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Trends in effective exit ages in 16 European countries

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Summary

Extending working lives and delaying older workers' exit from the labour market have been among the cornerstone goals of recent pension reforms in most European countries. However, effective exit ages (i.e., the average age at which people permanently leave the labour market), continue to lag behind official retirement ages. This is because not everyone is capable of or willing to stay in work until the statutory retirement age. Especially older workers with a lower socioeconomic position tend to exit the labour market at an earlier age. More often than others, they suffer from unemployment, poor health and bad working conditions. There is little to motivate them to stay in work, and the demand for older workers with a lower socioeconomic position is lesser than for those with a higher socioeconomic position. While there is a large body of literature on socioeconomic differences in terms of labour market exit and extending working lives, little is known about how these differences compare across countries and have changed across time.

In this study, we analyse educational differences in effective exit ages in 16 European countries during the period 2003–2020. The calculation of effective exit ages is based on comparing labour force participation rates of subsequent narrowly defined age groups between two timepoints. This makes it a more accurate and dynamic indicator of labour market exit than, for example, employment rates or labour market activity rates as such. This indicator is commonly used by the OECD and European Union institutions to compare exit from the labour market among the total population or by gender. To our knowledge, this study is the first to calculate effective exit ages by level of education for a large group of European countries.

We based our calculations of the effective exit ages on European Union Labour Force Survey (EU-LFS) microdata for the population aged 40 and older. We calculated the effective exit ages for the total population, by gender and education level: low, intermediate, and high. In addition, we used macrolevel data from Eurostat on educational attainment levels and labour force activity rates to sketch the context of the development of older workers' education levels and labour market participation in the countries under study.

Educational expansion and rising labour market activity among older workers

We found that considerable educational expansion has taken place among the 45–64-year-olds in all countries included in this study, especially among women. Yet, differences in educational composition between countries and genders continue. Overall, increases in labour market activity of 50–64-year-olds can be observed, but the educational and gender gaps persist. Moreover, the educational gap in labour market activity tends to be larger among women. The gender gap in labour market activity rates is smaller among those with a high education.

Labour market exit was postponed in all countries

The results show that the effective exit ages rose in all countries between 2003 and 2020. On average for all countries, the increase was around 2.5 years. However, there was substantial cross-national variation in the size of the increases and the levels of the effective exit ages in 2020. Despite large increases in some countries since 2003, the effective exit ages were relatively low in 2020 (e.g., Belgium and Poland). In other countries, such as Germany, Finland, the Netherlands and Norway, the low effective exit ages in 2003 became relatively high in 2020. In a few countries where they were already relatively high in 2003, such as Ireland, Sweden and Switzerland, increases by 2020 were more modest. Ireland, Portugal and Spain experienced temporary decreases of the effective exit ages, possibly due to the Great Recession of 2008.

Educational gaps in effective exit ages persist – the high-educated exit the labour market at a later age than the low-educated

In almost all countries, the effective exit ages rose at each level of education. The only exceptions were for the low-educated in Ireland and Spain, who experienced a slight drop in 2020 compared with 2003–2004. Educational gaps in effective exit ages were persistent in almost all countries: the high-educated continued to exit the labour force at a later age than the low-educated, while those with an intermediate educational level occupied a position in between. For all 16 countries on average in 2020, the high-educated exited the labour force at the age of 64.9. Those with an intermediate level of education exited 1.5 years earlier at age 63.4, while the low-educated retired 2.8 years earlier at age 62.1.

Although educational gaps were persistent across time, there was some cross-national variation in the sizes of the gaps and the changes therein. In 2003, relatively wide educational gaps in the effective exit ages were common. By 2020, the gaps had narrowed substantially in several countries, especially in Finland, Germany, and Sweden. The gaps were relatively narrow in the Netherlands, Ireland, Portugal and Spain in 2003 but had widened by 2020.

Rising effective exit ages do not necessarily coincide with narrowing educational gaps in labour market exit

There were no obvious complementarities or trade-offs between the levels of effective exit ages and the sizes of the gaps between education levels. In other words, extended working lives in general neither worked as an automatic remedy against educational inequalities in labour market exit nor did they necessarily exacerbate inequalities. We found countries where longer working lives coincided with a narrowing of the educational gradient in labour market exit. This was especially the case in Finland, Germany and Sweden, and to a lesser extent in Hungary, Poland and Switzerland. Yet, there were also countries where labour market exit was deferred considerably but the educational gaps remained largely the same (e.g., Norway) or widened (e.g., the Netherlands). It was also possible to have the worst of both: continuously relatively low effective exit ages and wide gaps (e.g., in Austria and Belgium). Our finding that there were no countries that had both low effective exit ages and narrow gaps suggests that extended working lives might serve as a precondition for narrowing the educational gap.

Inequalities in extending working lives should be addressed already early in the life course

Educational differences in effective exit ages underline persisting inequalities in the policy of extending working lives. There is a need to address them more proactively and at early stages of the life course by means of social, labour market and education policies. Educational expansion may lead to improved possibilities to extend working life for an increasing number of people, but the effect will only show in the long run, leaving many cohorts of low-educated older workers striving to work until the statutory retirement age. Educational expansion is also likely to face a point of saturation in countries where levels of education are already

high, such as Finland. If a considerable share of people will permanently fail at reaching the retirement age which, in turn, is often a precondition for full pension benefits, adequacy of old-age income will pose an increasingly important challenge. This applies particularly to people with a low education and a low income. Future pension reforms should therefore carefully consider the consequences of socioeconomic differences in extending working lives for inequalities in pension adequacy.

Tiivistelmä

Työurien pidentäminen ja työmarkkinoilta poistumisen myöhentäminen ovat olleet viimeaikaisten eläkeuudistusten keskeisiä tavoitteita lähes kaikissa Euroopan maissa. Ikä, jossa ihmiset keskimäärin poistuvat pysyvästi työmarkkinoilta, lyhyemmin työnjättöikä, on kuitenkin edelleen huomattavasti matalampi kuin lakisääteinen vanhuuseläkkeen ikäraja. Työssä ei aina pystytä tai haluta jatkaa eläkeikään asti. Alemmissa sosioekonomisissa ryhmissä työmarkkinoilta poistutaan keskimäärin muita aiemmin, sillä terveysongelmat, työttömyys ja huonot työolot ovat yleisempiä kuin ylemmissä sosioekonomisissa ryhmissä. Myös työssä jatkamisen kannustimet ovat heikommat ja ikääntyneen työvoiman kysyntä on vähäisempää kuin korkeammassa sosioekonomisessa asemassa olevilla. Sosioekonomisia eroja työmarkkinoilta poistumisiässä ja työurien pidentämisessä on tutkittu laajasti. Sen sijaan maakohtaisista eroista ja niiden ajallisesta kehityksestä on vasta vähän tietoa.

Tässä tutkimuksessa tarkastellaan, miten työnjättöikä eroaa koulutustason mukaan. Vertailussa on mukana 16 Euroopan maata ja tarkastelu kattaa lähes kahdenkymmenen vuoden ajanjakson vuosina 2003–2020. Työnjättöikä lasketaan vertaamalla työvoimaan kuuluvien prosenttiosuutta tietyissä ikäryhmissä kahden ajankohdan välillä. Se mittaa työmarkkinoilta poistumisikää dynaamisemmin ja tarkemmin kuin esimerkiksi työllisyysaste tai työvoimaosuus. Muun muassa OECD ja Euroopan unioni (EU) käyttävät yleisesti työnjättöikää yhtenä mittareista tarkastellessaan työmarkkinoilta poistumista väestötasolla sekä sukupuolten välillä. Tietääksemme tämä tutkimus on kuitenkin ensimmäinen, jossa työnjättöikä lasketaan koulutustason mukaan laajemmalle maajoukolle.

Tutkimuksen laskelmat perustuvat EU:n työvoimatutkimuksen (EU-LFS) kyselyaineistoon käsittäen 40-vuotiaat ja sitä vanhemmat. Työnjättöikä laskettiin koko väestölle sekä sukupuolen ja koulutustason (matala, keskiaste, korkea-aste) mukaan. Lisäksi tutkimuksessa käytetään Eurostatin tilastoja vanhempien ikäryhmien koulutustason ja työvoimaosuuden kehityksen seurantaan.

Koulutustaso ja työmarkkinaosallistuminen nousseet vanhemmissa ikäryhmissä

Kaikissa tutkimuksessa tarkastelluissa maissa 45–64-vuotiaiden koulutustaso on noussut huomattavasti kahden viime vuosikymmenen aikana. Erityisesti tämän ikäryhmän naiset ovat entistä korkeammin koulutettuja. Erot sukupuolten välillä ja koulutustasossa ovat kuitenkin edelleen suuria maiden välillä. Myös 50–64-vuotiaiden osallistuminen työmarkkinoille on entistä yleisempää, mutta koulutustason ja sukupuolen mukaiset erot ovat suhteellisen pysyviä. Naisilla koulutuserot ovat miehiä suuremmat työvoimaosuudessa. Korkeasti koulutetuilla sukupuolten väliset erot työmarkkinaosallistumisessa olivat kuitenkin pienempiä kuin matalammilla koulutustasoilla.

Työmarkkinoilla jatketaan kaikissa maissa entistä pidempään

Työnjättöikä on tarkastelujaksolla noussut kaikissa maissa. Vuonna 2020 työmarkkinoilta poistuttiin keskimäärin 2,5 vuotta myöhemmin kuin vuonna 2003. Kuitenkin sekä työnjättöikä että sen kehitys vaihtelevat suuresti maittain. Esimerkiksi Belgiassa ja Puolassa työnjättöikä on edelleen monia muita maita alempi, vaikka nousua onkin tapahtunut. Saksassa, Suomessa, Alankomaissa ja Norjassa työnjättöikä oli 2000-luvun alussa verrattain matala, mutta vuoteen 2020 mennessä ne olivat nousseet keskimääräistä korkeammalle tasolle. Irlannissa, Ruotsissa ja Sveitsissä työnjättöiät ovat pysyneet korkealla tasolla läpi tarkastelujakson. Vuoden 2008 jälkeinen finanssikriisi näyttäisi aiheuttaneen väliaikaisen notkahduksen työnjättöiän positiivisessa kehityksessä Irlannissa, Portugalissa ja Espanjassa.

Koulutustason mukaiset erot työnjättöiässä ovat suhteellisen pysyviä – korkeasti koulutetut jatkavat työmarkkinoilla matalasti koulutettuja pidempään

Työnjättöikä nousi kaikkien koulutustasojen ryhmissä. Vain matalasti koulutetuilla Irlannissa ja Espanjassa työnjättöikä laski hieman verrattuna 2000-luvun alkuun. Koulutuseroja havaittiin kaikissa maissa ja erot olivat suhteellisen pysyviä yli ajan. Korkeasti koulutetut jatkavat työmarkkinoilla matalammin koulutettuja pidempään. Heillä keskimääräinen työnjättöikä vuonna 2020 oli 64,9 vuotta kun taas keskiasteen koulutetut jättivät työmarkkinat keskimäärin 63,4 vuoden ja matalasti koulutetut 62,1 vuoden iässä.

Vaikka koulutuserot olivatkin suhteellisen pysyviä läpi seurantajakson, niiden tasossa ja kehityksessä oli kuitenkin maakohtaisia eroja. Vuonna 2003 suhteellisen suuret erot työnjättöissä eri koulutustasojen välillä olivat yleisiä. Vuoteen 2020 mennessä erot olivat kaventuneet merkittävästi useissa maissa, ja erityisesti Suomessa, Saksassa ja Ruotsissa. Sen sijaan 2000-luvun alun melko pienet erot olivat vajaassa kahdessa vuosikymmenessä suurentuneet Alankomaissa, Irlannissa, Portugalissa ja Espanjassa.

Myöhentynyt työnjättöikä ei suoraan lievennä tai vahvista koulutustasosta johtuvia eroja

Työnjättöissä ja koulutuseroissa ei havaittu systemaattista yhteyttä. Työurien pidentyminen ei siis suoraan lieventänyt työmarkkinoilla ilmenevää koulutuseroista johtuvaa eriarvoisuutta, mutta ei myöskään yleisesti sitä vahvistanut. Joissakin maissa työnjättöiän nousu kulki käsi kädessä koulutuserojen kaventumisen kanssa. Näin oli erityisesti Suomessa, Saksassa ja Ruotsissa, mutta myös Unkarissa, Puolassa ja Sveitsissä. Joissakin maissa työnjättöikä nousi huomattavastikin, mutta erot eri koulutusryhmien välillä pysyivät ennallaan (esim. Norja) tai jopa kasvoivat (esim. Alankomaat). Esimerkiksi Itävallassa ja Belgiassa positiivista kehitystä ei saavutettu kummallakaan ulottuvuudella, vaan työnjättöikä pysyi matalana ja koulutuserot suurina suhteessa muihin verrokkimaihin. Koska missään maassa ei havaittu samanaikaisesti matalaa työnjättöikää ja pieniä koulutuseroja, voidaan ajatella korkean tai ainakin nousevan työnjättöiän toimivan edellytyksenä koulutuserojen pientymiselle.

Työurien pidentämiseen liittyvien eriarvoisuuksien tunnistaminen ja ehkäisy on tärkeää jo varhaisessa vaiheessa elämänsäkaarta

Tutkimuksessa havaitut erot työnjättöissä eri koulutustasojen välillä nostavat esille työurien pidentämiseen liittyviä eriarvoisuuksia. Niiden syntymistä tulee ehkäistä jo elämänsäkaaren varhaisessa vaiheessa erilaisin sosiaali-, koulutus- ja työmarkkinapolitiikan keinoin. Vaikka yleinen koulutustason nousu edistääkin työssä jatkamisen mahdollisuuksia, vaikutukset näkyvät vasta pitkällä aikavälillä. Koulutustason nousu todennäköisesti myös saavuttaa rajansa etenkin maissa, joissa vanhempien ikäryhmien koulutustaso on jo korkea. Esimerkiksi Suomessa korkeasti koulutettujen ikääntyvien naisten osuus on jo huomattavan korkea ja mahdollisesti saavuttanut saturaatiopisteensä.

Täyden työuran ja vanhuuseläkeiän saavuttaminen on usein myös edellytys täydelle (työ)eläkkeelle. Riittävä eläkeajan toimeentulo voikin muodostua haasteelliseksi sille osalle ikääntyviä työntekijöitä, joka syystä tai toisesta poistuu työmarkkinoilta jo ennen vanhuuseläkeikää ja jonka koulutus- ja tulotaso on matala. Tulevien eläkeuudistusten suunnittelussa onkin huomioitava entistä paremmin, mitä vaikutuksia eläkkeiden riittävyyteen on työurien pidentämisen tavoitteella ja sosioekonomisilla eroilla sen saavuttamisessa.

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1 Introduction

All over Europe, population ageing poses serious challenges for the financial sustainability of pension systems and, in general, the sustainability of the welfare state. There are more pensioners and fewer active working age people paying contributions and taxes. This weakening dependency ratio is a problem especially for pension systems that operate on a pay-as-you-go-basis. Extending working lives and increasing employment rates of older people have therefore been among the cornerstone goals of recent pension reforms. The most prominent reforms to postpone labour market exit have been increasing the statutory retirement age, closing of early exit routes and setting financial incentives for continuing at work (Ebbinghaus 2012; Ebbinghaus & Hofäcker 2013; OECD 2015; Riekhoff et al. 2020b).

Almost all countries in the European Union (EU) have increased the statutory retirement age already, while higher retirement ages will apply for future retirees (OECD 2019). The retirement age in the EU countries is typically 65 years. In many countries where women's statutory retirement age has been lower, men's and women's retirement ages have been or will be harmonized. Several countries are aiming at 67 or even 68 as the earliest ages at which a person becomes eligible for a statutory pension without deductions for early retirement in the nearby future (Finnish Centre for Pensions 2022a).

In Finland, two major pension reforms were implemented in the past two decades. The first one, in 2005, set postponing labour market exit by two to three years as an explicit goal. In the early 2000s, the effective exit age in Finland was only around 59: six years short of the statutory old-age retirement age. In 2009, the government and the labour market parties negotiated an explicit goal for an exit age of at least 62.4 years, to be reached by 2025. In the second reform, in 2017, the same target exit age was confirmed.¹ In 2021, this goal was reached, as the expected

1 In the 2005 reform, several early exit routes were closed, while a relatively low age of old-age pension eligibility was combined with financial incentives to continue working and to postpone retirement. In the 2017 reform a different approach was adopted. Eligibility ages started to increase with each birth cohort, while in the future retirement ages will be tied to increases in life expectancy.

effective retirement age for 25-year-old men was 62.7 years and for women 62.0 years (Finnish Centre for Pensions 2022b).²

Despite similar efforts elsewhere, effective exit ages, i.e., the average age at which people actually permanently leave the labour market, continue to lack behind official retirement ages in most of these countries (OECD 2019; see also Kannisto & Vidlund 2022). Although there is empirical evidence that the pension policy incentives indeed work in the intended direction (Kuitto & Helmdag 2021), it is obvious that increasing the statutory retirement age and closing early exit routes do not lead one-to-one to an increasing labour market exit age. Not everyone is capable or willing to stay at work until or even beyond the statutory retirement age. Health problems, age discrimination and different life circumstances may push and pull people out of employment before they are eligible for old-age pension (Ebbinghaus & Hofäcker 2013; Mäcken et al. 2021). Other exit routes such as disability pensions, early retirement or unemployment may then be alternatives (Riekhoff et al. 2020b).

There is a social gradient to extending working lives. Older workers with a lower socioeconomic position tend to exit the labour market at an earlier age. They more often suffer from unemployment, poor health and bad working conditions, and there is more often little attraction for them to stay in work and less demand for them by employers than for older workers with a higher socioeconomic position (Komp et al. 2010; Radl 2013; Lain & Phillipson 2019). Various studies have shown, for example, that in Finland, those with lower socioeconomic position exit working life more often early via disability or unemployment (Järnefelt 2010; Järnefelt 2014; Riekhoff & Järnefelt 2017). However, while there is a large body of literature on socioeconomic differences in labour market exit and extending working lives, little is known how these differences compare across countries and have changed across time. In particular, in the era of extending working lives, what has happened to socioeconomic differences in labour market exit ages?

One problem with systematically measuring socioeconomic differences in labour market exit is that the more precise indicators of people's socioeconomic position, such as occupation or income, tend to change

² However, at least part of this development has been explained by the fact that during the COVID-19 pandemic, there has been a significant drop in new retirees on disability pensions, and the trend might be reversed once the pandemic will ebb.

with time and age. Moreover, panel data covering long periods is needed to follow people from work into retirement, because, once retired, income changes and people no longer have an occupation. Such panel data is not available in an internationally harmonised form that would allow comparing a larger number of countries.

In this study, we focus on educational differences in effective exit ages (EEA – also known as age of withdrawal from the labour force) in 16 European countries. In contrast to other indicators of socioeconomic position, educational level tends to remain largely stable over time while strongly correlating with the other socioeconomic indicators that, in turn, determine working life at its tail end. With the assumption that education is relatively stable in the late career and in the absence of comparative panel data, we propose a method for estimating ages of withdrawal from the labour force by level of education with repeated cross-section data from the European Union Labour Force Survey (EU-LFS). We study how EEAs vary across populations with different educational levels and across countries. We furthermore assess trends of potential convergence or divergence in exit ages between educational groups over time. Given the availability of the data, our analysis covers the period from 2003 to 2020 (see Chapter 3).

While growing socioeconomic inequalities in pensions and exit from the labour force are a matter of concern in policymaking, they are often not systematically mapped or described. This study contributes to a better understanding of socioeconomic differences in exit from the labour force by adopting a comparative and longitudinal approach. It is, to our knowledge, the first to use methods for calculating ages of withdrawal from the labour force that were developed by the OECD (Scherer 2002) for estimating EEAs by level of education for a sizeable group of countries and a substantial period. These methods are based on comparing labour force participation rates of subsequent narrowly defined age groups between two timepoints, which makes it a more accurate and dynamic indicator of labour market exit than, for example, employment rates or labour market activity rates as such.³

3 It should also be noted that EEAs are not a measure for retirement ages, but for transitions from being active in the labour market to being inactive. This is particularly relevant when looking at socioeconomic differences, given that those in lower socioeconomic positions are more likely to exit the labour market before reaching the age of eligibility for (old-age) pensions.

With the use of harmonised data and by creating a comparable indicator for ages of labour market exit for 16 European countries, we can observe whether recent trends in educational differences in exit ages are similar or diverse in times when overall working lives are extending but while countries differ in their policies, institutions, economies and labour markets. Countries that have managed to extend working lives while at the same time limiting an educational gradient in exit ages could serve as an example and inform policymaking that seeks a balance between economic and social sustainability.

This study is structured as follows. In section two, we provide a literature review on what is known so far about educational differences in labour market exit ages and the mechanisms behind them. Cross-national variance and trends in educational differences in exit ages will receive particular attention, since they provide insights into the underlying mechanisms that produce more equal possibilities of extending working lives. In section three, we introduce our cross-country comparative measure of effective exit age and the data for our descriptive analyses. Section four presents our findings, first by looking at trends in educational attainment and patterns of labour market participation, and then by zooming in on educational differences in effective exit ages and how they have developed over time. The last section concludes by discussing the consequences of inequalities in extending working lives caused by educational differences and assessing some points of concern and ways for improvement.

2 Literature review

2.1 Mechanisms behind educational differences in exit ages

There is an extensive literature on the associations between socioeconomic position and timing of retirement and labour market exit. The literature almost unequivocally shows positive associations between socioeconomic position and age of exit. In different studies, socioeconomic position is measured in various ways, including by level of education, occupation, social class, and income. Obviously, each of these measures are closely interrelated. Level and type of education strongly predict occupation. Social classes can be categorised by level of education and occupation. Income is often dependent on occupation. One of the benefits of studying socioeconomic differences in retirement and labour market exit with the help of education is that someone's level of education is usually relatively permanent after entering the labour market. Relatively few change their educational degree after entry into working life, whereas income, occupation, and social class can be subject to fluctuation, even if they tend to stabilise at some point.

One problem with studying the relation between level of education and labour market exit is that the moments of completing an education and exiting the labour market tend to occur decades apart. Still, studies have found direct effects of education on the timing of exit. Hardy (1984) showed that in the United States (US) within specific occupations the level of education could make a difference for retirement timing. Venti and Wise (2015) found a direct positive effect of education on exit timing through US Social Security (i.e., old-age pensions) but not through disability insurance. One mechanism through which level of education exerts a direct influence on timing of exit can be found in pension systems where eligibility to pension benefits is strongly tied to the number of years in employment. Because those with higher education usually enter the labour market later and start accruing their pensions only at a later age, they also become eligible for an old-age pension at a later age than those with lower education and early labour market entry (Komp et al. 2010).

Usually, however, the long-ranging relation between education and exit is assumed to be indirect and mediated through other channels (Järnefelt 2010; Komp et al. 2010; Leinonen et al. 2012; Venti & Wise 2015). First, education can be used as a proxy for skills. Low-educated older workers' skills tend to become outdated at a faster pace. This lowers their employability, especially in times of continuous technological change (Peracchi & Welch 1994; Stenberg et al. 2012). Furthermore, low-educated workers tend to have less access to training than high-educated workers (Fouarge et al. 2013; Midtsundstad 2019; Im & Shin 2022), leading to a faster skill depreciation than among high-educated workers. Because in many firms wages almost automatically increase with seniority, and thus with age, ageing workers also automatically become more expensive. This is not necessarily a problem as long as skills and productivity develop in line with wages. Studies have suggested that especially low-skilled workers, however, are likely to exit earlier in firms with seniority-based wages (Frimmel et al. 2018; Riekhoff et al. 2020a). High-skilled older workers, on the other hand, might be actively retained because they possess specific skills and long work experience that are valued by employers.

Second, being highly educated and highly skilled often results in working in more prestigious occupations (Komp et al. 2010). In these occupations, working conditions may be more suitable for continuing work at older age. Furthermore, these occupations are more likely to be situated in stable or growing industries where the risks of being made redundant are relatively low. In contrast, low-educated workers are more likely to be employed in occupations characterised by greater (physical) strain and lower autonomy, both of which increase the chances of earlier retirement (Blekesaune & Solem 2005; Schreurs et al. 2011). Moreover, due to deindustrialisation, jobs in manufacturing, where traditionally many low-educated men have been employed, have been disappearing. Employment risks tend to be greater in occupations characterized by routine tasks, while unemployment among older workers often results in permanent exit (Tatsiramos 2010; Radl 2013; Van Rijn et al. 2014).

Third, workers with low education (and working in lower-level occupations) are more likely to have lower earnings. If social benefit schemes are relatively generous, they could serve as a “pull factor” to lower-earnings workers in particular, making early exit financially more attractive than continuing to work (Duval 2003; Radl 2013). For higher-earnings workers,

the marginal gains of staying employed longer tend to be greater, as the alternative of receiving lower income from social benefits is likely to be less appealing.⁴

Fourth, high-educated workers tend to be in better health which enables them to work longer. Studies have found that there is an educational gap in health overall and that this gap tends to increase with age (Leopold & Engelhardt 2013; Zajacova et al. 2014). Research has also shown that in the presence of poor health, low educated are at greater risk of early work exit than high educated (Schuring et al. 2019; De Breij et al. 2020b). Especially the risk of early exit through disability programs has been found consistently greater among the low educated (Bruusgaard et al. 2010; Haukenes et al. 2011; Leinonen et al. 2012; Venti & Wise 2015; Laaksonen et al. 2018). Even in the absence of poor health, life expectancy is lower among groups in lower socioeconomic positions (Deeg et al. 2021). This might provide incentives to low-educated workers to find ways to exit the labour market early to enjoy a longer time in retirement (Leinonen et al. 2018; Nivalainen 2021).

2.2 Cross-national variation in educational differences in exit ages

Despite the large and growing literature, most studies on educational inequalities in labour market exit address single countries only. Comparative research on educational differences in exit ages using data that is comparable across countries is relatively rare. Two recent studies have made important contributions to the literature in this regard. Mäcken et al. (2021) used the Survey for Health, Ageing and Retirement (SHARE) in Europe to identify educational inequalities in labour market exit of older workers in 15 European countries. Distinguishing between voluntary and involuntary exit, they found substantial educational gradients in involuntary early exit in almost all countries (except Poland and Switzerland) and in voluntary early exit in Sweden, Switzerland, Belgium,

4 Note that this income effect applies to earnings, but that for other sources of income, notably from wealth and capital income, the effects might be reverse. Those with greater wealth may choose to retire earlier, especially in pension systems where private and occupational pillars are more dominant. Education may reinforce the effects of wealth in private pension systems, as having higher education is usually related to having better financial literacy and better skills of planning for retirement (Komp et al. 2010).

Czech Republic, Austria, and Slovenia. There was also high inter-country heterogeneity in educational differences in staying employed.

A second study by Turek et al. (2021) used the new Comparative Panel File (CPF) dataset including seven, mostly non-European, countries: Australia, Germany, the United Kingdom, South Korea, Russia, and the US. Applying latent class growth analysis, they found that high-educated workers were considerably more likely than low-educated workers to follow a trajectory of longer working lives in all countries, except South Korea. Yet, they found no substantial differences between educational levels in “early exit” and “late exit” trajectories in most of the countries.

The existence and size of educational differences in exit ages may differ between countries for many reasons. It can be expected that demographic and economic structures shape labour market exit, as the supply of and demand for older workers with differing levels of education vary between countries. A second major explanatory factor for cross-country variation in educational differences in exit ages are country-specific policies and institutions. Pension systems can enable or penalise early or late exit for people with different socioeconomic backgrounds in various ways. Labour market regulation and policies can also contribute to variation in educational differences in exit. Studies have, for example, pointed at the role of employment protection legislation (EPL) (Hyde & Dingemans 2017). Whereas EPL protects workers from getting dismissed, it also makes employers more cautious about hiring. This effect has been found to be greater for low-educated workers than for high-educated workers (Mäcken et al. 2021). In contrast, policies that invest in skills of older workers, such as training, lifelong learning and active labour market policies (ALMP), potentially reduce educational gradients in labour market exit (De Breij et al. 2020a; Mäcken et al. 2021).

2.3 Changes in educational differences in labour market exit across time

Even less is known about developments in the educational gradient in exit ages in various countries across time. Turek et al. (2021) hypothesised that the educational gap in late-career trajectories widened but found no evidence for this in six out of their seven countries under study: while late-employment and late-retirement trajectories became more common among

all, the risk gap of belonging to both of these trajectories between levels of education remained stable since the early 1990s. A forthcoming study by Polvinen et al. (2022) investigated educational inequalities in employment in ages between 60 and 68 in Finland from 2006 to 2018 with register data for the whole population. While they also found that employment increased in all educational classes, they found slight decreases in relative educational inequalities and increases in absolute inequalities in employment.

Changes in demographic and economic structures potentially contribute to changes in educational gradients in labour market exit ages. Boissonneault et al. (2021) found that educational expansion is one of the driving forces behind later labour market exit, yet it is unknown whether a growing share of high-educated older workers has any impact on exit ages of workers with various levels of education as such. Deindustrialisation and a shift towards the service economy might affect exit ages of educational classes differently. Visser et al. (2016) found that in the Netherlands deindustrialisation increased the chances of employment of men with a university degree, but increased risks of exit of low-educated men through unemployment.

Economic downturn has been found to influence labour market exit. Various studies showed, for example, that the Great Recession had lasting effects on the chances and quality of employment of older workers, especially those with low education and low skills (Axelrad et al. 2018; Munnell & Rutledge 2013; Van Horn et al. 2011). Therefore, economic recession might increase the educational gap in labour market exit, at least temporarily.

Pension reforms restricting raising retirement ages tend to have a socioeconomically heterogeneous effects. For example, Staubli and Zweimüller (2013) investigated two pension reforms in Austria and found that workers with higher earnings and in better health responded more to increases in the early retirement age, while low-wage workers and those in poorer health were more likely to exit early through unemployment and disability schemes. Following an increase of the statutory eligibility age for pensions in France, there were substantial substitution effects among workers in poor health, meaning that instead of retiring on an old age pension, they claimed disability benefits (Rabaté & Rochut 2020). Ardito (2021) found that following a reform that raised the statutory retirement age in Italy, workers in lower socioeconomic positions were more likely to

postpone retirement and increase their labour supply, but at the same time were more likely to exit into inactivity.

Finally, labour market reforms may have varying effects on exit ages among workers with different levels of education. Given the negative relation of ALMP with the educational gradient in involuntary exit (Mäcken et al. 2021), increased supply of training and employment services could contribute to a diminishing gap in the exit ages of low- and high-educated workers. Following a trend towards labour market flexibilization in many European countries, one might expect that lower levels of EPL have reduced the educational gradient in exit ages (De Breij et al. 2020a; Mäcken et al. 2021). However, Schuring et al. (2020) found that reforms that reduced EPL between 2003 and 2014 contributed to a greater risk of early exit among low-educated workers in particular. According to the authors, reforms that lowered EPL made it easier for employers to dismiss workers with lower skills and poorer health.

3 Data and methods

3.1 The concept of effective exit age and its application to educational groups

Trends in retirement and exit ages are often compared between countries with the use of effective exit ages (EEAs) (European Commission 2018; OECD 2019). Initially proposed by the International Labour Organisation (ILO) (Latulippe 1996) and further developed and popularised by the OECD (Scherer 2002), the EEA or age of withdrawal from the labour force as an indicator offered a way to compare exit ages across countries in times when reversal of the early retirement trend gained prominence on national and international policy agendas.

EEA as a comparative indicator for labour market exit has several advantages over rates of employment or labour market participation for particular age groups (e.g., 55–59 or 60–64). First, EEAs offer a single indicator in the form of an average age, combining the information on activity rates of many age groups. This makes an EEA intuitively easy to grasp and to compare, for example, with a country's statutory retirement age. Furthermore, the EEA is a dynamic measure that does not only consider changes in labour market participation between two points in time, but also takes into account differences in labour market participation between cohorts. Because of this, it should be noted that EEA is a “relative measure” always comparing labour market participation within cohorts at two different points in time. This causes it to act sometimes differently from “absolute measures” such as employment and participation rates of older workers. For example, in some countries labour market participation among women might be low while EEA is high, if the few women who work have high labour market attachment and remain active in the labour market until a late age.

For accurately calculating effective exit ages, panel data for the whole or substantial parts of the population are needed. It requires comparing the labour market or income status of the same person in one year and the next and calculating the average age of those who were retired (or drawing a pension) in one year but employed (or receiving earnings or income from self-employment) in the previous. This can be done in countries

where register data for the entire population are available, such as in Finland (Kannisto 2019). However, such register data are not available for all countries and, if available, are unlikely to be entirely comparable. The methods used to calculate EEAs in this study require only repeated cross-section data. They are somewhat less exact, as they do not observe each single person's transition out of the labour market but compare activity rates of groups between ages and across time. However, as all EU countries, candidate member states and countries of the European Economic Area collect labour force survey (LFS) data annually according to harmonised guidelines, methods that use repeated cross-section data offer the possibility to compare a wide selection of countries.

In their comparisons across countries and time, OECD- and EC-reports usually present the EEAs for the total population or by gender. Gender differences are important, because historically retirement patterns for men and women have differed quite substantially in most countries. Differences between socioeconomic groups, however, have not been incorporated in the reporting of EEAs. There are at least two technical obstacles for calculating EEAs by socioeconomic background. First, characteristics such as occupation, class and income are usually not stable throughout life. Most importantly, information about occupation is only given when employed and income usually changes drastically when exiting the labour force. With cross-section data it is not possible to identify what occupation someone held or what income they earned previously if someone is not employed. Second, even if that obstacle were somehow to be overcome, the sample sizes of the LFS data quickly become too small and unreliable with many socioeconomic categories (even with income quintiles or combined social classes) in most countries, given that for the calculations data also need to be split into age groups. At the same time, too few socioeconomic categories could make the indicators meaningless.

Calculating EEAs by level of education provides the best opportunity to incorporate socioeconomic differences into a comparative indicator of labour market exit. Although people can obtain new degrees during their working lives, it can be assumed that level of education is relative stable after age 40. Furthermore, level of education is not dependent on employment status and is reported in LFS data also for those who left the labour market. When education levels are kept relatively broad, such as with the distinction between low, intermediate and high educational attainment in this study, group sizes overall remain large enough to provide reliable estimations.

3.2 Data

For calculating EEAs by level of education, we use the same data that has been used by the OECD and EU for calculating EEAs. The EU labour force survey (EU-LFS) data have been collected since the 1980s for all countries belonging to the European Community (later EU), associated countries (notably Iceland, Norway and Switzerland), and some of the candidate member states. The data are collected on a quarterly and yearly basis and contain a large set of questions on employment status, employer characteristics and employment conditions. The version of the data that is available for researchers is strictly repeated cross-section, meaning that it is not possible to follow the same individuals for multiple years.

Given that comparable information about education levels is introduced only in the data in 1998, this year forms the starting point for our calculations. We selected a group of countries for which sample sizes were sufficient and observations are available for a maximum number of years. In selecting the countries, we also kept an eye on the distribution among various geographical regions and welfare state regimes. Many of the smaller EU “new” member states in Central and Eastern Europe and the Mediterranean lacked sufficient sample sizes for calculating the EEAs by education level. For the United Kingdom, more reliable data on education started only from 2012 and has therefore been left out. Denmark had many years with missing values on the education variable, making it difficult to establish reliable time series. The 16 countries that were included in the analysis are Austria, Belgium, Czech Republic, Finland, France, Germany, Hungary, Ireland, Italy, the Netherlands, Norway, Poland, Portugal, Spain, Sweden, and Switzerland.

For calculating the EEAs, only few items from EU-LFS are needed. The active share of each (sub)population includes those who indicated that they are employed, self-employed or unemployed according to the definition of the ILO. The variable for age in the EU-LFS consists of five-year age brackets. We used the age brackets 40–44 to 65–69. Information of highest attained level of education is available in broad categories of those with low (ISCED 0–2), intermediate (ISCED 3–4) and high (ISCED 5–8) education. Where applicable, data are split by gender.

As a background to the EEAs we also report developments in the education structure and activity rates by level of education in the selected countries. These data are taken from the Eurostat online database but are based

on the same EU-LFS data that is used for calculating the EEAs. Education structure is represented by the share of the population aged 45–64 with lower (ISCED 0–2), medium (ISCED 3–4) and higher (ISCED 5–8) education by gender. Labour market activity is represented by the share of the population aged 50–64 that is (self-)employed or unemployed but looking for work by the same levels of education and gender. Although the age brackets vary somewhat between the indicators, they largely overlap with the age groups that are included in the calculation of the EEAs. In these data, the focus is on those younger than 65, because in most countries work after the statutory retirement ages becomes rarer. Age 50 is relevant as a lower age boundary for looking at activity rates, as after this age the risk of labour market exit often grows in many countries.

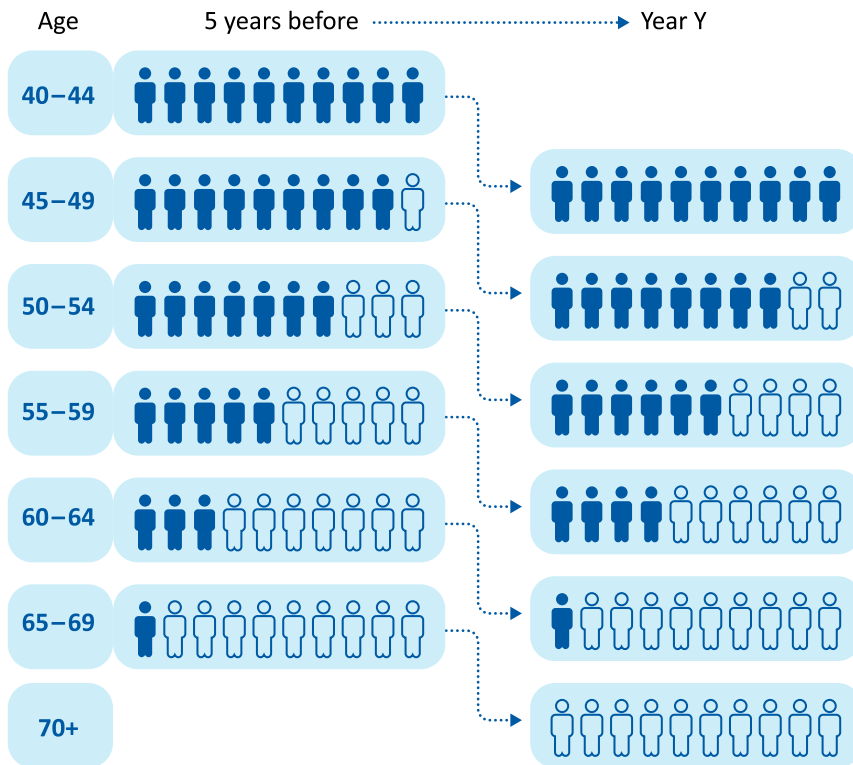
3.3 Calculating effective exit ages by level of education

As noted earlier, EEAs based on cross-section data are not “real” average exit ages in the sense that individuals are followed from employment to inactivity. They are derived in a similar fashion as life expectancy or Farr’s death rates based on life tables. EEA is a combined measure of the risk of exit among a series of consecutive age groups between two points in time. To obtain the EEAs for our selection of countries and each year, we follow the “dynamic” method of the OECD (Carone, 2005; Scherer, 2002). This method is based on comparing the active shares of the population in each age group a in year y with the active shares of the population in each age group $a-n$ in year $y-n$. In the case of using EU-LFS, $n=5$ since the data offers information on age in five-year brackets only.

The basic idea of this approach is illustrated in Figure 3.1. Let’s assume that there are ten people in each age group. In year $y-5$, in the age group 40–44 all persons are active. Five years later, when they are aged 45–49, all ten are still active. However, labour market exit starts with the older age groups. Out of the nine active persons in the age group 45–49 in year $y-5$, only eight are active when they are 50–54 in y . The rate of labour market exit between $y-5$ and y increases with each age group. In this example, everyone has exited the labour market by the age of 70. The exit rates for each of the age groups are then used to calculate the cumulative risks of still being in the labour market at each age and the probability of withdrawing from the labour market at each age. These are then used to estimate the average exit age for each year. More details on the methods can be found in Appendix 1.

Figure 3.1.

Illustration of changes in labour market participation with cross-section data



This method was used to calculate the EEAs for the whole population, for men and women separately, and for each of the levels of education separately. Unfortunately, for many countries sample sizes were too small to reliably estimate EEAs by gender and level education simultaneously. Calculating the EEAs by level of education with men and women combined, splitting the survey data into countries, years, age groups and education groups similarly creates the risk of unreliable samples sizes. We checked to ensure that for each combination of country, year, age, and education categories there were at least 100 observations. As there were missing values for the education variable, we also checked to make sure that the share of missing values for each combination of categories did not exceed 10 per cent of valid observations. In a few cases, notably Austria (higher educated in 2003) and Germany (2005), Italy (2003–2005) and Portugal (high and intermediate educated, 2003–2007) unreliability was mild and concerned only a few years. In these cases, values were extrapolated from adjacent years.

The time series for the EEAs start in 2003, given that for most countries data availability starts from 1998 and a time lag of five years that is needed for calculating the indicators. For Germany and Ireland data on education levels are available only from 1999 and therefore EEA time series start from 2004.

4 Descriptive analysis of effective exit ages and educational differences

In this section, we present descriptive analysis of gender and educational differences in effective exit ages in the 16 European countries between 2003 and 2020, as well as some of the changes in the labour market and educational structure in these countries. When examining the relation between education and exit ages, there are two components that affect this relation. First, as we expect that workers with higher education exit the labour market at a later age, we also expect that educational expansion leads to rises in exit ages. Yet, educational expansion might occur at different speeds and have different outcomes across countries. A second factor are the activity rates at each level of education. It is likely that there are differences across countries in changes in activity rates at certain or all levels of education and thereby lead to differences in rising exit ages. Therefore, before turning to the EEAs, we present data on the development of levels of educational attainment in the age group 45–64 for men and women in the past two decades. Second, we look at how labour market participation has developed during the same period for the age group 50–64 and which educational and gender differences exist.

4.1 The level of educational attainment has increased and more so for women

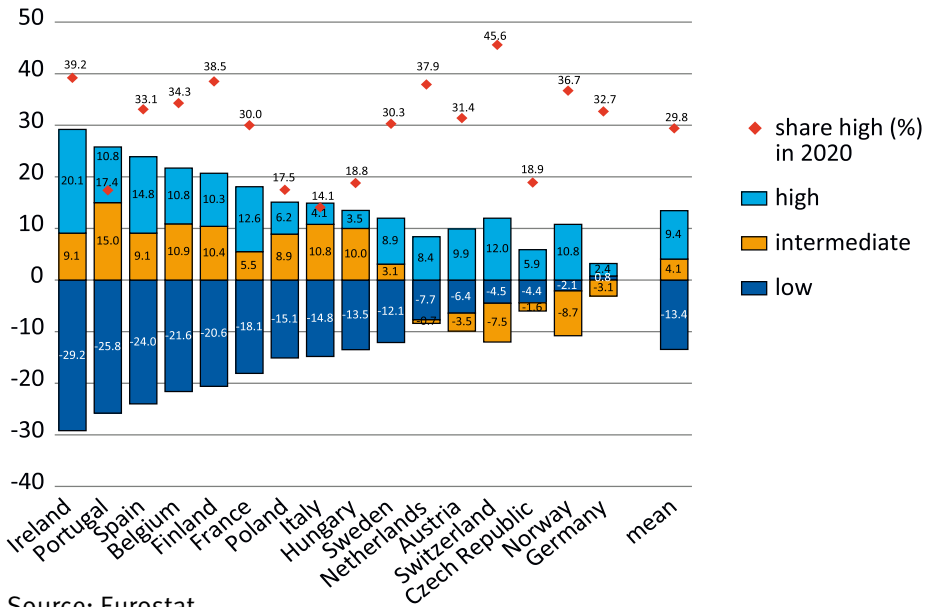
Levels of education vary quite considerably across the European countries, while there are also big differences in the shares of both men and women with low, intermediate and high level of educational attainment. In some countries, such as Belgium, the Netherlands and Finland, the shares are quite balanced in their size, but in other countries, such as Poland, Portugal and the Czech Republic, remarkable differences in the shares occur. In particular, the share of people with intermediate education varies much across the 16 countries. Furthermore, Portugal and Spain show exceptionally high shares of low educated men and women especially at the beginning of the 2000s.

Figures 4.1 and 4.2 present the change in shares of educational attainment among men and women aged 45–64 in the 16 countries between 2003 and 2020. The overall picture shows, as expected, an increasing level of education among the older working-age population. Overall, the share of low educated has diminished, and most notably in those countries where the share of low educated was high at the beginning of our period of observation, in 2003. Thus, especially countries with previously low educational level have been catching up. On average, the share of low educated men decreased by 13 percentage points by 2020 and of women, by 21 percentage points. The share of high educated, in turn, has increased in many countries (on average, 9 p.p. for men and 16 p.p. for women). Given the greater decreases in the share of low educated and the greater increases in the high educated women, the educational structure of older women has changed more drastically over the past two decades.

Finland belongs, together with Spain, Ireland, Portugal and Belgium, to those countries in which women's level of education has increased most clearly, the share of high educated women in the age group of 45–64 years being by far the highest in our country sample in 2020 (54.8 %). Women's educational level in the age group of 45–64 years has, in general, been catching up and even outpacing that of men during the past decades. Only in the Netherlands, Austria, Czech Republic, Germany and, most notably, Switzerland the share of high educated men exceeds that of the women in this age group.

Figure 4.1.

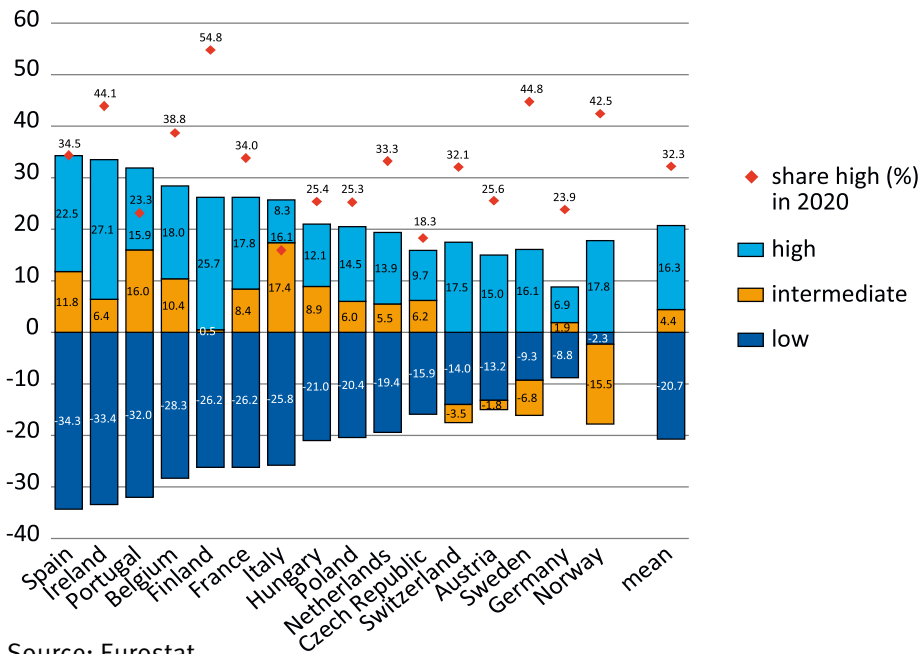
Change in educational attainment among men aged 45–64 in 16 countries (percentage points), 2003–2020



Source: Eurostat.

Figure 4.2.

Change in educational attainment among women aged 45–64 in 16 countries (percentage points), 2003–2020



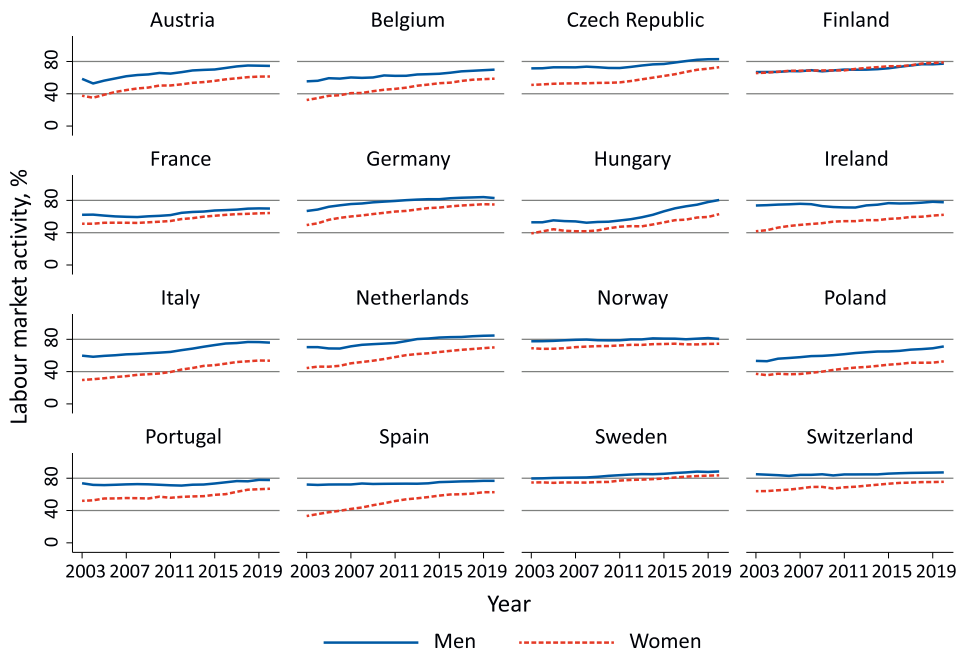
Source: Eurostat.

4.2 Increasing labour market activity rates but persisting educational and gender gaps

Labour market activity rates of older workers aged 50–64 have increased in all 16 countries over the past two decades, as can be seen in Figure 4.3. At the beginning of the 2000s, activity rates of older workers were the lowest in Belgium and Austria, and the highest in Sweden and Norway. In Switzerland, the activity rate of men has been high over time, too. In all countries except for Finland, activity rates of women are lower than those of men and this applies especially to the Southern European countries and Ireland. However, in many countries older women’s activity rates have grown more rapidly and have been catching up (19 p.p. for women on average versus 12 p.p. for men). In 2020, on average 79 per cent of men aged 50–64 were actively attached to the labour market, but only 67 per cent of women. The highest share of men active in the labour market can be found in Sweden (88.4 %) and the lowest in Belgium and France (both 69.9 %). The highest activity rate among women, in turn, in our sample is in Sweden (83.6 %) and the lowest in Poland (52.7 %).

Figure 4.3.

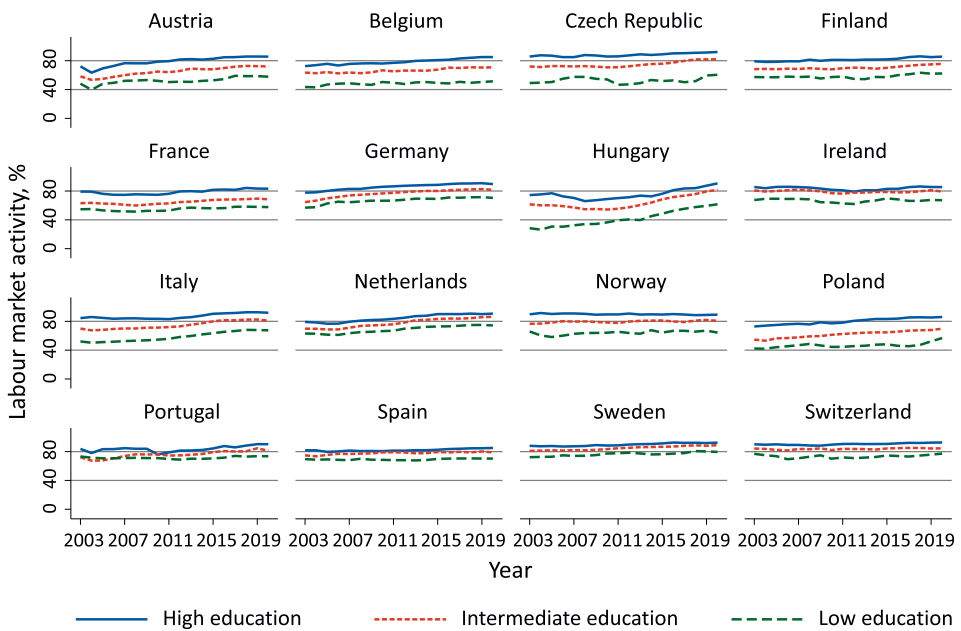
Labour market activity rates by gender, ages 50–64, 2003–2020



Source: Eurostat.

When looking at the development of labour market activity rates by level of education (Figures 4.4 and 4.5), we can observe differences between educational levels for both men and women. Overall, the activity rates of older workers are highest for those with high level of education and lowest for the low educated. While the differences remain rather stable over time, activity rates for the low educated seem to be somewhat more volatile, in particular for men. Low educated could be particularly vulnerable in times of bad conjuncture and drop out of labour markets more easily than older workers with high education. There is no clear convergence, either – while the educational gap in activity rates becomes somewhat smaller over time for example in Hungary and Spain, the gap widens moderately in Belgium and among Polish women.

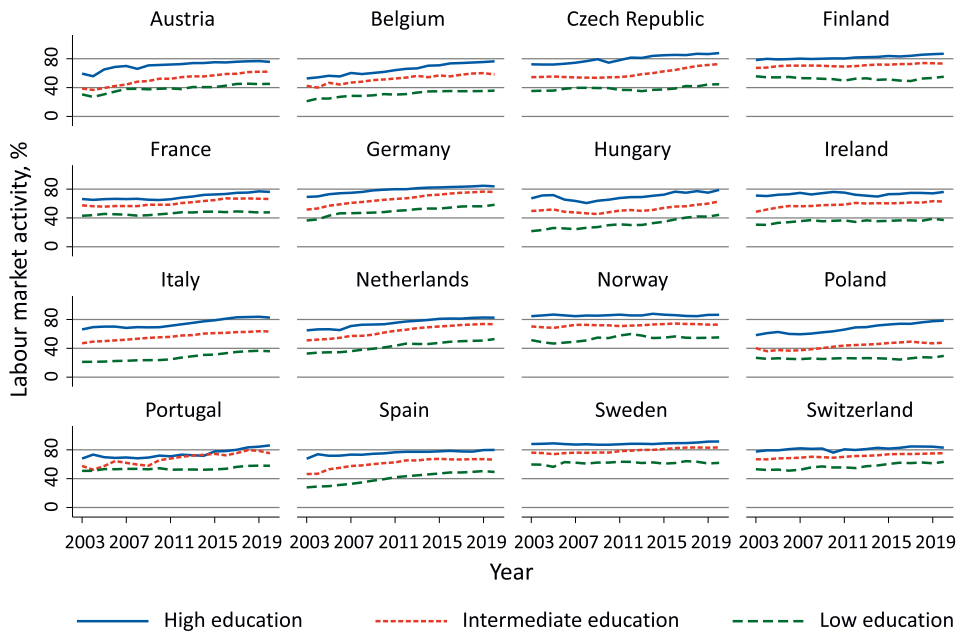
Figure 4.4. Labour market activity rates by level of education among men aged 50–64, 2003–2020



Source: Eurostat.

Figure 4.5.

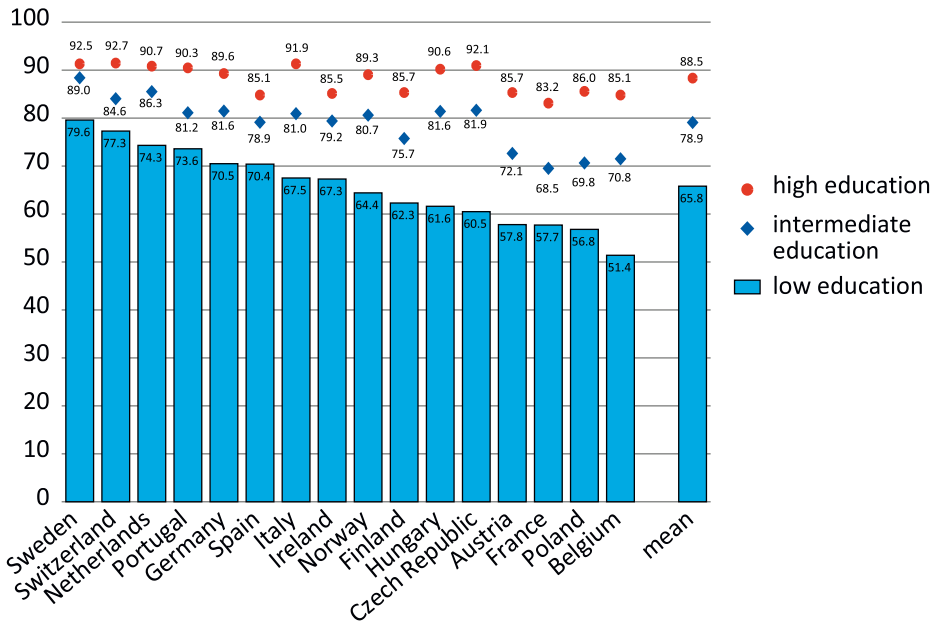
Labour market activity rates by level of education among women aged 50–64, 2003–2020



Source: Eurostat.

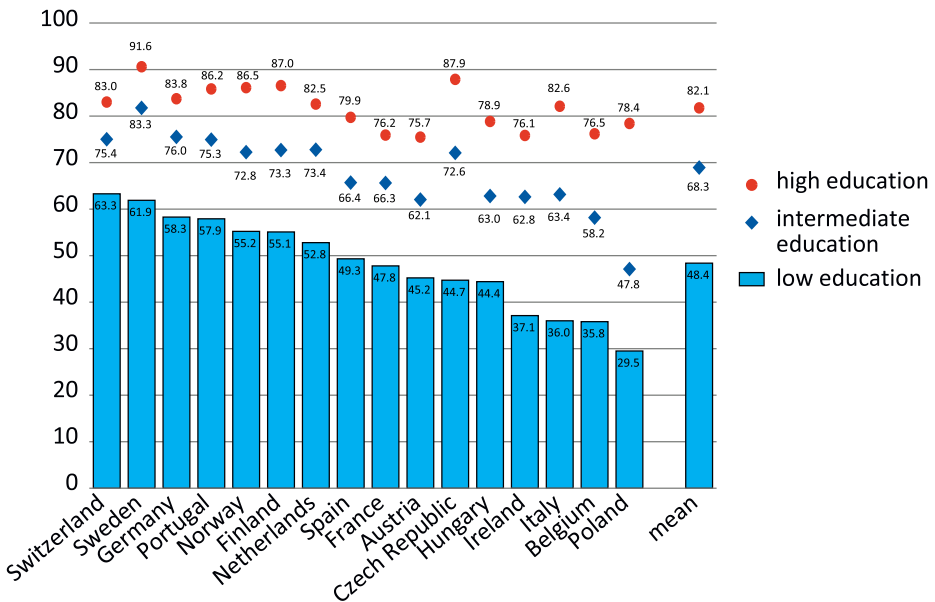
Both the educational and the gender gap in labour market activity rates are still clearly observable at the end of our observation period in 2020 (Figures 4.6 and 4.7). The educational gap is much larger among women, with particularly wide gaps observable in Italy, Poland and the Czech Republic. However, the gender gap in labour market activity rates decreases as level of education increases. The share of high educated women aged 50–64 participating at the labour market is only about six percentage points lower on average than of high educated men, while the gender gap for the low educated is over 17 percentage points on average. Thus, low labour market participation is a particularly serious challenge among low educated older women.

Figure 4.6.
Labour market activity rates by level of education among men aged 50–64, 2020



Source: Eurostat.

Figure 4.7.
Labour market activity rates by level of education among women aged 50–64, 2020



Source: Eurostat.

4.3 Changes in effective exit ages

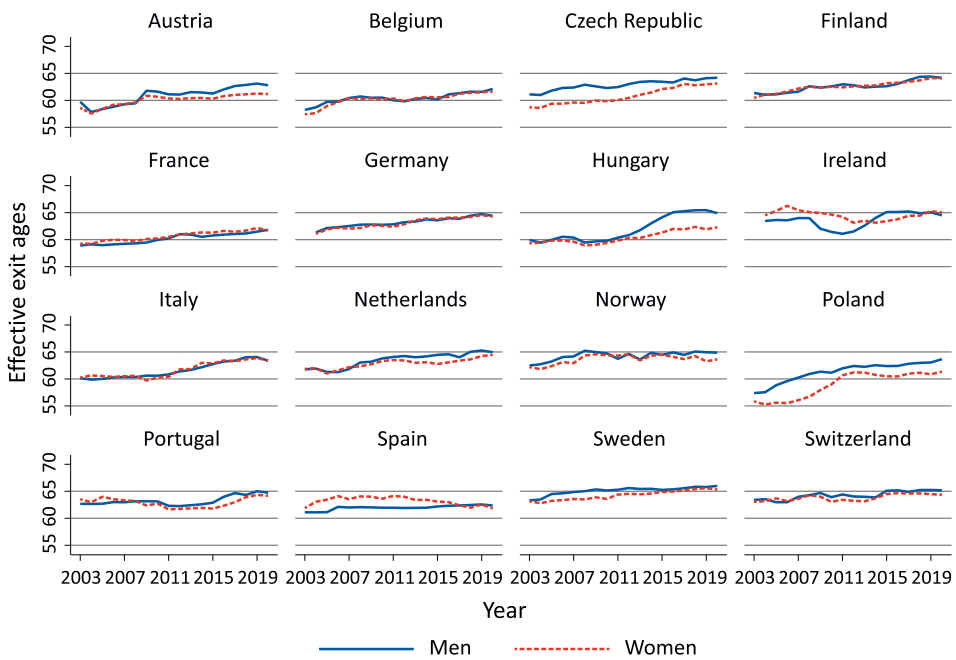
4.3.1 Postponement of labour force withdrawal in all countries

In Figure 4.8 the developments in effective exit ages for men and women are plotted (detailed timeseries by gender and for the total population can be found in Appendix 2). The overall picture suggests that exit ages have increased in Europe between 2003 and 2020. On average, EEAs rose with 2.5 years. The largest increases can be seen in the CEE countries. Men in Poland exited more than six years later in 2020 than in 2003, for Polish women this increase was 5.5 years. Similar rises can be found in Hungary (+5 years for men, +3 for women) and Czech Republic (+4.5 years for men, +3 years for women). Substantial increases can also be found in Belgium (+4.2 years for men, +3.9 years for women) and among Finnish women (+3.7 years). The smallest increases can be found among women in Ireland (+0.5 years) and Portugal (+0.6 years), while in Spain EEAs in 2003 did not differ from 2020. Figure 4.8 also shows that rises in EEA are not always straight upward trends. Increases appear to stall in several countries following the Great Recession of 2008, while in some countries EEAs even (temporarily) decreased. This is most visible among Irish men.

In 2020, the highest EEAs of 65 or more can be found in Sweden (men: 66.0, women: 65.3), as well as among Swiss men (65.2), Irish women (65.0) and Dutch men (65.0). Additionally, in Switzerland, Ireland, the Netherlands, Portugal, Germany and Finland, both men and women had EEAs above age 64. The lowest EEAs could be found among women in Austria (61.2), Poland (61.4), Belgium (61.6), France (61.7) and Spain (61.8), as well as among men in France (61.8). Although gender gaps have narrowed in many countries, they remained substantial in the CEE countries and even widened in Hungary in recent years. Figure 4.8 also suggests that in some countries where women have a lower statutory retirement age than men (notably Austria, Hungary and Poland), women's EEAs have stabilized at a lower age while men's EEAs continued to increase.

Figure 4.8.

Effective exit ages by gender in 16 countries, 2003–2020



Source: EU-LFS, own calculations.

When looking at changes in EEAs of men and women together between 2003 and 2020 (see also Appendix 2), it is possible to roughly identify five groups of countries. In Table 4.1, countries are divided by the level of their EEAs in 2003 and 2020, where EEAs lower than 63 are considered low, EEAs between 63 and 64 are intermediate and EEAs higher than 64 can be considered high. Cells in yellow include those countries where EEAs were in the same category in 2003 and 2020. The table shows that in 2003, the majority of countries (except Ireland, Portugal, Sweden and Switzerland) had exit ages below 63. By 2020, all countries except Austria, Belgium, France, Poland and Spain (even though also in most of these countries EEAs had increased), had moved to a higher category. The biggest leaps were taken by Finland, Germany, the Netherlands, and Norway. Ireland is the only country where EEAs remained at a high level in 2003 and 2020, but as observed in Figure 4.8, EEAs in this country first dropped following the Great Recession and only recently recovered to former levels.

Table 4.1.

Levels of effective exit ages in 2003 and 2020.

		Overall effective exit age in 2020		
		<63	63–64	>64
Overall effective exit age in 2003	<63	Austria, Belgium, Spain, France, Poland	Czech Republic, Hungary, Italy	Germany*, Finland, the Netherlands, Norway
	63–64			Switzerland, Portugal, Sweden
	>64			Ireland*

* Data for Germany and Ireland are for 2004 instead of 2003.

4.3.2 Rising exit ages among all levels of education, but gaps remain

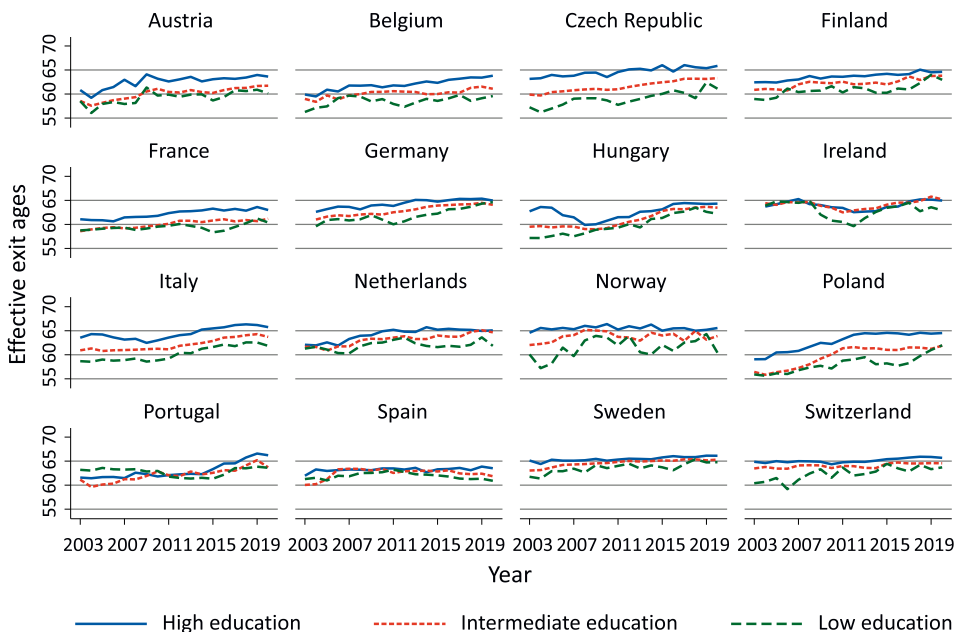
Figure 4.9 shows the results for the EEAs by level of education between 2003 and 2020 (detailed timeseries can be found in Appendix 2). In addition, the EEAs by level of education and the gaps between the education levels in 2003 and 2020 are summarised in Table 4.2. The results show that in all countries in almost all years, high educated older workers exit the labour market at a later age than those with intermediate and especially low education. In 2020, the EEAs for those with high, intermediate and low education were on average 64.9, 63.3 and 62.1, respectively. There are some exceptions to this general rule though. In certain years in the 2000s, the EEAs for low educated exceeded those of high educated in Portugal and Ireland, as well as in Spain around 2010. In many countries, the gap between high and intermediate educated or between intermediate and low educated was negligible in some years. In 2020, the gap in EEA between the low and high educated was widest in Norway (5.1 years), Czech Republic (4.7 years) and Belgium (4.2 years). The gap was smallest in Germany (0.3 years), Sweden (1.3 years) and Finland (1.7 years).

Exit ages rose in all countries and among almost all levels of education between 2003 and 2020. The average increases for all countries combined did not differ substantially between the low, intermediate, and high levels of education (Table 4.2). Low-educated workers in Spain and Ireland

form an exception: for them EEAs had dropped with 0.4 and 1.0 years, respectively. Yet, also in other countries we see in Figure 4.9 that EEAs by level of education do not always follow a straight upward trend. While trends in EEAs of high educated have been relatively stable, especially the EEAs of low educated have shown fluctuations over time. Decreases (at least temporarily) in EEAs of the low educated could be due to economic recession, such as for example in Spain, Ireland and Germany after 2007, or France and the Netherlands after 2011.

Figure 4.9.

Effective exit ages by level of education in 16 countries, 2003–2020



Source: EU-LFS, own calculations.

Despite some of these fluctuations, on average the gaps in EEAs between the different levels of education have not changed considerably between 2003 and 2020 for the 16 countries together. On average, the gap between EEAs of the high and intermediate educated narrowed with 0.3 years, the gap between high and low educated narrowed with 0.1 years and the gap between intermediate and low educated widened with 0.2 years (Table 4.2). Obviously, there were cross-country differences as well. Substantial increases in the gaps can be found in Ireland and Portugal, as well as to some extent in Austria, Belgium, the Netherlands, Norway and Spain. Reductions in the gaps were most visible in Switzerland, Germany and Hungary.

Table 4.2.
Summary of changes in effective exit ages by level of education, 2003–2020

Country	2003			2020			Change 2003–2020											
	EEA by level of education			EEA by level of education			Gap in EEA			EEA by level of education			Gap in EEA					
	High	Interm.	Low	H-I	H-L	I-L	High	Interm.	Low	H-I	H-L	I-L	High	Interm.	Low	H-I	H-L	I-L
Austria	60.8	58.6	58.5	2.3	2.3	0.0	63.6	61.7	60.2	1.9	3.5	1.6	+2.8	+3.1	+1.7	-0.4	+1.2	+1.6
Belgium	59.9	59.0	56.3	0.9	3.6	2.7	63.8	61.1	59.6	2.7	4.2	1.5	+3.9	+2.1	+3.3	+1.8	+0.6	-1.2
Czech Rep.	63.2	59.9	57.2	3.3	5.9	2.6	65.9	63.3	61.1	2.6	4.7	2.2	+2.7	+3.4	+3.9	-0.7	-1.2	-0.4
Finland	62.4	60.9	59.0	1.6	3.5	1.9	64.6	63.8	63.0	0.8	1.7	0.9	+2.2	+2.9	+4.0	-0.8	-1.8	-1.0
France	61.1	58.6	58.8	2.5	2.3	-0.2	63.0	61.2	60.4	1.8	2.6	0.8	+1.9	+2.6	+1.6	-0.7	+0.3	+1.0
Germany*	62.6	61.0	59.6	1.6	3.0	1.4	65.0	64.1	64.6	0.9	0.3	-0.6	+2.4	+3.1	+5.0	-0.7	-2.7	-2.0
Hungary	62.7	59.5	57.2	3.2	5.5	2.3	64.3	63.5	62.2	0.8	2.1	1.3	+1.6	+4.0	+5.0	-2.4	-3.4	-1.0
Ireland*	63.7	64.4	63.9	-0.7	-0.2	0.5	65.0	65.2	62.9	-0.3	2.0	2.3	+1.3	+0.8	-1.0	+0.4	+2.2	+1.8
Italy	63.5	60.9	58.7	2.6	4.9	2.3	65.8	63.7	61.9	2.0	3.9	1.9	+2.3	+2.8	+3.2	-0.6	-1.0	-0.4
Netherlands	62.1	61.7	61.3	0.4	0.8	0.4	65.1	64.7	61.9	0.4	3.2	2.8	+3.0	+3.0	+0.6	+0.0	+2.4	+2.4
Norway	64.6	62.0	60.1	2.5	4.5	2.0	65.6	63.9	60.4	1.7	5.1	3.5	+1.0	+1.9	+0.3	-0.8	+0.6	+1.5
Poland	59.1	56.4	55.9	2.6	3.2	0.5	64.5	61.9	62.0	2.6	2.5	-0.1	+5.4	+5.5	+6.1	+0.0	-0.7	-0.6
Portugal	61.6	61.1	63.2	0.4	-1.6	-2.0	66.2	63.7	63.6	2.5	2.6	0.1	+4.6	+2.6	+0.4	+2.1	+4.2	+2.1
Spain	62.0	60.0	61.3	1.9	0.7	-1.2	63.5	61.9	60.9	1.7	2.6	1.0	+1.5	+1.9	-0.4	-0.2	+1.9	+2.2
Sweden	65.1	63.0	61.7	2.1	3.4	1.3	66.1	65.3	64.8	0.8	1.3	0.5	+1.0	+2.3	+3.1	-1.3	-2.1	-0.8
Switzerland	64.9	63.5	60.4	1.4	4.5	3.1	65.7	64.6	63.7	1.1	2.0	0.8	+0.8	+1.1	+3.3	-0.3	-2.5	-2.3
Average	62.5	60.7	59.6	1.8	2.9	1.1	64.9	63.3	62.1	1.5	2.8	1.3	+2.4	+2.6	+2.5	-0.3	-0.1	+0.2

* Data for Germany and Ireland are for 2004 instead of 2003.

H = high education, I = intermediate education, L = low education.

Table 4.3 groups countries together by the size of their gaps in EEAs between those with low and high education in 2003 and 2020. In this case, more than three years means a wide educational gap in EEAs, two to three years can be considered intermediate and a gap less than two years is qualified as narrow. The cells in yellow indicate the countries where the gaps remained in the same category, while the cells in the top-right corner include countries where the gaps decreased and the cells in the lower-left corner are those where gaps widened.

Wide gaps in 2003 were reduced to under three years in Hungary, Poland and Switzerland and to less than two years in Finland, Germany and Sweden by 2020. In Austria, Ireland, Portugal and Spain, gaps increased somewhat. The Netherlands moved from having a relatively narrow gap to having a wide gap. In Ireland, Portugal and Spain, where low educated actually exited later than high educated workers at some point, the increased educational gap might be due to the lasting effects of the Great Recession that hit these countries especially hard. Another factor might be the large decline in the share of those with low education in these countries between 2003 and 2020 (see Figures 4.1 and 4.2). In Belgium, Czech Republic, Italy and Norway the gap was greater than three years both in 2003 and 2020. In France, the gap had remained between two and three years.

Table 4.3.

Gaps in effective exit ages between low- and high educated in 2003 and 2020

		Educational gap in 2020		
		>3 years	2–3 years	<2 years
Educational gap in 2003	>3 years	Belgium, Czech Republic, Italy, Norway	Hungary, Poland, Switzerland	Finland, Germany*, Sweden
	2–3 years	Austria	France	
	<2 years	the Netherlands	Ireland*, Portugal, Spain	

* Data for Germany and Ireland are for 2004 instead of 2003

4.3.3 Trade-offs or complementarities between levels of exit ages and educational gaps?

Effective and equitable extending of working lives requires that not only exit ages rise, but also that disparities in exit ages between socioeconomic groups do not become too large. Table 4.4 groups countries by the level of their EEA and the educational gap in EEA between the low and high educated in 2020. Similar as in Table 4.2, an EEA is considered low if lower than 63, intermediate if between 63 and 64 and high if higher than 64. The educational gap in EEAs is considered wide if greater than three years, intermediate if between two and three years and narrow if less than two years (as in Table 4.3).

Among countries with relatively low EEAs we find Belgium and Austria with relatively wide educational gaps and France, Spain and Poland with intermediately sized educational gaps. In Italy and the Czech Republic, EEAs are somewhat higher, while the educational gaps are wide. Hungary takes a middle position on both dimensions. Among countries with overall high EEAs, three groups can be identified. In Norway and the Netherlands, the educational gaps are relative wide, while in Switzerland, Ireland and Portugal they are somewhat in between. Only Finland, Germany and Sweden combine the highest EEAs with the narrowest recent educational gaps in EEAs. Interestingly, countries with the smallest educational disparities are all found among countries with high EEAs. These finding suggests that extending working lives is a precondition for reducing the educational gap in exit, although a narrow gap is not a guaranteed outcome of higher exit ages, as the cases of the Netherlands and Norway show.

Table 4.4.

Effective exit ages and educational gaps in effective exit ages in 2020

		Educational gap in 2020		
		Wide	Intermediate	Narrow
Overall effective exit age in 2020	Low	Austria, Belgium	France, Poland, Spain	
	Intermediate	Czech Republic, Italy	Hungary	
	High	the Netherlands, Norway	Ireland, Portugal, Switzerland,	Finland, Germany, Sweden

5 Discussion

In this study we compared the effective exit ages of workers at three levels of education in 16 European countries and during a period of almost two decades. Our aim was to investigate whether during recent years working lives have extended for workers with different levels of education and whether the educational gradient in exit ages increased or decreased. We did this by calculating effective exit ages (EEAs) by level of education with the use of EU-LFS data, allowing us to generate harmonised and comparable indicators for socioeconomic differences in labour market exit across countries.

The results show that in all countries EEAs rose between 2003 and 2020. On average for all countries, the increase of EEA was around 2.5 years. However, there was substantial cross-national variation in the size of the increases and the levels of EEAs in 2020. Despite large increases in some countries since 2003, they still had relatively low EEAs in 2020 (e.g., Belgium and Poland). Other countries, such as Germany, Finland, the Netherlands, and Norway, managed to take a leap from having low EEAs in 2003 to having relatively high EEAs in 2020. These countries have thus been the most successful in our sample in extending working lives by postponing exit from the labour force. In few countries, where EEAs were already relatively high in 2003, such as Ireland, Sweden and Switzerland, increases by 2020 were more modest. Ireland, Portugal and Spain appear to pose somewhat of an exception among our group of countries, as they experienced temporary decreases of EEAs, possibly due to the Great Recession following 2008.

EEAs rose at each level of education in almost all countries between 2003 and 2020. The only exceptions were among the low educated in Ireland and Spain, who experienced a slight drop in EEAs in 2020 compared with 2003–2004. Yet, the educational gaps in EEAs were persistent in almost all countries: the high educated continue to exit the labour force at a later age than those with low education while those with intermediate education occupy a position in between. This finding is consistent with similar recent studies (Mäcken et al. 2021; Turek et al. 2021). For all 16 countries on average, there had been no substantial change in the educational gaps between 2003 and 2020. In 2020, someone with high education typically

exited the labour force at the age of 64.9. Someone with intermediate level of education exited 1.5 years earlier at age 63.4, while someone with low education retired 2.8 years earlier at age 62.1.

Although educational gaps were relatively persistent across time, there was some cross-national variation in the sizes of the gaps and the changes therein. In 2003, relatively wide educational gaps in EEAs were rule rather than exception. Gaps were relatively narrow in the Netherlands, Ireland, Portugal and Spain, while in the latter three countries, EEAs of high educated workers were sometimes even lower than those of low or intermediate educated workers. In 2020, gaps had narrowed substantially in several countries, especially Finland, Germany, and Sweden. In all the countries with narrow gaps in 2003, gaps had widened by 2020.

There were no obvious complementarities or trade-offs between the levels of EEAs and the sizes of the gaps between education levels. In other words, extended working lives in general neither worked as an automatic remedy against educational inequalities in labour market exit nor did they necessarily exacerbate inequalities. We found countries where longer working lives coincided with a narrowing of the educational gradient in labour market exit. This was especially the case in Finland, Germany and Sweden and to a lesser extent in Hungary, Poland and Switzerland. Yet, there were also countries where exit was deferred considerably but educational gaps remained largely the same (e.g., Norway) or widened (e.g., the Netherlands). It was also possible to have the worst of both: continuously relatively low EEAs and wide gaps (e.g., in Austria and Belgium).

Nevertheless, in 2020 we did not find countries that had low EEAs and narrow gaps. This finding suggests that extended working lives might serve as a precondition for narrowing the gap. Therefore, it is worth looking at the three countries that managed to increase EEAs while substantially narrowing the gaps between education levels between 2003 and 2020: Finland, Germany, and Sweden. All three countries implemented extensive pension reforms aimed at extending working lives during the period under study. Early exit pathways were largely closed off, which reduced possibilities, especially for those with lower socioeconomic positions, to leave the labour market prematurely. These countries' pension systems are mostly based on earnings-related pillars, which could provide financial incentives for continuing work longer, in contrast to countries that offer basic or minimum flat-rate pensions. Additionally, Finland and Sweden

have flexible retirement ages with financial incentives for later retirement. Another contributing factor might be the relative emphasis in labour market policies on activation, learning and training. However, it is unclear what separates these countries from similar countries like Norway and the Netherlands, where working lives have extended, but the education gradient in exit ages is wide. Further research on the determinants of narrowing gaps is needed.

Even if in many countries the educational gaps remained stable or even increased, EEAs in the total population rose due to educational expansion: the share of high-educated workers increased, leading to later exit in the entire population (Boissonneault et al. 2020). An earlier study on Finland estimated that around half of the rise in employment in the age group 55-64 was due to educational expansion (Shemeikka et al. 2017). However, educational expansion cannot continue indefinitely and, in some countries, including Finland, there are signs that it has already come to a halt (Kalenius 2020). This could mean that one of the main drivers behind extending working lives is slowing down. From the perspective of persistent socioeconomic gaps in exit ages, extending working lives further would then require different policy measures that aim more specifically at increasing and lengthening the employment of low educated workers.

The interpretation of the findings in this study focused particularly on the differences between the low and high educated. The position of those with intermediate education was somewhat neglected but might nevertheless be important to study in more detail. Labour market participation rates and EEAs of intermediate educated tend to take a position in between those of low and high educated in almost all countries. However, trends in the share of intermediate educated differ between countries: in some countries it is (already) declining, while in others it is (still) growing. Furthermore, the nature of intermediate education might differ considerably between countries. In some countries, (vocational) intermediate education might be highly industry-specific and offer opportunities for a secure late career. In other countries, the returns of more generic intermediate education might be diminishing in the face of greater demands for high-skilled workers, making intermediate educated workers increasingly redundant. The specific production structure paired with the educational system may thus play an important role for extending working lives, particularly for those with intermediate education. More comparative research is needed in this regard.

Reducing educational and socioeconomic inequalities in labour market exit is a double-edged sword. On the one hand, there might be a large unused potential in low- and intermediate-educated workers exiting the labour market too early. Many lower-educated workers might want to continue to work but lack the opportunity. Various types of policies could improve the employment prospects of lower-educated older workers, including those aimed at the upgrading of skills (e.g., through training, adult education, and lifelong learning), improvement of working conditions, addressing health issues and supporting healthy ageing, and incentivising employers to retain and hire older workers with a disadvantaged position in the labour market. Especially interventions earlier on in the life course might be needed in health, education, and training, which also means that their impact can only be seen in many years from now.

On the other hand, the question is whether low-educated should be required to exit as late as high-educated workers. Lower-educated workers typically enter the labour market at a younger age and therefore already have long careers behind them before reaching statutory retirement ages. Moreover, there is a social gradient in (healthy) life expectancy, meaning that low-educated workers tend to live shorter in good health and therefore have shorter time to enjoy their retirement. As a result, from a social justice perspective it can be argued that there should be possibilities for socioeconomically disadvantaged older workers to exit work at an earlier age (Deeg et al. 2021). This may require the preserving or return of early exit pathways that are specifically suited to the needs of these workers in their late careers. In Finland, the partial old-age pension and the years-of-service pensions were designed for this aim. The former type of pension allows taking 25 or 50 per cent of the pension at the age of 61 and enables the reducing of work hours or supplementing unemployment benefits (Nivalainen et al. 2022). The latter type of pension is aimed at workers with long work careers that demand great effort (Finnish Centre for Pensions 2022c).

Some limitations of this study should be pointed out. The calculations of EEAs by level of education are rather “rough” estimates, as they are based on cross-section data and not panel data. As pointed out earlier, the EEA is not the actual average exit age in the population, but an estimate based on changes in activity rates between two points in time. Especially in case the size of the labour force changes due to exogenous factors, e.g., a large inflow of women or immigrants to the labour market, EEAs become more

unreliable. Nevertheless, by applying the same criteria to all countries and for each year, this study is the first to generate indicators of labour market exit by level of education that are largely comparable across countries and time.

Furthermore, it should be emphasised that this is not a study on the timing of retirement, but on the average age when people are no longer active in the labour force. The reasons for inactivity are unknown: individuals might have exited through (early) retirement, but also might have stopped working for many other reasons. Labour market exit can be “voluntary” or “involuntary” and, as Mäcken et al. (2021) have shown, the educational gradient in involuntary exit tends to be particularly strong. More comparative research on the specific reasons of exit at various levels of education as well as their development across time is needed. In addition, unemployment among older workers often means difficulties to find new employment and, in many countries, can result in extended unemployment until reaching the early or statutory retirement age (Tatsiramos 2010; Van Horn et al. 2011; Axelrad et al. 2018). Therefore, being (long-term) unemployed often in reality means being outside the labour market, especially for low-educated older workers. The unemployed are included as “active in the labour market” in the EEA indicator, meaning that part of de-facto early exit is still “hidden” in our analysis. This could apply especially to certain countries and years.

The country-level factors that produce the educational differences in labour market exit and their changes across time were not investigated in detail in this study. More analysis is needed on the policies that potentially narrow or widen the educational gaps in EEAs, such as ALMPs, training and EPL, but also various interventions aimed at reducing inequalities earlier on in life. In addition, more investigation is needed about educational differences in the use of alternative exit pathways such as disability pensions, sick leaves, unemployment, and inactivity without any social security, at the end of the working lives. Furthermore, the role of labour market mobility and migrants in the demographic composition varies greatly across European countries. More analysis is needed on how in- and outflows of migrants impact effective exit ages and educational differences therein. While especially work-based migration might boost activity rates, migrants tend to suffer from multiple disadvantages in the labour market and their chances for extended working lives and adequate pension income pose a challenge in many European countries (cp. Bridgen et al. 2022).

Finally, the results of this study should ideally be complemented with insights in actual inequalities in incomes and pension accrual between workers with low, intermediate and high levels of education and how early exit amplifies these inequalities (see also: Kuitto et al. 2021).

Educational differences in effective exit ages, as revealed in this study, underline persisting inequalities in the policy of extending working lives. There is a need to address them more proactively and already at early stages of the life course by means of social, labour market and education policies. Stimulating education may lead to better possibilities to continue working for an increasing number of people, but the effect will only show in the long run, leaving still many cohorts of older workers with low education striving for working until the statutory retirement age. Educational expansion is also likely to face a point of saturation, as is already foreseeable for example in Finland to some extent. If a considerable share of people will permanently fail at reaching the retirement age which, in turn, is often a precondition for full pension benefits, adequacy of old age income will pose an increasingly important challenge. This applies particularly to people with low education and low income. Future pension reforms should therefore carefully consider the consequences of socioeconomic differences in extending working lives for inequalities in pension adequacy.

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Appendices

Appendix 1: Detailed methods for calculating effective exit ages

Calculation of EEAs takes several steps. For detailed explanation see also: Scherer (2002). Here, we illustrate the methods based on the example given in Figure 3.1. First, the risk of continued activity (or probability to stay) of each age group compared to five years ago is calculated by dividing the activity rate of each age group a in year y by the activity rate of each age group $a-5$ in year $y-5$. This is illustrated in column 2 of Table A1: for each age group we calculate the proportion of those active five years ago who are still active this year. Let's assume that ten people are active in age bracket 40–44 in year $y-5$. In year y , this same cohort is aged 45–49. Out of the ten people active five years ago, all are still active, meaning that their probability to stay equals 1. This is different for the older age groups, where labour market exit is observed between $y-5$ and y . Out of the nine people in this cohort active in the age group 45–49 in $y-5$, only eight are still active when they are 50–54 in y . This means a probability to stay of 0.89. Probabilities to stay can be calculated in a similar way for each age group (See Table A1, column 2).

Table A1.

Example of calculation of effective exit ages based on Figure 3.1

1	2	3	4	5	6
Age limit	Probability to stay ($= \frac{\text{activity}_a^y}{\text{activity}_{a-5}^{y-5}}$)	Probability to exit (= 1 – column 2)	Probability of still being in the labour market (= column 2 × column 4 _{a-5})	Probability of withdrawing at a particular age (= column 3 × column 4 _{a-5})	Contribution to EEA (= column 1 × column 5)
45	1	0	1	0	0
50	0.89	0.11	0.89	0.11	5.5
55	0.86	0.14	0.77	0.12	6.9
60	0.60	0.40	0.46	0.31	18.4
65	0.33	0.67	0.15	0.31	20.0
70	0	1	0	0.15	10.6
Σ				1	61.3

In this study, we assume that after age 70 everyone has exited, i.e., the probability of the age group 65–69 to stay after five years is 0. Whereas the OECD and European statistics commonly use 75 or 80 as the maximum age, splitting the population by education levels yields small numbers for the oldest age groups in a substantial number of countries. In addition, it is assumed that the activity rate of age group a always equals or is lower than at $a-5$ due to the gradual labour market exit of older workers. In reality, however, it is possible that activity rates within a cohort increase as they age (especially due to new groups entering the labour market or immigration), which would lead to a probability to stay of greater than 1. In this case, we follow Scherer (2002) and set the probability to stay for that age group in that year to 1.

Next, the probability to exit at age a and in year y logically is one minus the probability to stay (column 3 in Table A1). We then calculate the probability of still being in the labour market at a given age a as the product of the probabilities to stay of all age groups until $a-5$ (column 4). The probability of withdrawing at age a in column 5 is the product of the unconditional probability of not exiting before age a and the probability of exit. The sum of these probabilities should equal 1. Finally, these are used as weights when adding each of the ages at which the risk of exit was defined, yielding the EEA for that year. In the case of our example, the EEA is 61.3.

Appendix 2: Effective exit ages data

Country	Year	Total	Men	Women	High education	Intermediate education	Low education
Austria	2003	59.3	59.7	58.6	60.8	58.6	58.5
	2004	57.8	57.8	57.5	59.2	57.6	56.1
	2005	58.7	58.4	58.4	60.8	58.2	57.9
	2006	59.2	58.8	59.2	61.4	58.7	58.3
	2007	59.3	59.3	59.3	63.0	59.0	57.9
	2008	59.5	59.5	59.6	61.6	59.4	58.1
	2009	61.3	61.8	60.9	64.1	60.5	61.4
	2010	61.3	61.6	60.7	63.2	61.1	59.7
	2011	60.8	61.1	60.3	62.6	60.4	59.9
	2012	60.7	61.1	60.3	63.1	60.3	59.4
	2013	61.2	61.5	60.4	63.6	60.8	59.9
	2014	61.1	61.5	60.4	62.6	60.4	59.9
	2015	60.9	61.3	60.3	63.1	60.2	58.7
	2016	61.5	62.0	60.8	63.3	60.8	59.4
	2017	62.0	62.7	61.0	63.2	61.2	60.8
	2018	62.1	62.9	61.1	63.4	61.3	60.6
	2019	62.3	63.1	61.3	64.0	61.7	60.9
	2020	62.1	62.8	61.2	63.6	61.7	60.2
Belgium	2003	57.9	58.2	57.4	59.9	59.0	56.3
	2004	58.2	58.7	57.6	59.5	58.4	57.1
	2005	59.4	59.7	58.9	60.9	59.7	57.4
	2006	59.7	59.8	59.7	60.5	58.9	59.1
	2007	60.5	60.4	60.4	61.8	59.7	59.7
	2008	60.5	60.7	60.3	61.7	60.0	59.5
	2009	60.4	60.5	60.4	61.8	60.4	58.5
	2010	60.3	60.5	60.2	61.4	60.5	58.9
	2011	60.2	60.0	60.4	61.8	60.6	57.9
	2012	59.8	59.8	59.8	61.7	60.5	57.3
	2013	60.3	60.2	60.4	62.2	60.4	58.2
	2014	60.5	60.4	60.6	62.6	60.0	59.0
	2015	60.3	60.2	60.6	62.3	60.0	58.6
	2016	60.9	61.1	60.6	63.0	60.4	59.1
	2017	61.3	61.3	61.2	63.2	60.3	59.8
	2018	61.5	61.6	61.4	63.5	61.3	58.6
	2019	61.5	61.6	61.5	63.4	61.5	59.1
	2020	61.9	62.1	61.6	63.8	61.1	59.6



Country	Year	Total	Men	Women	High education	Intermediate education	Low education
Switzerland	2003	63.3	63.4	63.1	64.9	63.5	60.4
	2004	63.5	63.5	63.2	64.6	63.8	60.7
	2005	63.7	63.0	63.7	65.0	63.4	61.5
	2006	63.3	63.0	63.2	64.8	63.4	59.2
	2007	64.0	64.0	63.6	65.0	64.1	61.1
	2008	64.5	64.3	64.3	64.9	64.2	62.4
	2009	64.4	64.7	64.0	64.9	64.1	63.3
	2010	63.6	63.9	63.0	64.3	63.6	61.5
	2011	64.1	64.4	63.4	64.8	64.0	63.7
	2012	63.8	64.0	63.2	64.9	63.9	62.0
	2013	63.7	64.0	63.1	64.8	63.6	62.3
	2014	63.9	63.9	63.7	65.1	63.5	62.8
	2015	64.9	65.1	64.5	65.4	64.5	64.4
	2016	65.0	65.2	64.7	65.5	64.7	63.5
	2017	65.0	64.9	64.6	65.7	64.5	62.9
	2018	65.1	65.2	64.6	65.9	64.5	64.2
	2019	65.0	65.2	64.5	65.9	64.6	63.3
	2020	64.9	65.2	64.4	65.7	64.6	63.7
Czech Republic	2003	60.0	61.1	58.7	63.2	59.9	57.2
	2004	59.8	61.0	58.6	63.3	59.7	56.2
	2005	60.6	61.8	59.4	64.0	60.4	57.0
	2006	60.8	62.3	59.4	63.7	60.6	57.8
	2007	61.0	62.4	59.6	63.8	60.8	59.0
	2008	61.2	62.9	59.5	64.4	61.0	59.1
	2009	61.4	62.6	60.0	64.5	61.1	59.1
	2010	61.0	62.3	59.9	63.5	60.9	58.7
	2011	61.3	62.5	60.0	64.6	61.0	57.8
	2012	61.7	63.0	60.5	65.1	61.5	58.4
	2013	62.2	63.4	61.0	65.3	61.9	59.0
	2014	62.5	63.5	61.4	64.9	62.2	59.6
	2015	62.9	63.5	62.1	66.0	62.5	60.0
	2016	63.0	63.3	62.3	64.7	62.7	60.8
	2017	63.6	64.0	63.0	66.0	63.2	60.2
	2018	63.4	63.7	62.8	65.6	63.2	59.1
	2019	63.5	64.1	63.0	65.4	63.1	62.4
	2020	63.7	64.2	63.1	65.9	63.3	61.1



Country	Year	Total	Men	Women	High education	Intermediate education	Low education
Germany	2003						
	2004	61.3	61.3	61.1	62.6	61.0	59.6
	2005	62.1	62.1	61.9	63.2	61.6	60.9
	2006	62.3	62.3	62.2	63.7	61.9	61.1
	2007	62.3	62.5	62.0	63.6	61.7	60.8
	2008	62.5	62.8	62.2	63.1	62.1	61.1
	2009	62.8	62.8	62.7	63.9	62.2	61.9
	2010	62.8	62.8	62.6	64.1	62.0	61.0
	2011	62.8	62.8	62.4	63.8	62.5	60.0
	2012	63.2	63.2	62.9	64.5	62.8	60.6
	2013	63.6	63.3	63.6	65.1	63.1	61.6
	2014	63.9	63.8	63.9	65.0	63.7	62.0
	2015	63.9	63.6	63.8	64.7	63.9	62.2
	2016	64.2	64.0	64.1	65.0	64.0	63.1
	2017	64.1	63.9	64.1	65.3	64.2	63.2
	2018	64.5	64.4	64.2	65.3	64.2	63.7
	2019	64.8	64.7	64.5	65.4	64.5	64.3
	2020	64.4	64.4	64.3	65.0	64.1	64.6
Spain	2003	61.4	61.1	61.9	62.0	60.0	61.3
	2004	61.9	61.1	63.1	63.3	60.2	61.5
	2005	61.9	61.1	63.4	63.0	61.2	61.0
	2006	62.9	62.1	64.1	63.1	63.3	62.0
	2007	62.6	62.0	63.5	63.3	63.4	61.8
	2008	63.1	62.1	64.0	63.2	63.4	62.5
	2009	62.9	62.0	64.0	63.1	63.0	62.5
	2010	63.0	62.0	63.6	63.5	63.4	62.7
	2011	63.1	61.9	64.1	63.5	62.5	63.2
	2012	62.9	61.9	64.0	63.3	62.9	62.7
	2013	62.8	61.9	63.4	63.6	62.9	62.3
	2014	62.6	62.0	63.4	62.7	63.0	62.2
	2015	62.7	62.2	63.1	63.3	62.8	62.0
	2016	62.6	62.3	63.0	63.4	63.1	61.8
	2017	62.4	62.4	62.4	63.6	62.4	61.4
	2018	62.2	62.5	62.0	63.1	62.3	61.3
	2019	62.5	62.6	62.6	63.9	62.4	61.3
	2020	62.1	62.4	61.8	63.5	61.9	60.9



Country	Year	Total	Men	Women	High education	Intermediate education	Low education
Finland	2003	60.9	61.4	60.5	62.4	60.9	59.0
	2004	61.1	61.0	61.1	62.5	61.1	58.8
	2005	61.2	61.1	61.2	62.4	61.0	59.2
	2006	61.6	61.4	61.6	62.8	60.7	61.1
	2007	62.1	61.6	62.2	63.0	62.0	60.4
	2008	62.6	62.6	62.5	63.7	62.6	60.6
	2009	62.5	62.4	62.4	63.2	62.4	60.7
	2010	62.6	62.6	62.5	63.6	62.3	61.6
	2011	62.7	63.0	62.4	63.6	62.6	60.3
	2012	62.7	62.8	62.6	63.8	62.0	61.4
	2013	62.6	62.4	62.7	63.7	62.1	61.2
	2014	62.9	62.5	62.8	64.0	62.4	60.3
	2015	63.0	62.6	63.2	64.2	62.0	60.3
	2016	63.3	63.1	63.3	64.0	62.6	61.1
	2017	63.6	63.8	63.4	64.1	63.7	60.9
	2018	64.2	64.4	63.7	65.1	62.9	62.3
	2019	64.2	64.4	64.1	64.5	63.8	64.0
	2020	64.3	64.2	64.1	64.6	63.8	63.0
France	2003	59.1	58.9	59.3	61.1	58.6	58.8
	2004	59.2	59.1	59.2	60.9	59.0	58.9
	2005	59.4	59.0	59.8	60.9	59.3	59.1
	2006	59.5	59.1	60.0	60.6	59.4	59.3
	2007	59.6	59.2	59.9	61.5	59.2	59.3
	2008	59.5	59.3	59.7	61.6	59.3	58.9
	2009	59.9	59.5	60.1	61.6	59.6	59.1
	2010	60.1	60.0	60.2	61.8	59.8	59.5
	2011	60.5	60.2	60.5	62.3	60.1	59.7
	2012	61.0	61.0	60.9	62.7	60.8	60.1
	2013	61.1	60.9	61.2	62.7	60.8	59.7
	2014	60.9	60.5	61.3	62.9	60.5	59.3
	2015	61.0	60.8	61.3	63.3	60.8	58.4
	2016	61.3	60.9	61.6	62.9	61.1	58.7
	2017	61.2	61.0	61.5	63.2	60.6	59.5
	2018	61.4	61.1	61.7	62.9	60.9	60.3
	2019	61.8	61.5	62.2	63.6	60.7	61.2
	2020	61.8	61.8	61.7	63.0	61.2	60.4



Country	Year	Total	Men	Women	High education	Intermediate education	Low education
Hungary	2003	59.5	59.9	59.3	62.7	59.5	57.2
	2004	59.3	59.4	59.5	63.6	59.6	57.2
	2005	59.8	60.0	59.8	63.5	59.4	57.6
	2006	60.1	60.5	59.8	61.9	59.6	58.1
	2007	60.0	60.4	59.6	61.5	59.5	57.5
	2008	59.2	59.5	58.9	59.9	59.0	58.1
	2009	59.4	59.7	59.1	60.0	59.0	58.9
	2010	59.8	59.8	59.4	60.8	59.2	59.1
	2011	60.2	60.4	59.8	61.5	59.9	59.3
	2012	60.7	60.8	60.3	61.5	60.5	60.1
	2013	61.1	61.7	60.3	62.6	61.0	59.4
	2014	61.9	63.0	60.8	62.8	61.7	61.1
	2015	62.7	64.1	61.3	63.1	62.8	61.3
	2016	63.4	65.1	62.0	64.3	63.2	62.4
	2017	63.5	65.3	61.9	64.4	63.1	62.7
	2018	63.9	65.4	62.4	64.3	63.5	63.5
	2019	63.8	65.5	61.9	64.3	63.7	62.6
	2020	63.7	64.9	62.3	64.3	63.5	62.2
Ireland	2003						
	2004	64.2	63.5	64.5	63.7	64.4	63.9
	2005	64.6	63.6	65.3	64.2	64.1	64.8
	2006	64.9	63.6	66.3	64.7	64.6	64.7
	2007	64.8	64.0	65.5	65.3	64.6	64.5
	2008	64.9	64.0	65.1	64.2	64.6	64.9
	2009	63.8	62.0	64.9	64.0	63.9	62.0
	2010	63.1	61.4	64.7	63.6	63.5	60.8
	2011	62.8	61.1	64.2	63.4	62.5	60.5
	2012	62.2	61.5	63.1	62.5	62.9	59.6
	2013	63.2	62.6	63.5	62.7	63.2	61.3
	2014	63.7	64.0	63.1	62.8	63.3	62.6
	2015	64.4	65.1	63.4	63.6	64.1	63.5
	2016	64.6	65.1	63.8	63.7	64.5	63.8
	2017	65.0	65.2	64.4	64.8	64.5	64.5
	2018	64.8	64.9	64.4	65.2	64.9	62.7
	2019	65.4	65.1	65.3	65.2	65.8	63.6
	2020	65.1	64.5	65.0	65.0	65.2	62.9



Country	Year	Total	Men	Women	High education	Intermediate education	Low education
Italy	2003	60.1	60.1	60.3	63.5	60.9	58.7
	2004	60.1	59.9	60.6	64.3	61.3	58.5
	2005	60.3	60.0	60.5	64.2	60.8	59.0
	2006	60.2	60.3	60.4	63.6	60.9	58.8
	2007	60.4	60.4	60.5	63.2	61.0	58.9
	2008	60.5	60.3	60.6	63.3	61.1	59.2
	2009	60.2	60.6	59.7	62.5	61.2	58.6
	2010	60.4	60.6	60.2	63.0	61.3	58.8
	2011	60.6	60.8	60.4	63.6	61.1	59.2
	2012	61.6	61.4	61.8	64.1	61.9	60.4
	2013	61.7	61.7	61.8	64.3	62.2	60.3
	2014	62.5	62.2	63.0	65.2	62.4	61.3
	2015	62.8	62.7	62.9	65.5	62.9	61.6
	2016	63.4	63.2	63.4	65.7	63.6	62.1
	2017	63.3	63.4	63.3	66.2	63.7	61.8
	2018	63.9	64.0	63.6	66.3	64.1	62.6
	2019	64.0	64.1	63.9	66.2	64.3	62.6
	2020	63.3	63.4	63.4	65.8	63.7	61.9
The Netherlands	2003	62.0	61.8	61.9	62.1	61.7	61.3
	2004	62.1	61.9	62.0	62.0	61.6	61.7
	2005	61.4	61.3	61.0	62.6	60.9	61.1
	2006	61.5	61.3	61.6	61.9	61.7	60.4
	2007	62.0	61.8	62.2	63.3	61.8	60.3
	2008	62.9	63.0	62.3	64.0	63.0	61.8
	2009	63.2	63.2	62.7	64.1	63.3	62.4
	2010	63.6	63.8	63.3	64.9	63.3	62.5
	2011	63.9	64.1	63.5	65.2	63.6	63.1
	2012	64.0	64.3	63.4	64.8	63.9	63.6
	2013	63.6	64.0	63.0	64.8	63.3	62.4
	2014	63.7	64.2	63.1	65.7	63.3	61.8
	2015	63.7	64.5	62.8	65.2	64.0	61.6
	2016	64.0	64.6	63.1	65.4	63.8	61.9
	2017	63.8	64.0	63.4	65.2	63.7	61.7
	2018	64.4	65.0	63.6	65.2	64.8	62.1
	2019	64.9	65.3	64.2	65.0	65.1	63.6
	2020	64.8	65.0	64.5	65.1	64.7	61.9



Country	Year	Total	Men	Women	High education	Intermediate education	Low education
Norway	2003	62.3	62.5	62.2	64.6	62.0	60.1
	2004	62.3	62.7	61.8	65.6	62.3	57.2
	2005	62.8	63.2	62.4	65.3	62.6	58.2
	2006	63.6	64.1	63.1	65.6	63.8	61.5
	2007	63.6	64.2	62.9	65.3	64.1	59.7
	2008	64.9	65.2	64.3	66.0	65.2	63.0
	2009	64.8	65.0	64.6	65.7	65.1	63.9
	2010	64.6	64.7	64.4	66.4	64.9	63.6
	2011	64.0	63.7	64.3	65.2	63.7	62.0
	2012	64.6	64.6	64.6	65.9	63.6	63.9
	2013	63.5	63.6	63.4	65.5	62.9	60.5
	2014	64.6	64.9	64.3	66.3	64.6	60.1
	2015	64.4	64.5	64.5	65.0	64.0	62.1
	2016	64.5	64.9	64.1	65.5	64.4	60.8
	2017	64.1	64.5	63.7	65.5	62.9	62.5
	2018	64.7	65.1	64.2	65.0	65.0	62.8
	2019	64.1	64.9	63.3	65.2	63.1	64.3
	2020	64.3	64.9	63.6	65.6	63.9	60.4
Poland	2003	56.6	57.4	55.9	59.1	56.4	55.9
	2004	56.3	57.5	55.3	59.1	55.8	55.6
	2005	57.1	58.8	55.6	60.5	56.4	56.1
	2006	57.4	59.6	55.5	60.5	56.7	56.0
	2007	58.0	60.3	56.1	60.8	57.2	56.8
	2008	58.7	60.9	56.7	61.7	58.0	57.4
	2009	59.6	61.4	57.9	62.5	59.2	57.7
	2010	60.1	61.2	59.0	62.3	60.1	57.1
	2011	61.4	62.0	60.7	63.2	61.4	58.8
	2012	61.9	62.4	61.2	64.2	61.6	59.0
	2013	61.8	62.3	61.2	64.5	61.3	59.5
	2014	61.7	62.6	60.8	64.4	61.4	58.0
	2015	61.4	62.4	60.5	64.6	61.0	58.2
	2016	61.4	62.4	60.5	64.5	61.0	57.7
	2017	61.9	62.8	61.0	64.2	61.5	58.3
	2018	62.0	63.0	61.1	64.6	61.5	59.8
	2019	62.0	63.1	60.9	64.4	61.2	61.0
	2020	62.7	63.7	61.4	64.5	61.9	62.0



Country	Year	Total	Men	Women	High education	Intermediate education	Low education
Portugal	2003	63.0	62.7	63.5	61.6	61.1	63.2
	2004	62.8	62.7	63.0	61.4	59.6	63.0
	2005	63.3	62.7	64.0	61.7	60.1	63.6
	2006	63.2	63.0	63.5	61.7	60.3	63.3
	2007	63.1	63.0	63.3	61.5	61.3	63.2
	2008	63.2	63.1	63.2	62.6	61.2	63.3
	2009	62.7	63.1	62.4	62.3	61.9	62.8
	2010	62.9	63.1	62.7	61.8	62.9	63.0
	2011	62.0	62.3	61.7	62.1	62.1	61.8
	2012	62.0	62.2	61.7	62.2	61.9	61.5
	2013	62.1	62.4	61.8	62.4	62.8	61.4
	2014	62.2	62.6	61.9	62.3	62.2	61.5
	2015	62.3	62.9	61.8	63.3	62.6	61.3
	2016	63.1	64.0	62.3	64.5	63.1	62.2
	2017	63.8	64.7	63.0	64.5	63.0	63.5
	2018	64.2	64.3	63.9	65.8	64.1	63.5
	2019	64.6	65.0	64.3	66.6	65.2	63.8
	2020	64.4	64.7	64.2	66.2	63.7	63.6
Sweden	2003	63.4	63.3	63.2	65.1	63.0	61.7
	2004	63.1	63.5	62.8	64.4	63.1	61.4
	2005	63.9	64.5	63.2	65.3	63.7	62.9
	2006	64.0	64.6	63.4	65.1	64.2	62.9
	2007	64.2	64.9	63.6	65.1	64.3	63.4
	2008	64.3	65.0	63.5	65.2	64.4	62.7
	2009	64.6	65.3	63.9	65.5	64.5	64.2
	2010	64.4	65.1	63.6	65.1	64.6	63.5
	2011	64.9	65.3	64.4	65.3	64.8	64.0
	2012	65.1	65.6	64.5	65.5	65.0	64.5
	2013	65.0	65.4	64.4	65.5	64.9	63.5
	2014	65.0	65.5	64.6	65.4	65.0	64.1
	2015	65.1	65.3	64.9	65.8	65.1	63.7
	2016	65.2	65.4	65.0	66.0	65.1	63.1
	2017	65.4	65.6	65.2	65.8	65.4	64.4
	2018	65.7	65.8	65.4	65.8	65.4	65.4
	2019	65.7	65.8	65.6	66.1	65.2	64.7
	2020	65.7	66.0	65.3	66.1	65.3	64.8



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Educational differences in extending working lives

Trends in effective exit ages in 16 European countries

This study examines educational differences in effective exit ages in 16 European countries during the period 2003–2020. While working lives are extending in all countries, educational differences in the average age of withdrawal from the labour force remain: the lower educated tend to exit the labour market at an earlier age than the higher educated. However, there are also considerable cross-country differences in the sizes of educational gaps in exit ages.

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