individual and voluntary choice before the final years leading up to the customary age of retirement. There are three additional findings related to this. First, health—measured by previous episodes of sickness absence—also has an impact on 'voluntary' exit from the labour market (e.g. AFP and retirement). Second, while there are indications that those who leave the labour market through the disability pension have many 'marginal traits' (e.g. coming from country Group 2, women, those with low incomes, low education, or a high incidence of sickness absence), those who exit through the AFP seem to have more resources (natives, men, those with high incomes and higher levels of education). Vulnerable groups are thus more likely to leave the labour market early and through involuntary pathways, and better-resourced groups tend to work longer and leave through voluntary channels. It is also interesting to note that women are more likely than men to exit through the disability pension at the same time, as they are less likely to exit through the AFP/retirement pension. Third, similar to other studies, we have found evidence that couples tend to synchronize their exit from the labour market. While there may be many explanations for this, including knowledge of available routes, the argument of 'similar life circumstances' seems to be most prevalent in the research literature.

Our results confirm those of previous studies showing that pull factors (economic incentives measured by income), push factors (measured by unemployment level and industry), family factors (marriage and children), human capital factors (education) and health all have an impact on early retirement. Our results show that these factors also influence differences between natives and immigrants. Moreover, our research has provided evidence for the importance of considering the institutional systems surrounding early retirement. In addition to access to the AFP, our descriptive studies suggest historical changes in the ways in which individuals leave the labour market.

There are several limitations to our study that should be noted. First, while it seems reasonable to believe that the relatively low inclination of women and immigrants to retire through the AFP may be due to a lack of access to the AFP scheme, we cannot confirm this because our data do not contain information on this access or individual work histories. Second, we have simplified the analysis by including only three exit routes and treated them as 'absorbing' and mutually exclusive. A sequence analysis could have been used to provide more information about the complexity and fluidity that often characterize workers' careers; in our case, this most likely relates to the 'other' route (see Hansen & Lorentzen 2019). Furthermore, more recent data could have provided us the opportunity to investigate the impact of the pension reform. Third, there is likely to be internal heterogeneity in the categories we have used. Immigrants come from more than 200 different countries, and there have been many critical historical changes behind immigration in recent decades. Since it is known that refugees are less healthy than other immigrants (c.f. e.g. Hansen et al., 2014), we controlled for this factor with a dummy variable. Because this variable was not

significant when our country group variable was included, and these data are only reliable for those who came after 1990, we have not included it in our analysis. Finally, given that this is a case study of one country, there is a question about the relevance of our findings for other countries. Although we believe that many of our findings are likely to be similar in other countries, it should be noted that in a recent study of older individuals in 16 European countries, it was found that Norway had one of the lowest income gaps between natives and immigrants (Heisig et al., 2018). Finally, it should also be noted that many important topics are difficult to shed light on with register data. For example, such data are unsuitable for studying work environment or discrimination, which surveys have revealed are of importance (c.f., e.g., Solem, 2016, 2020; Blekesaune & Solem, 2005). Another example is the issue of motivation and how individuals understand their situation. For instance, to study if individuals who continue to work while receiving pension do this for strictly economic reasons, or if they are in a phase of a more gradual role transition towards pension, there is a need for other types of data such as qualitative interviews.

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Appendix

Table A1: Early retirement. Born in Norway (reference category) versus 15 countries belonging to Group 2. Exponential regression model.

	Disability	**AFP/Pension**
Poland	0.71***	0.51***
	(0.06)	(0.04)
Lithuania	0.35	0.82
	(0.25)	(0.47)
Somalia	0.40**	0.55
	(0.15)	(0.24)
Sweden	1.02	0.76***
	(0.04)	(0.02)
Pakistan	1.07	0.89
	(0.08)	(0.07)
Iraq	0.87	0.61
	(0.17)	(0.19)
Syria	1.45	0.49
	(0.65)	(0.35)
Germany	0.88*	0.70***
	(0.06)	(0.03)
Eritrea	0.60*	0.31***
	(0.17)	(0.09)
Philippines	0.80**	0.75***
	(0.07)	(0.06)
Women (=1)	1.04***	0.77***
	(0.01)	(0.00)
Total (*n*)	6,267,172	6,267,172

Note: Standard errors (SEs) are in parentheses. All models include controls for age, education, marital status, income, children, partner pension/disability, industry, unemployment level.