Working conditions and retirement

Can improved working conditions extend an individual’s time on the labour market?

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Abstract

The objective of this essay is to investigate if working conditions affect the retirement age and additionally, aims to explore the differences in the effects between women and men. This study investigates this by using data of individuals living in Sweden in 2012 that were between the age of 63 and 74 (i.e individuals that are born between 1938 and 1949) retrieved from Statistics Employment Register (Sysselsättningsregister). To complete the information, Statistics Sweden, conducted a survey on behalf of Anxo et al (2017) to 20 000 randomly selected individuals that included questions about the individual’s previous working conditions at point of retirement or at age 64 if the individual stayed above the age of 65. The result strengthened the idea from previous research that possibility to choose when and how to work decrease the likelihood of retiring earlier, hence, extends the time on the labour market. Additionally, the results indicated that psychologically demanding jobs and monotone tasks increase the probability of retiring earlier. Some results were rather counter-intuitive where the working conditions: physical demanding job, working under time pressure, number of working hours and working unsocial hours increased the likelihood for an individual to stay longer in the labour market. Additional findings in this essay that contradicted prior studies is that socializing with co-workers outside of work and the possibility to combine family and work increases the probability to retire earlier, hence reduces the likelihood of a later retirement.

Keywords: Retirement age, Working conditions, Labour market exit
1 Introduction

Demographic changes in our population is occurring, with a rapidly increasing ageing population, which is due to the combination of lower levels of fertility and increasing longevity (Anxo et al, 2017). The share of the population of individuals over the age of 65 have increased dramatically over the past decades within EU-28’s. Within the last decade the share of individuals above the age of 65 (2006-2016) has increased with 2.4 percentage points within the EU-28’s (Eurostat, 2017). The share of those of age above 80 is predicted according to Eurostat to more than double between 2016 and 2080, from 5.4% to 12.7% whilst the working-age population during this period is expected to steadily decline until 2050 (Eurostat, 2016). During 2016, Sweden had a population consisting of almost 20 percent of its population being over the age of 65 (Eurostat, 2016).

Parallel to these demographic changes, there has been tendencies amongst individual’s in the more developed economies from the 1970’s until the mid 1990’s to exit earlier and earlier from the labour market. This trend may be due to many factors such as lower statutory retirement age and an increase in demand for leisure (Anxo et al 2012, Blöndal and Scarpetta 1999). In the first decade of the 20’s century the demographic changes have forced governments to reconsider their policies to increasingly aim to reduce this trend of earlier and earlier retirements (Taylor 2002, Carr et al 2015). These trends with a growing aging population and a decline in the working-age population in combination with the trend of earlier exits from the labour market during the 70’s until the 90’s brings challenges faced by economists and politicians to solve for the future. One of the challenges that occurs with an aging population is the decline in the working-age population that has to be able to pay for the older generations pension benefits. Therefore, a heated topic that has been discussed recently is the possibility to prolong the time an individual spends at the labour market. Furthermore, it is also important to consider the restrictions of a prolonged time on the labour market. It is therefore important to identify and investigate the restrictions of a prolonged working-life, hence a later exit of the labour market. A prolonged time on the labour market can have a significant positive impact on the challenges that is faced with the demographic changes and it is therefore of importance to investigate the possibilities of how this can be achieved. Prolonging individual’s time on the labour market is also desirable since early retirements is not only costly for the individual but for the society at large. At a broad level, individual’s retiring early would lead to production loss that those individuals would have produced if they
would have worked. This leads to an economical production loss that consequently not only lead to a reducing a nation’s total output but additionally, a decreased government revenue (Anxo et al 2014).

There are many factors affecting an individual’s decision to retire. One factor that may affect an individual's decision to retire is the individuals working conditions. There exists limited research on how working conditions affect an individual's decision to retire. The existing research focus mostly on how working conditions affect health, therefore additional research needs to be conducted how working conditions affects the retirement age and the probability to work beyond the standard age of retirement, which this essay aims to explore.

The objective of this essay is to investigate how working conditions affects the retirement age and aims to explore if there exist differences in the effects between men and women. Our research aims to answer the question “Does working conditions affect an individual's retirement age?” and the question “Does the working conditions affect men and women's retirement age differently?” We answer these questions by using survey data amongst 20 000 seniors aged 65 or older in Sweden. The survey questionnaire used in this essay is conducted by Statistics of Sweden on behalf of Anxo et al 2017. A study conducted by Ivarsson (2014) have investigated this question about how working conditions affect the retirement age of an individual by using survey data of how the individuals themselves predicted their future retirement age. This essay will instead use data on which age the individual's actual age of retirement. This will give a more precise estimation than the predicted retirement age since it will use survey data of the actual outcome of the retirement age of the individuals. Ivarssons (2014) results showed that working conditions do have a significant effect on the individual’s predicted retirement age. She found that the physical working environment that includes heavy work has a negative impact on the individual’s predicted retirement age. Similarly, she found that psychosocial working environment with low control in combination with high demands have a negative impact on the individuals predicted retirement age. The opposite is found on high job satisfaction that has a positive impact on the retirement age. As mentioned our research will instead of the individuals predicted retirement age use their actual retirement age to investigate the question, thus, add additional evidence to existing research.

Another topic that has attracted research recently and which is highly related to earlier exits in the labour market is the interaction between working conditions, health and work. The
interaction between health and labour market outcomes have traditionally been very cautiously studied by economists due to the fact that they are interrelated. Since health can affect the labour market outcomes and labour markets outcome can in turns also affect health, hence they have a two-way causal relationship. The effect of working conditions on retirement age that this essay seeks to investigate is most likely affected through how working conditions affect the individual's health which in turns affect an individual's retirement age. Dwyer and Mitchell (1999) found that health problems influence retirement age and decrease the expected retirement age, which indicates that health is a factor related earlier to retirement age. Henseke (2018) study suggests that poor working conditions has a negative effect on health. These findings suggest that there is a link between working conditions and the retirement age through health. In this study, we begin to control for the individual's health by a subjective health-measurement by the data survey that is used. Thus, we can investigate how working conditions affect and individual’s retirement age given constant health.

To summarize the aim of the essay, it seeks to explore the effects of working conditions on the point of retirement. This essay begins by, first presenting trends and evolution of older and senior workers in the context of Sweden, in section 2. A literature review of previous research on the subject is presented in section 3. In section 4, factors affecting an individual's retirement decisions to retire beyond or earlier than the retirement age. Following section 4, we introduce the data description, in section 5. Our methodological approach takes part in, section 6. The result is presented in section 7, following a discussion in section 8. Finally, a summary and main conclusion is presented in section 9.

2 Trends and evolution of older and senior workers in the labour market in Sweden

Like many other OECD countries, Sweden has experienced a trend of earlier and earlier labour market exists amongst older workers, especially amongst men since women started to enter the labour market to a greater extent during that era and in contrast to the men started to increase their employment rate amongst older. This decline in work at older ages started in the 1970’s and persisted up until the mid 1990’s (Anxo et al 2012, Anxo et al 2017). Despite this trend, the employment rate amongst older (between the age of 55-64) in Sweden was in 2015 was as high as 73.3 per cent in Sweden for men and 66.7 percent for women. The employment rate amongst seniors (the age of 65 or older) have been increasing steadily
during the last decade and during 2015 it was 20.8 percentage amongst men and 12.2 percentage for women. During the last decade the employment rate amongst seniors and elders have increased by nearly 7 percentage points from 2005 to 2015 (Statistics Sweden, 2016).

Figure 1, presents an overview of the employment rate in Sweden amongst older women and men between the age of 55-64 in Sweden during the years 1970 until 2015. The pattern of a declining employment rate amongst older men (between the age of 55-64) in Sweden is clearly evident in figure 1. As mentioned, there are numerous factors for this trend such as lower statutory retirement age and an increased demand for leisure (Anxo et al 2012, Blöndal and Scarpetta 1999). By contrast, the employment rate of elderly women has steadily increased, and converged during the mid 1990’s with the employment rate of men. After the convergence, a gender gap in the older workers employment rate has been approximately 5 percentage points. This implies that females are less likely than men to work during this age. Additionally, after the great drop in the 1991 due to the severe economic recession, there has been a steady but slow increasing trend of the employment rates amongst older workers.

**Figure 1: Trends of the employment rate in Sweden amongst older women and men between the age of 55-64 years, Sweden 1970-2015**
The figure below (Figure 2) illustrates trends of the employment rate in Sweden amongst seniors, thus, those above the age of 65 (the age of 65-75) during the last decade (2001-2015). Since the beginning of the century the employment rate amongst seniors have been on the rise as seen in the figure below. The gender gap in employment rate amongst seniors is slightly greater than amongst those at the age of 55-64 but has slowly decreased compared to the older workers where the gap has remained. The employment rate amongst seniors have almost doubled during this period of time. For elderly females the increase in the employment rate went from 6.1 in 2001 to 12.2 percent in 2015.

Figure 2: Trends of the employment rate in Sweden amongst seniors between the age of 65-74, Sweden, 2001-2015

The increase in the employment rate amongst senior males is slightly smaller than the females during the same period with an increase from 13.1 to 20.8 percent during the same period (2001-2015).
The rising trend in the employment rate amongst elders and seniors, is not only found in Sweden but in several OECD countries (OECD, 2018). The main reason for this increasing trend in older workers employment rate is an increase in the educational attainment amongst the elderly population, as a consequence of the expansion of higher education during the 1960’s and 1970’s (Anxo et al 2017, Palme and Laun 2017:17). It is well established from a variety of studies that higher education is a strong indicator of later retirements (see e.g Venti and Wise, 2015). A second explanation for the rising trend is suggested by Palme and Laun (2017:17) that improved health amongst elderly is an additional contribution of the increased trend in employment rate amongst the elderly population in Sweden. Palme and Laun (2017:17) additionally found that pensions reforms during the time period between the mid 1990’s until today gradually introduced a contribution defined pension system could be an explanation for the trend. The pension system and institutional changes created flexible retirement age and benefit level that has generated incentives amongst older and seniors to postpone their retirement and exit the labour market later. This indicates that the new pension system, increased the economic incentives for workers to remain longer in the labour force. Palme and Laun (2017:17) additionally investigated if the improvements in the physical work environment during this time period could have been a possible explanation for the rising trend labour force participation rate. They found no indications that the rising employment rate is due to improvements in demanding jobs. Since, the time period where most of the improvements in the working environment happened earlier, between 1968 and 1991, when a decreasing trend of the employment rate amongst older and senior workers was observed. Finally, economic growth that the mid 1990’s sustained have had a positive impact on the employment rate amongst older (Anxo et al 2017).

3 Literature review

Previous research on the effect of working conditions or job quality on the retirement age is relatively limited. Most of the recent research focus on the effect of working conditions on health (Henseke 2018) or focus on specific occupations working condition or specific health outcomes (Salonen et al 2003, Sejbaek et al 2012). Some of the research that has attracted research recently focus on the effect of working conditions and other labour market outcomes such as employment and productivity (Barnay 2015, Elovainio et al 2017).
Blekesaune and Solem (2005) conducted a study in Norway using survey data on employees between the age of 60-67 with the purpose to examine the impact of working conditions on individual retirement. The results of the study indicate that disability retirement was related to physical job strains. Amongst, men low autonomy in job tasks was related to early retirements was found. Interestingly, this did not show a significant result on women. One reason for this result might be due to the fact that men and women have different preferences, since men tend to work in jobs with some individual autonomy. Consequently, men might be more affected by restriction in job autonomy. Blekesaune and Solem (2005) investigated the probability of disability retirement in this study which is a form of early retirement. Additionally, they find differences between men and women and finds that women are affected by physical work strains whilst they found no such association amongst men, hence, the probability of disability is higher amongst women working with physical strain. It is difficult to find an explanation for the difference but Blekesaune and Solem (2005) suggests that it perhaps might be due to that men can acquire such disability pension so easily that it might reduce the likelihood of accessing a voluntary pension which typically is lower. Another explanation they suggest is that men with hard physical work, typically work in the private-sector such as construction, where few are entitled to voluntary pensions. In contrast, women exposed to hard physical work tend to work in the public sector with occupations such as hospitals and nursing homes, where voluntary pension is available. Differences between men and women exiting the labour market and the effect of working condition shall not be overlooked. The literature implies that women are on sick leave more than men regardless of occupation, experience health issues to a larger extent than men and women exits the labour market earlier than men (Aronsson et al 2000:20, Swedish work environment authority 2014:4, Social insurance report 2011:11).

Kadefors and Wikmans (2011) investigation showed that there is a slight tendency for women to exit the labour market earlier than men regardless of occupations, however, this difference is very small. A possible reason for this finding might be that women usually are the younger spouse in a couple’s relationship and a strong predictor for retirement is if one’s spouse is retiring. That the difference between men and women are not larger can be due to the fact that women are more likely to work part-time and hence do not afford to retire earlier even though they would like to (Kadefors and Wikman, 2011). However, a report by the pension authority in Sweden’s data shows that the average retirement for women is higher than men, which suggests being due to that an earlier exit is more common amongst men (Carneck et al, 2017).
Physical workload has in many studies been found to be a large factor of disability retirement which is a form of early retirement. Karpansalo et al (2002) found that physical workload was associated with an increased risk of a retirement of disability pension. To estimate the effect of heavy workload Karpansalo et al (2002) used a cohort of 1755 men between the age of 42 to 65 and recorded their self-estimated physical workload. They connected their self-reported workload with their inclusive pension records and used a logistic regression to see the association between early retirement and physical workload. Another study that implies that physical working conditions plays a role in the age of retirement and investigates the effect of working environment on disability pension is a study conducted Lahelma et al (2012). They used data from the Helsinki health cohort of employees in the city of Helsinki which was connected to register data on disability retirement. They found that several working conditions was highly associated with disability retirement. After adjustment the result showed that the primary factor for disability retirement is physical work and low work control. The results imply that improving the physical working environment and enhance the control over one’s job could prevent disability retirement and hence early retirement.

Vermeer et al (2015) studies the public’s opinions on whether it is justified to retire earlier based on how demanding the work is. They used a Dutch survey for the investigation and find that the public believe that demanding jobs that are perceived as physically demanding should be able to retire earlier. Suggesting that the public believe that physical workload do have an impact on an individual's ability and/or willingness to be able to stay in the labour market for a long time.

Various studies have assessed the efficacy of psychological working conditions importance in determining the exits out of the labor force. In the psychosocial working environments previous research implies that the ability to control your work, high demands, a low social support mainly from upper positions in the workplace is associated with earlier exits of the labour market. Vester et al (2016) studied the importance of the psychosocial working environment on the retirement age. They investigated 16 different psychosocial work environment factors. The result of the study indicated that 10 of these factors did have a significant effect on earlier exits of the labour market. The psychosocial factors that were associated with early retirement were; low job satisfaction, low influence in job, low influence in job, low possibilities for development, low role clarity, perceived age
discrimination, low recognition from management, poor leadership quality and poor predictability. This indicates that high job quality can possibly increase the retirement age.

Dal bianco et al (2015) examines the importance of working conditions on the desire to retire as soon as possible and probability to transition from full employment to partially retired or fully retired. The study suggests that low quality work was correlated with the desire to retire as soon as possible. Similarly, the result showed that poor working quality was related to the actual decision to retire, however, the correlation was not as significant as the desire to retire. This indicates that an individual's desire to retire might be higher than the actual decision to retire.

Siegrist et al (2006) found that poor quality of work was associated with earlier intended retirement. They used data from the “Survey of Health, Ageing and retirement in Europe” (SHARE). Siegrist et al (2006) measured intended retirement by the individual's well-being that was measured by the individual's self-rated health, quality of life, depressive symptoms and general symptom load. The quality of work was measured by the demand control model hence the psychosocial work quality. They specifically studied the effort-reward balance and the individual's ability to control. The results imply that the psychosocial working quality did have a significant effect on intended retirement.

Empirical evidence implies that individuals with higher education have a tendency to stay longer in the labour market compared to individuals that are lower educated (Ballabye and Nielsen 2008; Blekesaune and Solem 2005; Elovainio et al 2005; Anxo et al 2014). There are various explanations to why higher education is a predictor of later retirement. According to Blekesaune and Solem (2005) one reason for this trend is that poor health typically affects the performance and capacity to work in jobs that require manual work more than non-manual work which higher educated usually work in. Another possible explanation can be that higher educated individual’s enter the labour market later than those with a lower education and therefore also exit the labour market later, hence retire at a later age. The time the higher educated spend in total in the labour market is less than the lower educated and the motivation and health might therefore last at a higher age compared to individuals with lower education. Alternatively, Anxo et al (2014) suggests that the explanations can be that those with higher education are more likely to have ergonomic working conditions and job control over their
own work. Furthermore, it can be due to that those with higher educational attainment are positively selected, thus are potentially more motivated and consequently retire at later age.

According to a report conducted by Statistics Sweden (2012) blue collar workers to a larger extent than white collar workers experience physical working conditions. For example, blue collar workers are more likely to be exposed to physical workload such as noise and heavy lifts. This group has also more health issues and is more likely to exit earlier from the labour market. On the other hand, sedentary and lack of physical exercise is also associated with health issues (Booth et al 2014). White collar workers are possibly more likely to be exposed sedentary at work which in turn can lead to earlier exits in the labour market. Dwyer and Mitchell (1999) focus on health as a determinant of the retirement and found that health is an important factor in determining in retiring. The study suggested that individuals with poor health retired one or two years earlier. The report by Statistics Sweden (2012) additionally indicates that white collar workers usually experience their work as stressful and more mentally strenuous to a greater degree than blue collar workers and at the same time experience that they have to manage a large amount of information. Karasek (1979) Job strain model describes how the psychological strains does not only result from a single aspect of the working environment, but a joint effect from demand of the work situation and the range of decision-making freedom available for the employee. Derived from Karasek (1979) Job strain model that will be explained in depth in section 4.1.2, high demands affect the work positively as long as the employee experience that they have a range of decision-making freedom available. Kadefors and Wikman’s (2011) study showed that white collar workers to a greater extent felt that the satisfaction that the work gave were of higher importance than the financial compensation they were given for their work. Since white collar worker exit the labour market later compared to blue collar workers it goes in line with previous studies and Karasek (1979) Job demand model that indicates that those who are satisfied with their work tasks are less likely to exit the labour market earlier.

Kadefors and Wikman (2011) conducted their study by using Swedish register data from Statistics Sweden from 1990 of individuals wages. They studied the differences of labour market exists and the length of working life of various occupations. They found that occupations that tops the list of disability retirement for men is occupations within the service industry, restaurant assistant, operative workers and tourist guides. Correspondingly, for women it is occupations in the service industry that tops the list for disability retirement,
followed by operative workers and occupation within the food industry (Kadefors and Wikman, 2011). An interesting aspect of Kadefors and Wikman’s (2011) findings is that those occupations that are usually perceived as typical female occupations such as restaurant assistant and tourist guides are those occupations that has the earliest retirement for men whilst the occupations with earlier retirement for women are those occupations that are usually perceived as typically male occupations such as operative workers and maintenance workers. An explanation for this interesting result for the men can possibly be due to that the men have attained work injuries and health issues during their work life in their initial occupation, thus change to another occupation that is less physically demanding. Due to that they change occupation they exit the labour market in another occupation which makes it seem like it is the occupation where they exit the labour market from that makes them withdraw earlier from the labour market and not their initial occupation. This leaves the more “capable” workers and those who are left in the occupation are positively selected in the initial occupation. The data can therefore give a skewed view of which occupations actually cause disability retirement. This phenomenon is known as “The healthy worker effect” because of the positively selection of the health status in certain occupation which cause a skewed view of how an occupation working condition can cause health status. This occurs because healthier individuals stay in occupation that might be strenuous for their health whilst those who are not change to less demanding occupations. The interaction between working condition and health status which in turn can affect the labour market exit is therefore complex to study because there exists a two-way causal relationship: employment has an impact on on health and health has an impact on employment (Barnay, 2015). It is therefore important to consider selection bias when studying the effect of working condition and point of retirement.

That occupations within the service industry tops the list of the occupations with the earliest labour market exit and shortest working life is not particularly surprising. The service industry has long been known for its bad working environment such as heavy lifts, repeating tasks and stress etc. (Swedish work environment authority, 2014:4). As mentioned psychosocial working environment is also an aspect that appears to be related in determining an individual's exit of the labour market. As well as demanding physical tasks, occupations within the service industry is also characterized by social contact in the form of customer contact which is associated with worse health which consequently can lead to earlier exits (Stattin 1998, Hooftman and Houtman 2010).
On the other hand, the occupations that are least affected by early retirement, according to Kardefors and Wikman (2011) for men, are specialist within biology and agriculture, higher officials and politicians and pilots. For women, it is executives and directors and similarly like the men it is followed by specialists in biology and agriculture as well as higher officials and politicians. These occupations have a tendency to stay longer in the labour market. A key feature that is shared amongst these occupations that are least affected is their higher educational attainment in contrast to those occupation that were mostly affected that attain lower education. As mentioned previously empirical research indicates that those with higher educational attainment tend to stay longer than those with lower educational attainment. This can be one possible explanation for the differences in retirement age between the occupation.

The occupational differences between point of retirement can also explain the gender differences in that matter. As previously mentioned women have a tendency to exit the labour market earlier than men. Occupational segregation characterized by gender is a well-known phenomenon. Occupational segregation is the tendency for men and women to work in different occupations (Levanon et al, 2009). Women tend to work in lower status jobs and occupation that involved in nurturing and expressive jobs whereas men are concentrated in jobs that acquire more technical ability and decision-making (Williams, 1991). Thus, female-dominated occupations that tops the list in the US according to United States labour department tend to be elementary and middle school teachers, nurses, secretaries and administrative assistance which are occupations that require much more social contacts. These occupations that do require more social contact is according to Stattin (1998) more likely to retire earlier than other occupations that involve less social contact.

Carr et al (2015) conducted a study using longitudinal data on 3462 workers aged 50-69 examining the role of psychosocial working environment on retirement timing. They found that decision authority was correlated with preferences for later retirement and reduced probability of labour market exit. Moreover, the results imply that low recognition at work was associated with increased odds of earlier work exits. However, some studies have found no such correlation between psychosocial working environment and retirement (Salonen et al, 2003). Although, Salonen et al (2003) did not find any psychosocial effect, they did find that physical workload seemed to be a factor affecting early retirement.
Elovainio et al (2005) studied whether early retirement can be explained by job demand and job control. The result goes in line with the theory of the job demand-control model by Karasek (1979) and indicates that job demand and job control are predictors of early retirement. Job demands was positively associated with predicted early retirement and job control was negatively associated with predicted early retirement. Similar like many of the existing research presented in this essay they have focused on how working conditions affect predicted or preferences retirement. More research therefore needs to be conducted on the actual outcome of the retirement.

The evidence reviewed in this section seem to suggest a pertinent role of working conditions in determining the point of retirement. However, studies remain narrow in focus only dealing with, specific occupations and/or using predicted or preferences of retirement. The studies presented in this section implies both push- and pull factors determining an individual's point of retirement. The following section will more go in depth in of the literature in this area. However, it is important to bear in mind that the division between push and pull factors of is not binary and there is room for interpretations.

4 Factors affecting an individual's decision to retire beyond or earlier than the retirement age

The literature review suggests that both push (e.g poor health) and pull (e.g leisure interest) factors influence the decision to retire. Push factors have been defined as negative consideration that induce older workers to retire such as, poor health or dislikes of one’s job. Pull factors on the other hand are typically seen as positive consideration that attract older workers toward retirement such as the desire to pursue leisure interest or other activities (Schultz et al 1998). Initially, these two concepts seem easily defined, when in fact there are different perception the concepts, hence, what is seen as a pull factor for one individual can be perceived as a push factor for another individual. Working conditions can be divided into pull and push factors. Good working conditions such as social support, latitude of decision-making can be seen as pull factors since it pulls individuals into remaining in the labour force whilst, bad working conditions such as high physical job strain can be perceived as push factors since it pushes an individual out of the labour force earlier.
4.1 Push factors

Push factors that pushes an individual to exit the labour market earlier have dimensions that can be related to physical, psychological, social and psychosocial factors. That the physical working environment is closely linked to an individual's health is a well-known fact, however it is not until recently that the psychosocial working environment have attracted research. The reason for research being recently attracted to this topic is due to number of sick leave associated with mental illness has increased dramatically during the last decade. According to Swedish Social Insurance Company (2017) almost half of the sick leave in Sweden is due to mental illness. For this reason, this section will first and foremost focus on the psychological working environment as well as the physical.

4.1.2 Working conditions

One of the factors that is discussed to be a determinant for an individual's decision in point of retirement is working conditions. There exist different theories that attempt to explain and analyze the role of working conditions in an individual's decision to retire. These theories usually consist of components such as, salary, the employees’ rights, to what extent the employee can affect their work, the employee’s ability to control and the type of employment. The magnitude of the affect the components have on the point of retirement is uncertain, and additional research needs to be conducted.

When it comes to salary, an assumption is that the employee aims for as high payment as possible, however according to the compensating wage differential theory develop by Smith (1976) there are other characteristics than an individual's salary that influence the labour-market equilibrium. In other words, there are situations where characteristics in one’s job can be compensated for a higher or a lower wage rate. Firms that offers unpleasant working conditions must offer some offsetting advantage such as a higher salary to attract employees and compensate for the unpleasant working environment. In contrast, firms that offer pleasant working environments get away with paying a lower wage rate and in effect making their employee’s pay for the pleasant working environment that they are offering (Smith 1976). The main reason to why firms instead choose to compensate workers with a higher salary instead of an improving their working environment is due to that compensating the workers can in many cases be less costly than improving the work environment (Brown 1980). Blanche and Debrand (2008) found that individuals that are unsatisfied with their wage have a tendency to want to retire earlier. Another study conducted by Lengagne (2010) finds that
older workers in demanding physical and psychologically working environments are not
compensated for this. Therefore, a factor that could increase the incentive for older workers
and seniors to stay longer in the labour market is to compensate them with a higher wage rate.
However, Ostman (2013) found that the financial compensation for work only has a small
impact of an individual’s satisfaction at work and suggests that the components that does have
a greater impact on an individual's satisfaction at work are ability to affect one’s work, safety
and interests.

Another factor that can be connected to the working environment is the type of employment
an individual has. Different types of employments can for example be linked to the risk,
uncertainty, control and stability the employee have. Uncertainty and risk appears in types of
employments based on a company's needs according to their production and sales, but also in
employments types such as precarious employments, where the employment runs for a
limited period of time. Individuals that are employed under these types of employment are
usually working when the production in the company is on its peak, hence are working when
the workload is high and leaves when the workload starts decreasing again. This increase the
workload amongst individuals that have these kinds of temporary employments and at the
same time creates an uncertainty for future incomes. This uncertainty and workload created
by precarious employments is equal to a lack of control for the employee which is the main
contribution to an earlier exit in the labour market, which this essay will discuss in more
depth in the next section (Korpi and Levin 2011). On the contrary, some of the research do
suggest that precarious employments affect the point of retirement in the opposite direction,
hence, lead to a later retirement (Livanos Nuñez 2017, Raymo et al 2011). This contradictory
result can be due to that older workers prolong their working life in order to cover their future
financial needs is of higher weight than the effect of the uncertainty and risk they are exposed
to.

However, Christansen and Nielsen (2009) conducted a study summarizing the results of nine
studies that investigating the role of working conditions and point of retirement that had an
interesting finding. They found a significant role played in working conditions and point of
retirement and similar to many other studies found that women are more likely to retire earlier
than men. Interestingly, women to a greater extent than men work part-time (Statistics
Sweden, 2014). This can be one explanation to why tend women retire earlier than and men,
hence, point to the direction that uncertain employment types affect the point of retirement negatively.

In conclusion, several lines of evidence support that different types of employment, and hence different types of uncertainty and risk do affect the point of the labour market exit, thus the point of retirement. Types of employment that includes uncertainty and risk leaves the employee with a less ability to control and less stability and can consequently, have a negative impact on the point of labour market exit.

4.1.2 Stress stresses the labour market exit

Another push factor that can lead to an earlier exit in the labour market is the presence of stress in a working environment. Psychosocial stress in the workplace can be derived from many different factors, although the most common reason is work intensification (high workload and work pressure). Higher workloads, greater work demands and time pressured shared by fewer workers can consequently, lead to an increased work stress amongst employees (Chandola, 2010). If the stress becomes long-lasting and too high, it can have serious consequences for the individual’s health and well-being. Another factors that can cause psychosocial stress in the working environment is low decision latitude hence how much control an individual has on their own tasks. These factors of work stress will be further described in this section.

It has long been known amongst researchers that low decision latitude and discretion creates a stressful working environment for an individual. Although, Karasek (1979) was the first one to develop a model including both of these components. This model is known as The Demand-Control Model or The Job Strain Model and have frequently been used in numerous studies that focuses on psychosocial working conditions in various occupations.

The Job Strain Model by Karasek (1979) postulates that the psychological strain such as stress do not only derive from a single aspect of the work environment, but instead mean that it is the joint effects of the demand in a workplace and the range of the decision-making available to the worker facing those demands. The key idea behind the model is that demands together with freedom in decision-making the are good since it enhances the employee’s job satisfaction with the opportunity to engage in challenging tasks and learn new skills. This
indicates that high demands itself is not harmful but in fact beneficial for the productivity of the employee if the employee have a freedom of decision-making to handle the high demands. The stress of high demands can however be harmful if the worker senses a lack of control over their responsibilities. Although, it is according to Karasek (1979) not optimal or desirable to increase the ability of discretion to an extent that is too high since it is only financially sustainable to a certain extent and thereby it will affect the productivity negatively due to slow and mistaken decision-making processes. Karasek (1979) tested his model with survey data from Sweden and the United States amongst individuals in different occupation and education where his model was confirmed, higher demands in combination with low decision latitude indicated higher job strains.

![Figure 3: The Job Strain Model (Karasek 1979)](image)

Karasek's (1979) model has generated a lot of research that confirms that high strain jobs may result in an earlier exit from the labour market (see e.g. Laine et al. 2008; Sigriest et al. 2006; Turcotte and Schellenberg 2005). Elovaino et al. (2005) examines if high job strains, hence the interaction between decision latitude and demands affect the intended retirement decision of an individual. Their findings suggest that the interaction effect of job demands, and job control did affect the thoughts on early retirements, hence supports Karaseks (1979) model. Similarly, Dal bianco et al. (2015) study described in the literature review, found that too much stress or so-called bad stress was highly correlated with being more likely of the desire
to retire earlier for both men and women. However, they did find that good stress reduced the probability of intended retirement but only for men.

The results observed above about the effect of stress on earlier exits in the labour market differs slightly from Blekesaune and Solem (2005). They studied the effect of working environments on disability retirement in 270 different occupations in Norway. The study combines survey for estimated job strains and income/security data from transition from work and retirement amongst 18,884 Norwegians between the age of 60-67. One of their findings indicated that psychological job stress may reduce non-disability retirement, hence reduce the likelihood of early retirement which contradicts the findings stated above. Interestingly, they even found that working in stressful jobs even delay non-disability retirement compared to those working in non-stressful jobs. The results are similar to those reported by Solem and Reidar (1997) who also found that a smaller likelihood of earlier retirement amongst those that experience high levels of stress at work. According to Blekesaune and Solem (2005) an explanation to these findings can be that job stress reflect some degree of inclusion and appreciation that may stimulate older to remain in the labour market a longer period of time. Another possible explanation to these results can be due to the selection bias that might exist in the data used in the studies, since the most motivated workers may choose to work in more challenging occupations which can be assumed to include a higher level of stress. More motivated workers might also have a higher incentive to choose work in front of leisure thus, remain longer in the labour market. The relevance of stress in the role of retirement is clearly supported in these studies, although the results differ in the direction the role of stress have.

4.1.3 Low social support stresses the labour market exit

The availability of social support from co-workers and supervisors have been found to be an important factor in an individual's wellbeing. Social support in the working environment can therefore be a factor that affects an individual's decision on point of retirement. Social support can occur in many different forms. It can for example be support from one’s employer in completing a challenging task or social interaction between colleagues. Previous research has established the importance of where and whom the social support comes from. The support from higher executives seem to have a particular positive impact on an individual’s well-being (Kossek et al 2011; Krause 1997: Carr et al 2015).
Krause et al (1997) explored predictors of disability retirement by using data from 1083 Finnish men who participated in a 4-year follow-up medical examination. The result of their study implied that the ability to communicate with co-workers and social support from tended to reduce the risk of disability retirement. However, this study only used men. Another study that used both men and women is Soidre (2005). Soidre (2005) investigated retirement preferences amongst older between the age of 55-64 in Sweden. The study found that a socially-rewarding job for men tended to keep them in the labour force. The results interestingly enough did not find a direct effect on women. This difference could possibly be explained by the fact that women have a larger economic incentive to stay in the labour force because of the reason that they usually earn less than men, but since the difference remain even though they did control for socioeconomic status, this explanation is unlikely. This result indicates that social-rewarding job for men work more as a pull-factor to stay hence implying that a low social support work as a push factor.

Elovaino et al (2003) found that low social support was associated with low retirement preferences. Implying that low social support work as a mechanism of a push factor. Although, Elovaino et al (2003) found that this effect was only significant for women which is opposite to Soidre (2005) findings who the effect only significant for men. They found that the lack of social relations was associated with a low retirement amongst women. The contradictory results in the differences between the gender may be due to difficulties in predicting the preferences since the studies are based on survey data, since predictions can differ between individuals and cultures.

So far in this section, a high social support has been indicated to have positive effect on an individual’s well-being. However, there are researcher suggesting that social support does not have a direct positive effect but instead claims that a high social support from colleagues and executives inhibits the negative effects in a working environment that can increase the risk of health issues (Karasek and Theorell 1990; Krause et al 1997). The opposite hence a low or a lack of social support has however been found to be associated with an earlier exit in the labour market and health issues (Johnson and Hall 1988; Carr et al 2015).

The relevance of social support in affecting the timing of the retirement is clearly supported by current studies; hence a good social environment in one’s workplace increase the
likelihood to a later exit from the labour market whilst a low social support is more likely to result in an earlier retirement.

4.1.4 High physical job strain stresses the point of retirement

There is a consensus amongst researcher that physical demanding jobs increases the likelihood of health problems, which consequently increase the probability of earlier retirement (Krause et al 1997; Carr et al 2015; Lahelma et al 2012). This section will summarize the research about physical factors effect on point of retirement that already has been discussed in the literature review section in this essay. Physical demanding jobs that are associated with earlier exits in the labour market are work such as heavy lifts, monotone and repetitive tasks, loud noises (Anxo et al 2014; Krause et al 1997; Lahelma et al 2012).

The literature on differences between the genders in the effect of physical job strain on point of retirement, suggests inconclusive results. Some studies suggest that there is a stronger correlation amongst men. This can be due to the fact that men that to a greater extent tend to work in occupations that requires a high physical job strain (Bleksaune and Solem, 2005). Although, the study conducted by Bleksaune and Solem (2005) did not control for financial incentives and that might be the reason for the differences, because women usually earn less, thus might have an higher incentive to remain longer in the labour market. However, Lahelma et al (2012) found no significant differences between physical job strain amongst men and women.

Lahelma et al (2012) investigated working conditions as a risk factor for retirement by using data derived from the Helsinki Health Study cohort with data linked with register data on disability retirement. Lahelma et al (2012) investigated the effect of physical factors such as exposure of Hazardous and physical workload and found a strong correlation between physical factors and disability retirement

Sejbaek et al (2012) studied the effect of working conditions on intended retirement in the eldercare sector. Their study included 2444 employees that were between the age of 45-57. They found that only 14 percent of the participant intended to retire at the normal retirement age hence, the age of 65. The result of the study indicates that high physical strain and low or normal affective organizational commitment were highly related to intended early retirement.
Similarly, van den Berg et al (2010) found that high physical work demands, high work pressure, low job satisfaction was of high importance in determining early retirement. They conducted a systematic review of longitudinal studies on factors for non-disability early retirement. Additionally, they conducted seven focus group interviews about planning early retirement and incentives to stay longer in the labour market.

Even though the literature clearly indicate that physical workload does have a negative impact on the point of retirement, sedentary and lack of physical exercise is also associated with health issues (Booth et al 2012) which are also physical working conditions that can affect retirement and shall not be overlooked. In summary, the literature review indicates that physical working condition play an important role in determining an individual’s point of retirement.

4.2 Pull factors
This section will present some relevant pull-factors that can affect the point of retirement.

4.2.1 The retirement decision from a financial and economical perspective
The financial aspects of influencing an individual’s decision to retire play a vital role, since an individual’s pension depends on the individual’s earnings during their working career. This means that an individual’s decision to retire earlier than the statutory pension age will affect their income negatively during their retirement hence, the amount of pension received (Swedish pension Agency, 2018). An individual’s wealth or non-labor related income is an additional component that affects the decision of point of retirement. The greater an individual’s non-labor income is the greater the incentive is for an individual to retire early, assuming leisure is a normal good. The higher the non-labor income is the higher the incentive is to choose leisure over work. This effect is known as the income effect and is based on fundamental labour market economic theory. On the other hand, a high labour income have two effects that pulls in two conflicting directions and depending on which effect is dominant, it can either increase or decrease the incentive to retire. This means that a high-income individual can as a result have a decreased incentive to retire due to the fact that leisure has a higher alternative cost if the substitution effect is dominant. An alternative result is if the income effect is dominant implying that high income individuals have an increased
incentive to retire because they can afford to retire earlier and enjoy the reward of their income in form of an increased leisure time, hence earlier retirement (Becker, 1965). As mentioned in the literature review section, individuals with higher educational attainment tend to stay longer in the labour market and is also the group that have a high labour income, this implies that the income effect is more likely to be the dominated effect. Stenberg and Westerlund (2013) evaluates the effect of education of the timing of retirement by using Swedish longitudinal population register data. They found that increases labour market survival amongst olders between the age of 61-66. However, Soidre (2009) found that higher educated men, that probably also had a higher income were more likely to retire earlier than those that had a lower educational attainment.

Men and women have different financial prerequisites. Women have according to Statistics Sweden (2016a) on average a lower income and pension than men even though women are included and representable in the Swedish labour market men and women’s work are distributed differently. In Sweden, women spend on average one hour per day more than men on “unpaid work” such as childcare and household duties while men spend on average 1,5 hour more on paid work. Women work part-time, take longer parental leave and take care of sick children to a larger extent than men (Statistics Sweden 2016). These factors are of high importance in determining the accumulated income during an individual’s working life which can lead to that some women are forced to prolong their time in the labour market since they do not have the same financial prerequisites as their male equivalent. Although, the literature strongly suggests that women tend to retire earlier than men.

Recession is an economical factor that both nationally and internationally have been indicating to affect the timing of retirement negatively, hence tend to stress the retirement age of individual’s (Dorn and Sousa-Pouza 2005). This is evident in figure 1 when the trends of the employment rate amongst older worker was discussed were there was a huge drop in the employment rate in 1991 were the severe economic crisis took place. During a recession firms tend to mainly want to cut down on their employment costs. Therefore, in a recession firms tend direct workers toward retirement. As a matter of fact, the option to continuing working might be so restricted by firms restricted by firms that no longer perceive their early retirement as a choice, but a forced decision. There are numerous of reasons for an employer to choose to direct the older workers towards retirement rather than cutting down the employment costs amongst the younger. The older workers usually have a higher wage rate
than the younger and they can therefore be perceived to be costlier than the younger in comparison to their productivity. It can also be seen from a long-run perspective an employer choosing to leave room for the younger that are more profitable in the long-run. However, directing individuals to retirement can also be costlier than for example firing individuals. The reason employers still choose this approach is because retirement is a more socially acceptable both by the society and the employees and can thus be less costly in the long-run.

Early retirement is usually explained by supply side phenomena, there exists limited research on the effect of the demand-side. Recessions affect the labour market demand and it is therefore interesting to additionally review the effect on the demand of labour on the point of retirement. Dorn and Sousa-poza (2005) investigated how demand of labour and effect on the of early labour market exits. They used international microdata covering 19 industrialized countries. The result indicated that generous early retirement provisions of the social security system do not only make voluntary early retirement more attractive, but also induce firms to encourage more employees to retire early. The study additionally suggested that the risk of early retirement was higher in periods with higher levels of unemployment.

4.2.2 Institutional and legal framework as a determinant for the decision to retire

A large body of the economic literature have analyzed the retirement decision based on an assessment of future streams of wages and pension from public resources. The literature indicates that the timing of the exit in the labour market is dependent on the composition of the pension system (Sjögren and Wadensjö 2009). The theoretical prediction assumed is that a more generous availability of early retirement decision will increase the incidence to retire earlier (Blöndal and Scarpetta 1998; Duval 2003). Hence, a generous early retirement pension makes voluntary early retirement for individuals. There are many models and research that points at the importance of private and public pensions, for example; classical life cycle models such as Gordon and Blinder (1980) and Gustman and Steinmeier (1986). Börsch-Supan (2000) conducted a study investigating the European countries pensions system and social security. Börsch-Supan (2000) found that most European pension systems provide strong incentive to retire early.
However, this also implies that how the pension is affected by early retirement is in many cases a determinant factor of an individual’s decision to exit the labour market. An early retirement can consequently lead to a smaller pension and can therefore also increase the incentive to postpone labour market exit. A frequently used policy that sets incentive to postpone retirement and increase labour force participation amongst older is a benefit reduction for retirees. Hanel (2008) studied the effect of a benefit reduction for retirees by analyzing a pension reform in Germany that was introduced permanent benefit reductions for early retirees. Hanel (2008) found that the permanent reduction of the retirement benefits postponed the retirement by approximately 15 months.

There have been reforms in the pension system that overall aims to lower the incentive towards an early retirement. Over a long period of time policies provided strong incentives for older workers to retire early. Although, for many of the industrialized countries since 1980’s policies have gradually change towards policies that instead decrease the incentives to retire early and attempt to increase the incentives to stay longer in the labour market. These reforms include components such as financial compensation for those that stay longer in the labour market, increasing the statutory retirement age and lower pension for those that retire earlier than the normal retirement age. Although, an important notable effect these institutions have is that the social security laws and the pension system do not affect all individuals similarly. This gives individual’s different incentives to either leave early or stay longer in the labour market (Sjögren and Wadensjö 2009).

There are also legal frameworks than can affect an individual’s decision to their point of retirement. Age discrimination is a factor that can push an individual out of the labour market earlier than intended. Previous studies have identified the existence of age discrimination in the labour market (Carlsson and Eriksson 2017:8; Duncan and Loretto 2003). A study conducted by Snape and Redman (2003) found that age discrimination was correlated to earlier intended retirement. Although, A study conducted by Bayl-Smith and Griffin (2014) investigated if age discrimination was associated with earlier intended retirement and found no evidence. However, age discrimination laws, as non-discrimination law more generally, can be legal frameworks that positively affects the labour market exists, hence postpone them. In Sweden, non-discrimination laws have been highly influenced by EU laws non-discrimination law. The non-discrimination law, implies that an employer may not discriminate a person who with respect to the employer, is an employee (Anxo et al, 2017). A
study conducted by Adams (2004) investigated if legislation against age discrimination did have an effect on the employment rate and did not find any significant evidence. Hence, the efficiency of the non-discrimination laws can be questioned.

4.2.3 Family situation and social norms influencing the retirement decision

Family situations or family obligations and marital status are factors that are of high importance in an individual’s decision, determining point of retirement. Those who are married or have a spouse have a preference of retiring at the same time as their significant other. This can mean a higher labour market exit for the significant other that is older in a couple’s relationship or an earlier exit for the spouse that is younger in the relationship (Sjögren and Wadensjö 2009). Ho and Raymo (2009) examined the extent to which joint retirement expectations were realized. The result indicated that between 20% and 30% dual couples retire jointly. Similarly, this mutual dependence of spouse’s retirement decision is significant in many studies (Kim and Moen 2002; Szinovac 2002). Radl and Himmelreicher (2015) analyzes the impact of marital status and spousal employment on the timing of retirement in Germany and Spain. They use data drawn from a 2006 special retirement module implemented analogously in national labour force surveys. The result in Germany indicated that married individuals with a retired spouse had a higher propensity than individuals with a working spouse to retire.

Family situations or family obligations is as mentioned an additional factor that may affect the timing of retirement. In some countries it is common that the olders take care of their grandchildren and their even older relatives, this can be a determinant factor that pulls a worker into retirement (Sjögren and Wadensjö 2009). Szinovacz et al (2001) studies the importance of family obligations on point of retirement. Family obligations included factors such as ill relatives and children. They found that older workers with more contact with their children where more prone to retire earlier. Their findings suggest that family obligations had an important role in determining the point of retirement.

Social norms and traditions can also have an impact on the timing of retirement and shall not be underestimated. Social norms are what is perceived as normal by the individual and the society. If the statutory retirement age is 65 then it is not only expected by the individual to
retire at that age but also by the society even though the individual could continue working beyond the retirement age (Sjögren and Wadensjö 2009).

5 Descriptive data

The population sample used in this essay include all individuals living in Sweden in 2012 that were between the age of 63 and 74 (i.e individuals that are born between 1938 and 1949). These twelve cohorts were retrieved from Statistics Employment Register (Sysselsättningsregister) for the behalf of Anxo et al (2017) including 985 504 individuals. From this population of senior citizens, a stratified random sample of 20 000 individuals were drawn. These individuals were then linked to a set of socio-economic variables, from Statistics Sweden LISA (Longitudinal Integration database for health insurance and Labour market studies) which included information such as their work trajectory, income and life history. To complete the information retrieved from LISA, Statistics Sweden conducted a survey on the behalf of Anxo et al (2017), a postal survey addressed to the 20 000 randomly selected individuals. These surveys contained two questionnaires one for Leavers hence those leaving the labour market at 65 or earlier and Stayers, hence those staying in the labour market beyond the age of 65.

After elimination of those who did not answer the questionnaire accurate or had incoherent answer, the final sample consists of 12 400 individuals. The questionnaire includes questions about the individual’s working conditions which will be used as the explanatory variables in this essay. The working conditions variables used will be questions about just before the individual’s in the sample retired if the retired at the age of 65 or earlier, the Stayers working conditions are measured at the age of 64 to measure the working conditions at approximately the same time.

The literature review suggests that women generally retire earlier than men. Diagram 1, shows the distribution of the point of retirement of the sample in percentage, with the weighted average. The weighted average is for the sample to reflect the population since one of the problems of survey data is non-response. Non-response might cause some groups to be over or under-represented and self-selection, to avoid these problems and enable reliable conclusions weighted average is used and all of the data descriptions will be in weighted average. From diagram 1 it is evident that more women retire earlier than the norm, hence the age of 65. The distribution amongst the women that retire earlier than 65 is as high as 45,83%
whilst the distribution amongst men retiring earlier than 65 is 38.3%. The distribution amongst those exiting the labour market beyond the age of 65 hence *Stayers* are significantly higher amongst men with a distribution of nearly 32% compared to the women with a distribution of nearly 20%. These goes in line with previous literature that do suggest that men are more likely to stay longer in the labour market in comparison to women.

**Diagram 1: Distribution of the respondents by category**

In percent, weighted average.

![Diagram showing distribution of respondents by category](image)

**Source:** Own calculations, based on the LISA register data from Statistics Sweden and the Survey questionnaire made on behalf of Anxo et al (2017)

Table 1 below, displays descriptive statistics of estimated means for *Early Leavers*, *Norm* and *Stayers* for the sample with weighted average. *Early leavers* refer to individual’s in the sample that retired earlier than 65. *Norm* refers to those that retire at the age of 65. *Stayers* refer to those that exit the labour market beyond the age of 65. In this essay, these terms will from now on be used to describe the outcome of the retirement choices of individuals. These will also be the dependent variable in this essay. The first variables in table 1 state the estimated mean of the control variables in that will be used in the ordered logit model that will be explained in depth in section 6. Amongst these we have included the health as a controlled variable that is a dummy variable as “bad health” where 1 is bad health and 0 is good health. The health is measured by the respondents self-reported answers about their health status in retro perspective during the time before retirement for the *Early leavers* and *Norm* whilst the *Stayers* health status is measured by what their health status was when they...
were the age of 64. The estimated mean for “bad health” is significantly higher for Early Leavers with an estimated mean value of 0.214, in contrast to Stayers that have a mean estimated value of as low as 0.0425, which indicates that the Early Leavers on average have a worse health in comparison to the Stayers. The control variable additionally includes the area occupations of the individuals.

The estimated means of the explanatory variables are the working conditions and are measured by the survey questionnaire. The estimated mean of physical demanding job is not surprisingly, significantly lower amongst Stayers with a mean of 0.327 whilst Early leavers have an estimated average of 0.415, since the literature do suggest that physical demanding jobs are more likely to lead to earlier retirement. However, the estimated mean for Norm is as high as 0.451 which is higher than the estimated average for Early leavers which contradicts the literature review that individuals with physical demanding jobs are more likely to choose to retire earlier. However, this together with the other explanatory variables will be further investigated in the results and analysis with the help of regression models. All of the means are stated in Table 1.

**Table 1: Descriptive Statistics, Early Leavers, Norm (retire at the age of 65), Stayers**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean All</th>
<th>Mean early leavers (earlier than 65)</th>
<th>Mean norm (65)</th>
<th>Mean stayers (beyond 65)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>68.102</td>
<td>68.236</td>
<td>68.346</td>
<td>67.471</td>
</tr>
<tr>
<td>Control variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex (1=m men, 0=women)</td>
<td>0.493</td>
<td>0.446</td>
<td>0.457</td>
<td>0.609</td>
</tr>
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<td>Cohort 1942-1945</td>
<td>0.360</td>
<td>0.356</td>
<td>0.382</td>
<td>0.340</td>
</tr>
<tr>
<td>Cohort 1946-1949</td>
<td>0.366</td>
<td>0.356</td>
<td>0.0326</td>
<td>0.445</td>
</tr>
<tr>
<td>Cohort 1938-1941</td>
<td>0.274</td>
<td>0.288</td>
<td>0.293</td>
<td>0.215</td>
</tr>
<tr>
<td>Foreign born</td>
<td>0.0963</td>
<td>0.0961</td>
<td>0.0929</td>
<td>0.0982</td>
</tr>
<tr>
<td>Married</td>
<td>0.656</td>
<td>0.677</td>
<td>0.649</td>
<td>0.633</td>
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<tr>
<td>Low education</td>
<td>0.259</td>
<td>0.284</td>
<td>0.280</td>
<td>0.189</td>
</tr>
<tr>
<td>High School</td>
<td>0.437</td>
<td>0.451</td>
<td>0.462</td>
<td>0.379</td>
</tr>
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<td>College, University</td>
<td>0.291</td>
<td>0.259</td>
<td>0.252</td>
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<td>Post Graduate</td>
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<td>0.00573</td>
<td>0.0336</td>
</tr>
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<td>Private Pension</td>
<td>152.508</td>
<td>162.070</td>
<td>131.331</td>
<td>164.568</td>
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<td>Labour income</td>
<td>2.618</td>
<td>2.570</td>
<td>2.349</td>
<td>3.0371</td>
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<td>Capital income</td>
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<td>0.121</td>
<td>0.0337</td>
<td>0.225</td>
</tr>
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<td>0.120</td>
<td>0.0654</td>
<td>0.0615</td>
<td>0.278</td>
</tr>
<tr>
<td>health (1 bad health 0 good health) before retirement or at age 64 for stayers</td>
<td>0.142</td>
<td>0.214</td>
<td>0.131</td>
<td>0.0425</td>
</tr>
<tr>
<td>---</td>
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<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Duration of unemployment</td>
<td>46.369</td>
<td>41.375</td>
<td>56.440</td>
<td>41.547</td>
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<td><strong>Area of Occupations</strong></td>
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<td></td>
<td></td>
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<td>Public sector</td>
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<td>0.408</td>
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<td>0.310</td>
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<td>Agriculture</td>
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<td>0.00406</td>
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<td>Water supply sewage and waste</td>
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<td>0.0389</td>
<td>0.0554</td>
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<td>Hotel and resturant</td>
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<td>0.0223</td>
<td>0.0301</td>
<td>0.0125</td>
</tr>
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<td>Media</td>
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<td>0.0496</td>
<td>0.0340</td>
<td>0.0294</td>
</tr>
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<td>Bank and finance</td>
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<td>0.0590</td>
<td>0.00761</td>
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<td>Law and economics</td>
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<td>0.0373</td>
<td>0.0910</td>
</tr>
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<td>0.0990</td>
<td>0.112</td>
<td>0.111</td>
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<td>Health sector</td>
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<td>0.2</td>
<td>0.200</td>
</tr>
<tr>
<td>Culture recreation sport</td>
<td>0.0251</td>
<td>0.0170</td>
<td>0.0207</td>
<td>0.0418</td>
</tr>
<tr>
<td><strong>Explanatory variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical demanding job</td>
<td>0.404</td>
<td>0.415</td>
<td>0.451</td>
<td>0.327</td>
</tr>
<tr>
<td>Psychologically demanding job</td>
<td>0.642</td>
<td>0.673</td>
<td>0.623</td>
<td>0.623</td>
</tr>
<tr>
<td>Possibility to Combine work and family</td>
<td>0.326</td>
<td>0.350</td>
<td>0.309</td>
<td>0.311</td>
</tr>
<tr>
<td>Possibility to choose when to work</td>
<td>0.610</td>
<td>0.350</td>
<td>0.572</td>
<td>0.759</td>
</tr>
<tr>
<td>Possibility to choose how to work</td>
<td>0.802</td>
<td>0.754</td>
<td>0.800</td>
<td>0.759</td>
</tr>
<tr>
<td>Working under time pressure</td>
<td>0.783</td>
<td>0.785</td>
<td>0.784</td>
<td>0.788</td>
</tr>
<tr>
<td>Monotone tasks</td>
<td>0.238</td>
<td>0.277</td>
<td>0.251</td>
<td>0.163</td>
</tr>
<tr>
<td>Good social cohesion at work</td>
<td>0.900</td>
<td>0.905</td>
<td>0.916</td>
<td>0.880</td>
</tr>
<tr>
<td>Social with coworkers outside work</td>
<td>0.660</td>
<td>0.688</td>
<td>0.659</td>
<td>0.619</td>
</tr>
</tbody>
</table>
The explanatory variables physical demanding job, psychologically demanding job, possibility to combine family and work, possibility to choose when to work, possibility to choose how to work, working under time pressure, monotone tasks, good social cohesion, social with coworkers outside of work, are measured by the question: “To what extent do you perceive that your previous working environment matches the following statements?” with the alternatives to answer:

- Not at all
- Partially agree
- Completely agree
- Not relevant

From the respondent’s answers of these alternatives a dichotomous variable is created of each statement. Where the variable is 0 if the respondents have answered “Not at all” or “Not relevant” and the variable is 1 if when the respondents have answered “Partially agree” or “Completely agree”. All the survey questions of the explanatory variables in both its original form (Swedish) and translated into English along with how each variable is defined can be found in Appendix A in the last section of this thesis. The explanatory variables working hours and unsocial hours is measured by number of hours per week. Tenure is measures by the number of years.

Diagram 2 illustrate the distribution of the respondent’s answers in the working conditions, in percentage by category; Early leavers, Norms and Stayers. The diagram displays the distribution frequency of the respondent’s answering 1 for the statements explained above,
hence the percentage of participants agreeing to the working condition. Although, the variables tenure, working hours and unsocial are stated in years and hours and are not designed in a dichotomous variable. In the descriptive data in diagram the variable tenure measures the percentage of respondents being more than 25 years in the same working place. The variable working hours measures the percentage of respondents working more than 40 hours per week. From the diagram it is evident that the percentage of respondents with a psychological demanding job is significantly amongst the Early leavers compared to both Norm and Stayers which goes in line with what Karaseks (1979) demand-control model. Similarly, choosing when and how to work is of higher percentage amongst the Stayers and lowest amongst the Early Leavers which reflects the findings from previous research that highlight the importance of an individual being able to choose when and how to work, in prolonging an individual’s retirement decision.

Although, the most surprising about the data in the diagram are the variables unsocial hours, working hours, possibility to combine work and family, good social cohesion and social with coworkers outside work. Firstly, the unsocial hours are of higher percentage distribution amongst Stayers, however the Early Leavers have a higher percentage frequency of individuals compared to the norm. This means that the respondent’s that retire at the age of 65 are the individual’s that work the least unsocial hours. Since we see this trend in unsocial hours it is not surprising that the pattern also applies for the percentage of individuals working more than 40 hours, since the unsocial hours might be due to working above the “normal” number of hours during a week which is 40 hours. The percentage of Early leavers that have the possibility to combine work with family life is the highest amongst the three groups. This result is striking since family obligations is a determinant that has been found to have being able to combine this would then more likely postpone the labour market exit.

Finally, the variables good social cohesion and social with one’s coworkers is interestingly the lowest amongst the Stayers, although this percentage difference is very small compared to the Norm and the Early leavers. This is interesting since the literature review suggest that low social support, hence social support from executives and coworkers increases the likelihood of earlier retirement, hence, this contradicts the previous research. However, previous research mainly suggests that low social support has a negative effect and there exists limited research on the effect of how a high extend of social support effects the and individual’s decision to retire.
Diagram 2: Distribution of the respondents on working condition by Category

In percentage, weighted average

Source: Own calculations, based on the LISA register data from Statistics Sweden and the Survey questionnaire made on behalf of Anxo et al (2017)

Diagram 1, showed that the women generally retired earlier than the men in the sample, weighted average. Therefore, it would be interesting to see the differences between how the women and men answered on the different variables of working conditions. Diagram 3, illustrates the percentage frequency of the respondent’s answer in working conditions based on their gender. Women have a significantly lower percentage that are in leading positions compared to the men and similarly, the distribution of women having the possibility to choose when and how to work is also significantly lower. Although, the men are more likely to work more hours which is not surprising since the previous diagram showed that the Stayers were more likely to work more hours and to a higher extend also more likely to work unsocial hours. It is important to be cautious drawing these conclusions since women and men might have different preferences towards what working conditions is of highest importance which in turn can affect their decision to retire differently.
Diagram 3: Distribution of the respondents on working condition by men and women

In percentage, weighted average

Source: Own calculations, based on the LISA register data from Statistics Sweden and the Survey questionnaire made on behalf of Anxo et al (2017)

6 Methodology

6.1 Model specification

The aim of the essay is to investigate the effect on working conditions on the point of retirement with the explanatory variables of the working conditions explained in the descriptive data section, hence, based on the LISA register data from Statistics Sweden and the Survey questionnaire. The dependent variable will be point of retirement based on the category’s Early leavers, Norm and Stayers. The control variables that are additional information, are variables that affect’s individual’s decision to retire which are independent to the explanatory variables, hence the working conditions. The choice and relevance of control variables and explanatory variables based on the literature review. All the variables are stated in table 1 in the descriptive data section.

As mentioned previously, the dependent variables have three outcomes; Early leavers, Norm and Stayers. Due to the fact that the traditional linear regression analysis, thus the OLS-method, is appropriate to apply when the dependent variable is measured on a continuous scale, this method is therefore not suitable in this case. The dependent variable is in this dataset categorial, i.e. discrete. A more appropriate method to use in this case would
accordingly be a logit regression. A logit regression can calculate for categorial dependent variables. However, a logit regression is appropriate to conduct when the dependent variables is binary and in this case the outcome consists of three different outcomes. A model that is similar to the logit model but can take on more than two categorial outcomes and additionally considers the ordering of the categories is the ordered logit model. An ordered logit regression model considers the different outcomes as well as the order of the dependent variable since the retirement can be seen is as in orders stepwise and will be the method used in this empirical method. The starting point of an ordered logit model is an index model, with single latent variable \((y^*)\), which means that it is unobservable, and it is only known when it crosses the threshold which is the point of retirement in this case. The index model is defined as the following:

\[
y^*_i = x_i^\prime \beta + u_i,
\]

Where \(x\) here does not include an intercept. As \(y^*\) crosses a series of increasing unknown thresholds we move up the ordering of alternatives. For example, for a low \(y^*\) the point of retirement is below the age of 65 (Early leaver), for \(y^* > \alpha_1\) the point of retirement increases to Norm, hence 65, and finally for \(y^* > \alpha_2\) the point of retirement increases to Stayers, hence above the age of 65. In general, for \(m\)-alternatives ordered model is presented as the following:

\[
y_i = j \text{ if } \alpha_{j-1} < y^*_i \leq \alpha_j.
\]

Where \(\alpha_0 = -\infty\) and \(\alpha_m = \infty\), then:

\[
\Pr[y_i = j] = \Pr[\alpha_{j-1} < y^*_i \leq \alpha_j] = \Pr[\alpha_{j-1} < x_i^\prime \beta + u_i \leq \alpha_j] = \Pr[\alpha_{j-1} - x_i^\prime \beta < u_i \leq \alpha_j - x_i^\prime \beta] = F(\alpha_j - x_i^\prime \beta) - F(\alpha_{j-1} - x_i^\prime \beta),
\]

where \(F\) is the cumulative distribution function of \(u_i\). The regression parameters \(\beta\) and the threshold parameters \(\alpha_1, \ldots, \alpha_{m-1}\) are obtained by maximizing the log-likelihood. By using this model, it will be assumed in this case that the crucial threshold for an individual’s decision to retire is the age 65, hence retiring at the age of 64.5 will be perceived as retiring early, thus early leavers even though these are very close in age. The ordered logit will be presented in the essay by the marginal effects. The marginal effects will be calculated together with the regression analysis since the marginal effects simplifies the interpretation of the results and
calculated through the Statistics program STATA. Additionally, all of the variables in the regressions presented will be conducted in sample weighted average to reflect the population.

To enable to see if working conditions, thus the explanatory variables, effects men and women differently, this essay will conduct the model with restrictions one specification where the sample only consists of women and one with men. We have previously discussed that men and women might have different preferences in what type of working condition is the most important to stay longer in the labour market.

6.2 Improvements of the model

The number of variables used in this dataset are many, thus, it is of great importance, to make sure that the variables are of relevance and are not correlated to one another, also known as multicollinearity. A large number of variables in a model can be aimed to be reduced to enable interpretations of the results without it causing over specification, that tends to have less precise estimates. The main issue with a large number of estimates is multicollinearity. Multicollinearity is when two independent variables are correlated to one another. This can occur when two variables explain a similar matter or when two variables are highly correlated. An example can be that a certain occupation might be highly associated to a certain working condition, such as working within construction might be associated with the variable physical demanding job. Another example of two variables in this dataset that might be highly correlated is leading position and the possibility to choose when and how to work since individual’s in leading position might have the influence to effect how and when they shall work. Multicollinearity may not be problematic if it is moderate. However, it can be an issue if severe multicollinearity is present, since it can increase the variance of the coefficient estimates and make the estimates sensitive to minor changes in the model. Consequently, the coefficient estimates in the model can are unstable, hence difficult to interpret.

When high multicollinearity is present, the t- statistics tend to be very small and confidence intervals tend to very wide, which can lead to the coefficient to be insignificant with a p-value higher than 0.05. However, it is important to bear in mind that a higher p-value does not necessarily mean that multicollinearity is present. Another way to detect if multicollinearity is present in the model is to try slightly different specification of a model, to see if adding and/or dropping variables results in different shift in the estimates. Therefore, some different
specifications will be conducted in of the ordered logit model that will be discussed in more detailed in the results and analysis section. Some of the different specification can be found in the appendices and will then be specified and discussed in the essay where it can be found.

In this method, health will be controlled for in the model to avoid the result to be distorted due to the fact that individuals with worse/better health might be convened in certain kinds of occupations with certain working conditions, hence, creating a selection bias. To avoid this issue to arise, health is controlled for. Although, this has to be made with caution because many studies have shown that health is highly associated with working conditions (Henseke, 2018). Figure 2 below, illustrates the correlation between health, working conditions and point of retirement. The figure illustrates how working conditions effect point of retirement indirectly through an individual’s health status. Because a lot of recent research has suggested a strong correlation between working conditions and point of retirement, this essay will conduct a logit model to investigate if there exist a strong correlation with health as dependent variable and the working conditions as explanatory variables, that is presented in the results section. If there exist a strong correlation between these another ordered logit regression on point of retirement with the explanatory variables and controlled variables will be conducted without the health variable and see if a shift occurs in the explanatory variables.

**Figure 2: The correlation between health, working conditions and point of retirement**

![Diagram showing the correlation between health, working conditions, and point of retirement]

7 Results

In this section the results will be presented and interpreted. Both the ordered logit models and the logit model will be presented in marginal effects. Because of the high number of
controlled variable only the explanatory variable will be presented in the essay to simplify the interpretation, even though the controlled variables are included in the model. All of the marginal effects with their controlled variables will be stated in the appendices.

7.1 Ordered logit model with all variables

The marginal effects of the ordered regression in table 2 below, includes all the variables. However, the table in the essay only includes the explanatory variables, the whole table with the controlled variables is presented in the Appendix B. Each specification in the table illustrates the likelihood of an individual’s choice to retire at that point based on a unit of increase of a variable.

The first specification in the table represents the likelihood of an individual choosing to retire early, hence before the age of 65. The second specification represents the likelihood of retiring at the Norm and similarly, the third represents the likelihood of an individual to become a Stayer based the unit increase of the variables. The first explanatory variable is physical demanding jobs looking at the specification Early leavers, the likelihood of retiring earlier than the age of 65 decreases with 1.39 percentage points when an individual perceives themselves of having a physical demanding job, hence has answered, agree completely or partly agreed of the survey questionnaire, however this estimate is not significant. The Norm specification on the other hand increases the likelihood to become the outcome for an individual if the individual perceive that they are exposed to physical demanding tasks at work. The outcome of become a Stayer when an individual perceive that they are exposed to physical demanding tasks at work decreases the likelihood of retiring after 65 by 1.21 percentage points, however these variables are not significant for any of the specifications. This surprising result contradicts the literature review that indicates that a physical demanding job increasing the likelihood to retire early, hence becoming an Early leaver. Since this result indicates that physical demanding job would increase the likelihood of an individual choosing to become a Stayer. However, it is important to bear in mind that these variables were not significant, hence a p-value above the value 0.05.
Table 2: Marginal effects of the ordered logit model with all variables included and a specification for each category (Early Leavers, Norm (65) and Stayers).

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Early Leavers</th>
<th>Norm (65)</th>
<th>Stayers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical demanding job</td>
<td>-0.0139</td>
<td>0.00176</td>
<td>0.0121</td>
</tr>
<tr>
<td>Psychological demanding job</td>
<td>0.0487***</td>
<td>-0.00619***</td>
<td>-0.0425***</td>
</tr>
<tr>
<td>Possibility to combine work and family</td>
<td>0.0568***</td>
<td>-0.00722***</td>
<td>-0.0496***</td>
</tr>
<tr>
<td>Possibility to choose when to work</td>
<td>-0.0580***</td>
<td>0.00737***</td>
<td>0.0507***</td>
</tr>
<tr>
<td>Possibility to choose how to work</td>
<td>-0.0161</td>
<td>0.00205</td>
<td>0.0141</td>
</tr>
<tr>
<td>Working under time pressure</td>
<td>-0.00732</td>
<td>0.000930</td>
<td>0.00639</td>
</tr>
<tr>
<td>Montotone tasks</td>
<td>0.0329*</td>
<td>-0.00418*</td>
<td>-0.0287*</td>
</tr>
<tr>
<td>Good social cohesion at work</td>
<td>-0.0169</td>
<td>0.00215</td>
<td>0.0148</td>
</tr>
<tr>
<td>Social with co-workers outside work</td>
<td>0.0343**</td>
<td>-0.00436**</td>
<td>-0.0299**</td>
</tr>
<tr>
<td>Short-term contract</td>
<td>-0.0439</td>
<td>0.00557</td>
<td>0.0383</td>
</tr>
<tr>
<td>Leading position</td>
<td>0.0358**</td>
<td>-0.00455*</td>
<td>-0.0313**</td>
</tr>
<tr>
<td>Working hours</td>
<td>-0.000781</td>
<td>9.92e-05</td>
<td>0.000682</td>
</tr>
<tr>
<td>Tenure</td>
<td>0.000205</td>
<td>-2.60e-05</td>
<td>-0.000179</td>
</tr>
<tr>
<td>Unsocial hours</td>
<td>-0.0259*</td>
<td>0.00329</td>
<td>0.0226*</td>
</tr>
</tbody>
</table>

Observations: 9,737 9,737 9,737

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: The table including all control variables is stated in Appendix B.
There are many explanatory variables that stand out and do not go in line with previous research, although many of them are not significant. This will be further discussed in the Discussion and Analysis in section 9. One of the explanatory variables that stands out and is significant in all specifications is the variable possibility to combine family and work. The results in Table 2 indicate that the possibility to be able to combine work and family increases the probability of an individual to retire earlier than 65 and decreases the probability to stay in the labor market. Another notable result that is somewhat counterintuitive and shows significance is if an individual is in a leading position. The result implies that having a leading position increases the likelihood of retiring early by almost 3.6 percent and decreases the likelihood of becoming a *Stayer* by 3.13 percentage points. The social aspects of working conditions in this study are measured by if there is a good social cohesion at work and if the individual interacts with co-workers outside of their job. The results show that the effect of a good social cohesion at work is negatively associated with the likelihood of an individual retiring earlier than the age of 65 with a decreasing likelihood of 1.69 percent. The result implies that it increases the likelihood for an individual to retire at the age of 65 and to become a stay above the age of 65. Although, these estimates are not significant. In contrast, the estimate “social with co-workers outside work” indicates that social with co-workers outside of work increase the likelihood to retire earlier than 65 and decrease the likelihood to stay in the labor market above the age of 65 with significant estimates on all of the specifications.

As already indicated in the data section, unsocial hours and higher number of working hours increase the likelihood for an individual of staying in the labor market above the age of 65 and decrease the likelihood of becoming an *Early Leaver*. Even though many of these results imply a rather counterinitiative result there are two of the explanatory variables that go in line with the previous literature and additionally show a high level of significance. These two variables are psychological demanding job and the possibility to choose when to work. The likelihood of an individual to become an *Early Leaver* when the individual perceives themselves of having a psychological demanding job increases by 4.87 percent and decrease the likelihood of retiring at the *Norm* and decreases the likelihood the most for *Stayers*. However, the possibility to choose when to work decrease the likelihood of becoming an *Early Leaver* and increase the likelihood of the choosing to retire at 65 or beyond the age of 65. The likelihood for an individual to choose to retire beyond the age of 65 is above 5
percent which is one of the highest likelihoods amongst the explanatory variable of retiring beyond the age of 65.

The model includes a great number of control variables, even though many of them are significant there are also many of the controlled variables that are not (see the control variables in Appendix B). Most of the controlled variables that are not significant are the variables that concerns the area of occupation. A model without the area occupation as controlled variables will be investigated in section 8.3. The control variable “bad health” which is the variable that controls for health have a slightly higher effect point of retirement than any of the explanatory variable with the likelihood of becoming an *Early Leaver* if an individual perceiving themselves of having “bad health”. The effect of becoming an early leaver when the individual has “bad health” increase by nearly 22 percentage points. As expected bad health decrease the likelihood of the outcomes *Norm* and *Stayer*, although to a much lower magnitude compared to the *Early Leavers*.

There are many variables in this model that are insignificant as mentioned in the methodology section this could be a sign of multicollinearity. Due to this fact additional models will be conducted in the next sections by removing variables and check if it occurs a shift in the estimates.

### 7.2 Correlation between health and working conditions

In the previous section in the ordered logit model, health was controlled for in model to avoid selection bias explained previously in the method section. However, the literature suggests that health and working conditions are strongly correlated, where working condition affect an individual’s health that in turns effect the individual’s point of retirement. Therefore, an logit model has been conducted on the variable bad health as a dependent variable and the working condition as explanatory variables in this section, to investigate this correlation, that is presented in table 3 below.
Table 3: Marginal effects of the logit regression model with health as a dependent variable and working conditions as explanatory variables

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Bad health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical demanding job</td>
<td>0.0527***</td>
</tr>
<tr>
<td>Psychological demanding job</td>
<td>0.0340***</td>
</tr>
<tr>
<td>Possibility to combine work and family</td>
<td>0.0348***</td>
</tr>
<tr>
<td>Possibility to choose when to work</td>
<td>-0.0406***</td>
</tr>
<tr>
<td>Possibility to choose how to work</td>
<td>-0.0462***</td>
</tr>
<tr>
<td>Working under time pressure</td>
<td>-0.00377</td>
</tr>
<tr>
<td>Montotone tasks</td>
<td>0.0242*</td>
</tr>
<tr>
<td>Good social cohesion</td>
<td>-0.0283</td>
</tr>
<tr>
<td>Social with coworkers outside of work</td>
<td>-0.000239</td>
</tr>
<tr>
<td>Short-term contract</td>
<td>-0.0428</td>
</tr>
<tr>
<td>Leading position</td>
<td>0.00641</td>
</tr>
<tr>
<td>Working hours</td>
<td>-0.00266***</td>
</tr>
<tr>
<td>Tenure</td>
<td>-0.00130***</td>
</tr>
<tr>
<td>Unsocial hours</td>
<td>0.0115</td>
</tr>
<tr>
<td>Observations</td>
<td>10,381</td>
</tr>
</tbody>
</table>

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
In table 3, it is evident that both physical and psychologically demanding jobs are associated with bad health, indicating that these working conditions contribute to a worse health for an individual. Interestingly, the possibility to combine work and family has a negative effect on health since the estimate is positively associated with the likelihood of having a bad health. The possibility to choose when and how decrease the likelihood for an individual of having bad health. All of the estimates mentioned in this paragraph are significant.

The rest of the variables in the logit model are not significant, although, many of them show results that support the ordered logit model in the previous section and is therefore worth being noted. The estimate working under time pressure in the logit model in table 3, indicates that working under time pressure decreases the likelihood of an individual having a bad health. Which could be the explanation to why working on the time pressure decrease the likelihood of becoming an early leaver in the ordered logit model in the previous section. This goes for many of the estimates in this model, however these are not significant.

From the logit model of the health variable it is apparent that there exists a correlation between health and some of them were significant. Due to this fact the next section we will conduct an ordered logit without the health variable as a controlled to see if there occurs a shift in the estimates.

7.3 Ordered logit regression without health, self-employment and area of occupation as control variables
This section presents an ordered logit model that do not include health, self-employment and area of occupations as control variables. The reason for removing not only the health variable but additionally the self-employment and area of occupation is due to the fact that when including all variables there was many of the area of occupations that were not significant, and a reason for this might be a result of multicollinearity that occurs from many of the working conditions being correlated to specific area of occupations. For example, having a physical demanding job is possibly closely related to working within construction. Therefore, in this section we have chosen to conduct an ordered logit without these control variables and see if there occurs a shift compared to the ordered logit conducted in section 8.1 that includes all variables. For the same reason the variable self-employment is removes as a variable, since being self-employed might be correlated to specific working conditions. The marginal effects of the ordered logit without these variables are stated in table 4 below.
Table 4: Marginal effects of the ordered logit without health, self-employment and area of occupation as control variables with a specification for each category (Early Leavers, Norm (65) and Stayers)

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Early Leavers</th>
<th>Norm (65)</th>
<th>Stayers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical demanding job</td>
<td>-0.0360**</td>
<td>0.00663**</td>
<td>0.0294**</td>
</tr>
<tr>
<td>Psychological demanding job</td>
<td>0.0667***</td>
<td>-0.0123***</td>
<td>-0.0544***</td>
</tr>
<tr>
<td>Possibility combine work and family</td>
<td>0.0366**</td>
<td>-0.00675**</td>
<td>-0.0299**</td>
</tr>
<tr>
<td>Possibility to choose when to work</td>
<td>-0.0978***</td>
<td>0.0180***</td>
<td>0.0798***</td>
</tr>
<tr>
<td>Possibility to choose how to work</td>
<td>-0.0413**</td>
<td>0.00760**</td>
<td>0.0337**</td>
</tr>
<tr>
<td>Working under time pressure</td>
<td>0.00824</td>
<td>-0.00152</td>
<td>-0.00672</td>
</tr>
<tr>
<td>Montotone tasks</td>
<td>0.0696***</td>
<td>-0.0128***</td>
<td>-0.0568***</td>
</tr>
<tr>
<td>Good social cohesion at work</td>
<td>0.0350</td>
<td>-0.00645</td>
<td>-0.0286</td>
</tr>
<tr>
<td>Social with coworkers outside work</td>
<td>0.0564***</td>
<td>-0.0104***</td>
<td>-0.0460***</td>
</tr>
<tr>
<td>Short-term contract</td>
<td>-0.0263</td>
<td>0.00485</td>
<td>0.0215</td>
</tr>
<tr>
<td>Leading position</td>
<td>0.0527***</td>
<td>-0.00971***</td>
<td>-0.0430***</td>
</tr>
<tr>
<td>Working hours</td>
<td>-0.00307***</td>
<td>0.000565***</td>
<td>0.00251***</td>
</tr>
<tr>
<td>Tenure</td>
<td>0.000199</td>
<td>-3.66e-05</td>
<td>-0.000162</td>
</tr>
<tr>
<td>Unsocial hours</td>
<td>-0.0443***</td>
<td>0.00816***</td>
<td>0.0362***</td>
</tr>
<tr>
<td>Observations</td>
<td>10,211</td>
<td>10,211</td>
<td>10,211</td>
</tr>
</tbody>
</table>

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: This table only presents the explanatory variable, the whole table including the control variables are presented in Appendix C.
Comparing the explanatory variables in table 4 above to table 2 in section 8.1, where we utilized all the variables, there is a major difference in the level of significant. In table 4, when using less variables there are a greater number of estimates that show significance with only three of the fourteen variables not being significant (Working under time pressure, good social cohesion and Tenure). This could possibly be due to the multicollinearity mentioned, since using less variables could to remove the existing multicollinearity, in table 2, where are all variables was utilized.

Although, when investigating if there occurs a shift in the estimates, there is not a change in the direction of the signs of the variables, however, the magnitude has changed to a great extent in many of the explanatory variables and has increased dramatically. The estimate physical demanding is now significant in table 4, with the same indication of result as in table 2, meaning that if an individual perceives themselves being exposed to physical demanding job they are less likely to retire earlier than 65. The magnitude of this likelihood is now in table 4 much greater with a decreased likelihood of 3.6 percentage points compared to 1.39 percentage points in table 2. The magnitude of the effect has increased for all of the variables in table 4. Many of the explanatory variables are now significant so the variable the possibility to choose how to work which was insignificant in table 2 is significant in table 4. The result indicates that the possibility to choose how to work decrease the likelihood of retiring earlier than 65 and increase the likelihood of staying in the labour market beyond the age of 65, hence the same direction as in table 2 with all variables.

As seen in table 4, by removing many of the control variables, a greater amount of the explanatory variables become significant. As mentioned the magnitude is higher in table 4 which indicates that working conditions has a larger effect on point of retirement than what the result showed in table 2 with all the variables. Due to the fact that the ordered logit (table 4), shows a greater amount of explanatory variable that is significant, this ordered logit without these variables is more appropriate and will also be used when comparing men and women on the next section.

7.4 Ordered logit regression and differences between the genders

The literature review suggests some differences between women and men on how working conditions effect their point of retirement. To enable answering the research question “Does the working conditions affect men and women's retirement age differently?” two separate
ordered logit restricted with each gender has been conducted and will be compared. Table 5 below, is restricted to only men and presents the marginal effects of the ordered logit model without health, self-employment and area of occupations as controlled variables. Table 6 below, in contrast is restricted to only women. To examine if there exist differences between women and men, both the magnitude and the direction of the estimates in the two tables will be compared.
**Table 5:** Marginal effects of the ordered logit model with *only men*, without health, self-employment and area of occupations as control variable, and specification for each category (Early leavers, Norm (65) and Stayers)

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Early Leavers</th>
<th>Norm (65)</th>
<th>Stayers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical demanding job</td>
<td>-0.0113</td>
<td>0.000352</td>
<td>0.0109</td>
</tr>
<tr>
<td>Psychological demanding job</td>
<td>0.0356*</td>
<td>-0.00111</td>
<td>-0.0345*</td>
</tr>
<tr>
<td>Possibility to combine work and family</td>
<td>0.0267</td>
<td>-0.000834</td>
<td>-0.0259</td>
</tr>
<tr>
<td>Possibility to choose when to work</td>
<td>-0.111***</td>
<td>0.00347</td>
<td>0.108***</td>
</tr>
<tr>
<td>Possibility to choose how to work</td>
<td>-0.0506*</td>
<td>0.00158</td>
<td>0.0490*</td>
</tr>
<tr>
<td>Working under time pressure</td>
<td>0.0224</td>
<td>-0.000700</td>
<td>-0.0217</td>
</tr>
<tr>
<td>Monotone tasks</td>
<td>0.0931***</td>
<td>-0.00291</td>
<td>-0.0902***</td>
</tr>
<tr>
<td>Good social cohesion at work</td>
<td>0.0698**</td>
<td>-0.00218</td>
<td>-0.0676**</td>
</tr>
<tr>
<td>Social with coworkers outside of work</td>
<td>0.0639***</td>
<td>-0.00199</td>
<td>-0.0619***</td>
</tr>
<tr>
<td>Shorterm contract</td>
<td>-0.0100</td>
<td>0.000314</td>
<td>0.00974</td>
</tr>
<tr>
<td>Leading position</td>
<td>0.0636***</td>
<td>-0.00199</td>
<td>-0.0616***</td>
</tr>
<tr>
<td>Working hours</td>
<td>-0.00378***</td>
<td>0.000118</td>
<td>0.00366***</td>
</tr>
<tr>
<td>Tenure</td>
<td>0.00101*</td>
<td>-3.14e-05</td>
<td>-0.000974*</td>
</tr>
<tr>
<td>Unsocial hours</td>
<td>-0.0201</td>
<td>0.000628</td>
<td>0.0195</td>
</tr>
<tr>
<td>Observations</td>
<td>5,818</td>
<td>5,818</td>
<td>5,818</td>
</tr>
</tbody>
</table>

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: Note: This table only presents the explanatory variable, the whole table including the control variables are presented in Appendix D
Table 6: Marginal effects of the ordered logit model with *only women*, without health, self-employment and area of occupations as control variable, and specification for each category (Early leavers, Norm (65) and Stayers)

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Early Leavers</th>
<th>Norm (65)</th>
<th>Stayers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical demanding job</td>
<td>-0.0709***</td>
<td>0.0255***</td>
<td>0.0455***</td>
</tr>
<tr>
<td>Psychological demanding job</td>
<td>0.108***</td>
<td>-0.0387***</td>
<td>-0.0692***</td>
</tr>
<tr>
<td>Possibility to combine work and family</td>
<td>0.0542**</td>
<td>-0.0194**</td>
<td>-0.0347**</td>
</tr>
<tr>
<td>Possibility to choose when to work</td>
<td>-0.0793***</td>
<td>0.0285***</td>
<td>0.0508***</td>
</tr>
<tr>
<td>Possibility to choose how to work</td>
<td>-0.0318</td>
<td>0.0114</td>
<td>0.0204</td>
</tr>
<tr>
<td>Working under time pressure</td>
<td>0.00786</td>
<td>-0.00282</td>
<td>-0.00504</td>
</tr>
<tr>
<td>Montotone tasks</td>
<td>0.0417</td>
<td>-0.0150</td>
<td>-0.0268</td>
</tr>
<tr>
<td>Good social cohesion at work</td>
<td>0.00586</td>
<td>-0.00210</td>
<td>-0.00376</td>
</tr>
<tr>
<td>Social with coworkers outside work</td>
<td>0.0487**</td>
<td>-0.0175**</td>
<td>-0.0312**</td>
</tr>
<tr>
<td>Short-term contract</td>
<td>-0.0612</td>
<td>0.0220</td>
<td>0.0392</td>
</tr>
<tr>
<td>Leading position</td>
<td>0.0387</td>
<td>-0.0139</td>
<td>-0.0248</td>
</tr>
<tr>
<td>Working hours</td>
<td>-0.000870</td>
<td>0.000312</td>
<td>0.000558</td>
</tr>
<tr>
<td>Tenure</td>
<td>-0.000470</td>
<td>0.000169</td>
<td>0.000301</td>
</tr>
<tr>
<td>Unsocial hours</td>
<td>-0.0646***</td>
<td>0.0232***</td>
<td>0.0414***</td>
</tr>
<tr>
<td>Observations</td>
<td>4,393</td>
<td>4,393</td>
<td>4,393</td>
</tr>
</tbody>
</table>

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: Note: This table only presents the explanatory variable, the whole table including the control variables are presented in Appendix E
Comparing the estimates of table 5 and table 6 there are not any differences in the direction of the estimate, which is very similar to the direction presented in the ordered logit without a restricted sample, although, interestingly, there exist a great difference in the magnitude of the effect. Firstly, the estimate physical demanding job decrease the likelihood to become an Early Leaver for both men and women. However, a distinct different between them is the magnitude. For women the likelihood decreases with 7 percentage points, whilst it only decreases the with 1 percentage point amongst men. For both men and women physical demanding job increase the likelihood of resulting in the outcome Norm and, whilst the magnitude of the increase for women is found much greater. Another interesting difference is that the estimate physical demanding job is significant for women, but not for men, and is an important factor to consider in this comparison. Almost all of the estimate shows the same pattern with a greater magnitude of the effect of women indicating that women’s decision to retire are to a greater extent than men affected by working conditions. There are however two estimates that have a higher magnitude amongst men and these estimates are possibility to choose when and how to work. Both estimates decrease the probability of early retirement with a significantly higher magnitude amongst men. This indicates that men are to a greater extent influenced by the possibility of choosing when and how to work in their decision to retire.

Another estimate, that showed a great difference in the magnitude is psychological demanding job where for women, a psychological demanding job increased the likelihood of becoming an Early leaver by 10 percentage points and for when it was only 3.6 percentage points. The likelihood of becoming a Stayer for women when perceiving themselves of having a psychological demanding job decreased by almost 7 percentage points whilst for men it was only decreased by 3.5 percentage points. Similar to the physical demanding job, the estimates are only significant for women. There are many of the variables in the ordered logit model for men that are insignificant and shall therefore not be overlooked when comparing men and women.

Overall, these results indicate that women are to a greater extent effected by working condition in their decision on when to retire compared to men. However, the estimates possibility to choose when and how to work indicated that men to a greater extent affected by these estimates and individual having the possibility to choose when a how to work increase the possibility to extend their time on the labour market. Although, it is important to bear in
mind that many of the estimate especially for the men in table 5 where not significant and inferences should be made with caution.

7.5 Simulation of a successful policy change

In summary, the results presented above indicate that working condition do have an effect on an individual’s decision of when to retire. Although, many of the estimates of the explanatory variables contradicts the findings from prior research presented in the literature review. There were several variables that showed significance, on the ordered logit regression and did go in line with previous research, this will be further discussed in section 9, these variables will be used in a simulation of a successful policy change that will soon be explained. These variables are; Possibility to choose when to work, Possibility to choose how to work, psychological demanding job and monotone tasks. In this section a simulation will be conducted to investigate the percentage change of becoming an Early leaver, Norm and Stayer if there is an improvement of these working conditions as a consequence of a successful policy change. In other words, if the whole sample would be able to choose how and when they could work and no one in the sample would be exposed psychological demanding job and monotone tasks, how many percent would those who leave before the age of 65 decrease and how many percent of stayers will increase. Since the result from the ordered logit regression implied that the possibility to choose how and when to work tends to postpone point of retirement and monotone tasks and psychological tend to increase the likelihood of earlier retirement. This means that the sample is recoded so that all individual in the sample will be 1 on the possibility to choose when and how to work and 0 for psychological demanding and monotone tasks since all of these variables are dichotomous variables. In table 7 below the percentage change of before a after a possibly successful policy change aiming to improve these working conditions.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Early leavers</th>
<th>Norm(65)</th>
<th>Stayers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Possibility to choose when to work</td>
<td>-3%</td>
<td>0.57%</td>
<td>2.5%</td>
</tr>
<tr>
<td>Possibility to choose how to work</td>
<td>-0.59%</td>
<td>0.16%</td>
<td>0.43%</td>
</tr>
<tr>
<td>Psychological demanding job</td>
<td>-3.7%</td>
<td>0.1%</td>
<td>3.61%</td>
</tr>
<tr>
<td>Monotone tasks</td>
<td>-1.32%</td>
<td>0.25%</td>
<td>1.07%</td>
</tr>
</tbody>
</table>

Table 7: Simulation of a successful policy change: The change in percentage after a possible successful policy change aiming to improve these working conditions
| Total change | -8.61% | 1.08% | 7.61% |

From table 7, it is apparent that an improvement in the working conditions as a consequence of a successful policy change aiming to improve these working conditions would decrease the percentage of those retiring early dramatically by 8.61 percentage and shift to 1.08 increase in individual’s retiring at the Norm and a shift of 7.61 percent of individual’s staying in the labour market above the age of 65. A key assumption made in this simulation is that a policy change that aims to improve would change all individual’s working conditions. One major drawback with this simulation is that this assumption might not hold in the real-life conditions. Therefore, inferences of the percentages in the simulation shall be made with caution. In conclusion, this simulation of a successful policy change does show how improved working condition could decrease the percentage of individual choosing to retire earlier and hence, increase the amount of individual’s staying above the age of 65.

8 Discussion and Analysis
In this section the results from the regression analysis of the ordered logit model will be discussed with connection to prior research presented in the literature review. The result will be compared with previous findings, and possible explanations of the results will also be discussed. The result that will be analyzed in this section is from the ordered logit without the controlled variables; health, self-employment and area of occupation due to the reason of multicollinearity explained thoroughly in the method section. This section will begin to analyze the result of physical demanding job and monotone tasks following the other explanatory variables presented in result section. The section will finally investigate and discuss the gender differences followed by discussing the overall method used in this essay.

8.1 Physical demanding job and monotone tasks
The estimate physical demanding job, measured, if the individual in the sample were exposed to physical demanding job such as heavy lifts and monotone body movements. Collectively, the studies presented in the literature review outlined a critical role of physical demanding jobs on the effect of point of retirement, where physical demanding job increased the likelihood to retire earlier. The result from this study has been unable to demonstrate this and have instead implied that physical demanding increases the likelihood of an individual retiring at the Norm the most but also to become a Stayer and decrease the likelihood of retiring early. A possible explanation to the contradictory result might be that those occupation exposed to high physical strain have a slightly lower income and therefore have a higher incentive to stay
in the labour market. However, the ordered logit regression does control for the individual’s labour market income, and this explanation might therefore be ruled out. Another possible explanation is that there are studies that show lack of physical and too much sedentary is associated with health issues and could be a reason for why physical demanding job have the rather counterintuitive effect of decreasing the likelihood of retiring earlier than 65. However, a notable result is that the likelihood of retiring at the Norm was significantly higher than becoming a Stayer when an individual is exposed to a physical demanding job. A probable explanation might be that occupations that are physical demanding do have a norm of retiring at the age of 65. One major drawback of this using this estimate is that it is not identified what type of physical demanding job an individual is exposed to since the data used to measure this variable is the individual’s self-perception of what is perceived as a physical demanding job.

The estimate monotone task, measures if an individual is exposed to repetitive tasks at work. The literature suggests that monotone and repetitive tasks at work increases the probability that an individual retires earlier (Anxo et al 2014; Krause et al 1997; Lahelma et al 2012). The finding from the estimate monotone task in this essay confirms that monotone and repetitive tasks decrease the likelihood of retiring earlier than the age of 65. The likelihood of staying in the labour market beyond the age of 65 decrease significantly. Additionally, it decreases the probability of retiring at the age of 65, however not to same extent as it decreases for staying beyond the age of 65. Since the estimate monotone task go in line with findings from previous research and was significant for all specifications, the estimate was used in the simulation of a successful policy change that aims to improve working conditions. This approach identifies the effect of a policy that aims to remove all individual’s from being exposed to repetitive tasks. The main limitation of this approach is that some jobs and occupations require repetitive tasks and a policy that aims to remove all individual’s being exposed to repetitive tasks is therefore not possible. The magnitude of the result in the simulation of a policy change can thus be criticized.

8.2 Psychological demanding job, possibility to choose when and how to work and working under time pressure

The estimate psychological demanding job measures if the individual’s in the sample perceive their job as psychological demanding before they retired or at the age of 64 if the individual is a Stayer. The result of this estimate in this essay implies that psychological demanding job
increase the likelihood of becoming an Early leaver and hence decreases the likelihood of retiring at the Norm and becoming a Stayer. The likelihood decreases the most for becoming a Stayer. This accords with earlier studies, that shows that psychological demanding job increase the likelihood of retiring earlier. The estimate of the psychological demanding job is significant and confirms prior research and was therefore used in the simulation of a successful policy change in the previous section. As previously mentioned the magnitude of the result of the simulation can be criticized due to the fact that psychological demanding job cannot be avoided in some occupations and hence the aim of not having individual’s exposed to psychological demanding job is not realistic.

The Job strain model by Karasek (1979) presented earlier in this essay postulates that psychological strain derives from the joint effect of the demand in the workplace and the range of the decision-making available for the worker. The estimates the possibility to choose when and how to work measures if the individuals had freedom of decision-making in one’s workplace. The main idea behind the model is that demands together with freedom in decision-making enhances the employees job satisfaction. The model indicates that high demands on a worker is only harmful if the worker sense a lack of control over their responsibilities. Many findings support Karasek’s (1979) model, and suggest that the interaction effect of job demands, and job control did increase the likelihood early retirements. Even though the estimates possibility to choose when and how to work do not explore the interaction between demands and range of decision-making, they do investigate the effect of freedom of decision-making on point of retirement. The result indicates that both the possibility to choose when and how to work plays a vital role in decreasing the likelihood of retiring earlier than 65 and hence increase the likelihood of retiring at the age of 65 and stay beyond the age of 65. Although, an interesting aspect of the result is that the magnitude of the effect is significantly higher of the estimate the possibility to choose when to work. This indicates that an individual perceiving of having the availability to choose when to work is of higher importance in affecting an individual’s decision of when to retire. These estimates were additionally included in the simulation of a successful policy change since the estimates were significant and supported previous findings. As mentioned implementing a policy that aims to improve working conditions for all individuals is not realistic since some occupations require individuals to work under specific times and they might therefore not be able to choose when to work, hence, the magnitude of the result in the simulation can be criticized.
8.3 Good social cohesion, social with coworkers outside work and possibility to combine work and family

The availability of social support from co-workers and supervisors have been found to play an important role in an individual’s decision of when to retire. Studies suggest that the availability of social support can reduce the risk of retiring earlier. The estimate good social cohesion at work and social with co-workers measures the availability of social support in the individual’s workplace in this essay. The result from the estimate good social cohesion at work implies that having a good social cohesion at work increase the probability of an individual becoming an *Early leaver* and decrease the likelihood of becoming a *Stayer* and decrease the probability the most of retiring at the age of 65 hence at the Norm. However, the estimate good social cohesion at work is insignificant and the results from this estimate needs to be interpreted by caution. The insignificance of the estimate in all specifications might be due to the presence of multicollinearity since the estimate good social cohesion might be closely correlated to the estimate social with coworkers outside of work. On the other hand, the estimate social with coworkers outside of work is significant. The result implies that being social with coworkers outside of work increase the probability of retiring earlier than the age of 65 and decrease the likelihood of retiring at 65 and decrease the most of becoming a *Stayer*. These results imply that social support shortens an individual’s time on the labour market, thus, contradicts prior studies. These findings may be somewhat limited by the fact that the estimates only measure the social support from coworkers. Social support can occur in different forms in a workplace. One form of social support that was found to play a vital role by previous studies was the importance of social support from executives which is not investigated in this essay (Kossek et al 2011; Krause 1997; Carr et al 2015). This finding only implies that being social outside of work with coworkers increase the probability of retiring earlier which does not directly imply that individuals have social support at work which can be a possible explanation of the contradictory result. Another possible explanation can be that there are other forms of social support that play a more important role in an individual’s decision of when to retire than coworkers social support that is not investigated in this essay.

Family situations or family obligations is as mentioned an additional factor that may affect the timing of retirement. Several studies suggest the effect of an individual’s family obligation which can pull an individual towards retirement, hence earlier retirement. The availability of an individual to combine work and family would therefore enable an individual to stay longer
in the labour market despite having family obligations. The estimate possibility to combine work and family measures that measure an individual’s availability to do so. Surprisingly, the result in this study implies that the possibility to combine work and family increase the likelihood of retiring before the age of 65 and decrease the probability of retiring at 65 and beyond the age of 65. Although, the likelihood decreases the most for retiring beyond the age of 65. A possible explanation for this rather counter-intuitive result can be due to that individual’s that highly values time with their family choose occupations that have the possibility to combine work and family and are also individual’s that retire earlier due to family obligations. Thus, the result can possibly be explained by selection bias since individual’s choosing occupations that have offers the availability to combine work and family might also retire earlier due to family obligations.

8.4 Working under time pressure, leading position, working hours, unsocial hours and short-term contract

The estimate working under time pressure measure one aspect of stress individuals can be exposed to in the workplace. According Karasek (1979) stress of high demands can be harmful if the worker senses a lack of control over their responsibilities. Hence, if a worker is exposed to high demands in form of working under time pressure at work it could lead to earlier retirement. However, Karasek (1979) also emphasize that high demands are beneficial as long as an individual perceive they have a freedom of decision-making discussed above. Although as mentioned these interactions are not investigated. The result of the estimate working under time pressure did not show any significance, although, the result could be worth noting. The estimates showed that working under time pressure hence, under stress, increase the probability to become an Early leaver. The probability of retiring at the age of 65 and becoming a Stayer decrease when individual perceive themselves working under time pressure. This go in line with previous literature that implies that stress increase the likelihood of retiring earlier. Although, as mentioned high demands and stress such as working under time pressure could be beneficial if an individual has access to freedom of decision-making at the workplace. However, as already mentioned this essay do not cover the effect interaction between freedom of decision-making with stress on point of retirement.

The literature review does not specifically present the effect of a leading position on an individual’s retirement age. A leading position can be correlated to certain working conditions such as freedom of decision making as well as high demands. While that is true, the literature
review does suggest that those in leading positions such as executives and directors that are on top of the are least effected by earlier retirement and tend to stay longer in the labour market (Kardefors and Wikman, 2011). The result indicates that having a leading position increase the likelihood of becoming an *Early leaver*, hence, the result show that a leading position instead decrease the likelihood of staying longer in the labour market contradicting Kadefors and Wikman (2011). A possible explanation for this result might be that individual’s that acquire a leading position are exposed to high strain job presented in the demand-control model (Karasek, 1979) and consequently retire earlier. Another probable explanation for the result might be that individual’s in leading position have the finances to be able to retire earlier, since individual’s in leading position usually are individual who obtain a higher labour income. As mentioned the regression controls for labour income and the last explanation might be possible to rule out.

The estimate working hours and unsocial hours measures the effect of the number of working hours and unsocial hours on the point of retirement. The literature review does not specifically include the effect of these two estimates on an individual’s retirement age. Although, there are some occupations that are associated with working unsocial and long hours such as occupations within the service industry that tops the list of earliest labour market exit (Swedish work environment authority, 2014:4). This indicates that working unsocial hours and working many hours would lead to earlier exits. The result indicates that an increased number of working hours and working unsocial hours lead to a decrease in the probability of retiring before the age of 65 and increases the likelihood of staying in the labour market beyond 65 and at the norm. This rather counter-intuitive result indicates that unsocial hours and a higher number of working hours per week would prolong an individual’s time in the labour market. A possible reason for this result could be that individual’s that are more prone to staying longer in the labour market are individuals more motivated to work more and therefore work longer hours.

The estimate short-term contract is connected to the type of employment the individuals had. As mentioned previously, temporary employments, hence short-term contracts can be linked to risk, uncertainty and high amount of workload for the employee. This implies that short-term contract would shorten nan individual’s time on the labour market. While that is true, the results of the research concerning the effect precarious employments on point of retirement are divisive. Some of the research suggests that precarious employments lead to an
extended time on the labour market, hence show a contradictory result. The result from the estimate short-term contract in this essay does not show any statistical significance in any of the specification, it still can be worth noting the estimate. The estimates indicated that short-term contract decrease the likelihood of becoming an *Early leaver* and increases the probability of retiring at the age of 65 and becoming a *Stayer*. This supports some of the literature that suggests that precarious employment prolong an individual’s time on the labour market.

### 8.5 Gender differences

The literature review presents numerous and varied differences between men and women in the effect of working conditions on point of retirement. Bleksaune and Solem (2005) study suggested that men were more prone to retire earlier in presence of low autonomy, hence, a low degree of freedom in decision-making. Another finding by Bleksaune and Solem (2005) was that women were affected by physical work strain whilst they found no such association for men. One reason for these results might be due to the fact that men and women have different preferences in what type of working conditions is of higher importance. The result from the ordered logit regressions in this essay when men and women was regressed separately showed that women to a greater extent was influenced by working conditions in their decision of when to retire for all explanatory variables. However, there were many of the explanatory variables that did not show any significance particularly for the specification *Norm* on the ordered logit for men. Women were the most influenced by psychological demanding job that increased the likelihood of becoming an *Early Leaver* the most compared all of the explanatory variables. Another interesting finding is that in all of the explanatory variables the effect was higher for women except for two variables. These are the possibility to choose when and how to work. This result implies that men to a greater extent value freedom of decision making hence high autonomy which was suggested by Bleksaune and Solem (2005). An explanation for the differences between the genders might be that men and women work in different areas of occupations and are exposed to different types of working conditions.

### 8.6 Overall discussion

All of the explanatory variables have been discussed above except the estimate tenure that measures how long an individual has been in a particular workplace. The reason this has not been further discussed is due to fact that it did not show any statistical significance and it did
not show how much of each working condition an individual have been exposed to. A major drawback with this study is that it does not investigate how much or for how long an individual have been exposed to each working condition. This study only measures the working conditions just before retirement or at the age of 64 for those individual’s that are *Stayers*. Some individual’s might have changed occupations due to poor occupations and hence retire earlier due to previous working conditions they have been exposed to, and not the occupation at the time of when the survey measures. Therefore, further research should undertake the amount of exposure of certain working conditions on the effect of point of retirement.

The extent of external validity can be discussed since some of the variables contradicts previous research and the findings might only be applicable for these certain generations. The data in this essay in limited to individual’s in Sweden and more research in other countries using the effect of working conditions on actual retirement age rather than predicted retirement age.

**9 Summary and Conclusion**

The purpose of this essay has been to investigate the effect of working condition on point of retirement by using data retrieved from Statistics Employment Register (Sysselsättningsregister) for the behalf of Anxo et al (2017).

Overall, the results from this study have identified the importance of working conditions in determining an individual’s point of retirement, hence, individual’s labour market exit. The result that goes in line with the literature indicates that an individual that has the availability of freedom of decision at work hence, the possibility to choose when and how to work decreases the likelihood of an individual to retire earlier, hence increases the probability of extending an individual’s time on the labour market. The findings additionally suggested that psychological demanding job and monotone tasks increases the probability of retiring early. The findings suggest that the possibility to choose when to work have the most effect on an individual’s decision of when to retire.

Some findings from this essay contradicts prior studies such as that physical demanding job, working under time pressure, number of working hours, and working unsocial hours, possibility to combine family and work increase the likelihood for an individual to stay longer.
in the labour market. Additional findings in this essay that contradicted prior studies is that socializing with co-workers outside of work and the possibility to combine family and work increases the probability to retire earlier, hence reduces the likelihood of a later retirement. These contradictory results can be due to various factors such as that some occupations that are might be closely related or due to selection bias where those individuals that are attracted to certain working conditions are correlated to retiring at the specific point.

The result of this investigation indicates differences between the effects on working conditions and point of retirement amongst men and women. The result suggests that women are to a greater extent affected by working condition in their decision on when to retire compared to men. However, the magnitude of the possibility to choose when and how to work are interestingly higher amongst men, indicating that men are more affected by autonomy in their decision on when to retire compared to women.

In conclusion, the findings strengths the idea that working conditions play a determining role in an individual’s decision of point of retirement, however, some of the result were inconclusive with previous research. Further research should be carried out and additionally asses the amount of exposure of working conditions and explore the long-term effects of the working conditions on actual point of retirement.
References


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Appendices

Appendix A

Survey questions of all the explanatory variables used in its original form (Swedish) and translated in English below

### 50. I vilken utsträckning upplever du att din dåvarande arbetsmiljö stämmer överens med följande påståenden?  
Markera endast en ruta på varje rad

<table>
<thead>
<tr>
<th>Stämmer inte</th>
<th>Stämmer delvis</th>
<th>Stämmer helt och hållet</th>
<th>Ej relevant</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Det var svårt att kombinera mitt arbete med min familjessituation</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>b. Mitt arbete var fysiskt krävande med tunga lyft eller monotona kroppsrörelser</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>c. Jag kunde påverka och styra över när mitt arbete skulle utföras</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>d. Jag kunde påverka och styra över hur mitt arbete skulle utföras</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>e. Mitt arbete var psykiskt ansträngande</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>f. Jag arbetade ofta under tidspress</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>g. Mitt arbete var enförmygt</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>h. Samanhållningen och stämningen var god på min arbetsplats</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>i. Jag brukade umgås med mina arbetskamrater utanför jobbet</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>

**Translation:**

To what extent do you perceive that your previous working environment matches the following statements?

<table>
<thead>
<tr>
<th></th>
<th>Not at all</th>
<th>Partially agree</th>
<th>Completely agree</th>
<th>Not relevant</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. It was difficult combining my work with my family situation
b. My work was physically demanding with heavy lifts and monotone body movements
c. I could affect and control over *when* my work would be performed
d. I could/can affect and control over *how* my work would be performed
e. My work is psychologically demanding
f. I often worked under time pressure
g. My work was monotonone
h. The cohesion and atmosphere were good at my workplace
i. I used to socialize with my coworkers outside of work

46. ungefär hur många timmar per vecka arbetade du?

Translation:
How many hours per week did you work?

45. hade du vid den tiden en arbetsledande befattning på din arbetsplats?

☐ Ja
☐ Nej

Translation:
Had you at that time a leading position at your work place?

43. hade du då en tidsbegränsad eller fast anställning?

☐ Tidsbegränsad anställning
☐ Fast anställning

Translation:
Did you at that time have a short-term contract or a permanent contract?

48. arbetade du någon gång under kvällar, nätter, helger eller oregelbundna arbetstider?

☐ Ja
☐ Nej → Gå till fråga 50

Translation:
Did you work sometime during evenings, nights or weekends or irregular times?

47. ungefär hur många år hade du vid denna tidpunkt arbetat för din dåvarande arbetsgivare/ditt egna företag?

Translation:
Approximately how many years have you at this point worked for your previous working place?

Appendix B
Table 2: Marginal effects of the ordered logit model with all control variables included and specification for each category Early Leavers, Norm (65) and Stayers

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Early Leavers</th>
<th>Norm (65)</th>
<th>Stayers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex (1=men, 0=women)</td>
<td>-0.0582***</td>
<td>0.00740***</td>
<td>0.0508***</td>
</tr>
<tr>
<td>Cohort 1942-1945</td>
<td>-0.0481**</td>
<td>0.00610**</td>
<td>0.0419**</td>
</tr>
<tr>
<td>Cohort 1946-1949</td>
<td>-0.0788***</td>
<td>0.0100***</td>
<td>0.0688***</td>
</tr>
<tr>
<td>Cohort 1938-1941</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Married</td>
<td>0.0607***</td>
<td>-0.00772***</td>
<td>-0.0530***</td>
</tr>
<tr>
<td>Foreign born</td>
<td>-0.0490*</td>
<td>0.00623*</td>
<td>0.0428*</td>
</tr>
<tr>
<td>Low education</td>
<td>0.0210</td>
<td>-0.00267</td>
<td>-0.0183</td>
</tr>
<tr>
<td>High School</td>
<td>-0.0583***</td>
<td>0.00741***</td>
<td>0.0509***</td>
</tr>
<tr>
<td>Post Graduate</td>
<td>-0.345***</td>
<td>0.0439***</td>
<td>0.301***</td>
</tr>
<tr>
<td>Private Pension</td>
<td>7.75e-05***</td>
<td>-9.85e-06**</td>
<td>-6.77e-05***</td>
</tr>
<tr>
<td>Labour income</td>
<td>-0.0272***</td>
<td>0.00345***</td>
<td>0.0237***</td>
</tr>
<tr>
<td>Capital income</td>
<td>0.000620</td>
<td>-7.88e-05</td>
<td>-0.000541</td>
</tr>
<tr>
<td>Self-employed</td>
<td>-0.352***</td>
<td>0.0447***</td>
<td>0.307***</td>
</tr>
<tr>
<td>Health (1=bad health, 0= good health)</td>
<td>0.218***</td>
<td>-0.0277***</td>
<td>-0.190***</td>
</tr>
<tr>
<td>Duration of unemployment</td>
<td>-0.000200***</td>
<td>2.55e-05**</td>
<td>0.000175***</td>
</tr>
<tr>
<td>Public sector</td>
<td>0.0640***</td>
<td>-0.00813***</td>
<td>-0.0559***</td>
</tr>
<tr>
<td>Agriculture</td>
<td>-0.100**</td>
<td>0.0127**</td>
<td>0.0875**</td>
</tr>
<tr>
<td>Mining</td>
<td>0.120</td>
<td>-0.0152</td>
<td>-0.104</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>0.134***</td>
<td>-0.0170***</td>
<td>-0.117***</td>
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<tr>
<td>Energy</td>
<td>0.0777</td>
<td>-0.00988</td>
<td>-0.0679</td>
</tr>
<tr>
<td>Water supply sewage and waste</td>
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<td>0.00790</td>
<td>0.0543</td>
</tr>
<tr>
<td>Construction</td>
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<td>-0.00394</td>
<td>-0.0271</td>
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<tr>
<td>Category</td>
<td>Value 1</td>
<td>Value 2</td>
<td>Value 3</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
</tr>
<tr>
<td>Retail</td>
<td>0.0184</td>
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<td>-0.0160</td>
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<td>Transport</td>
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<td>0.00118</td>
<td>0.00814</td>
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<td>Media</td>
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<td>-0.0236***</td>
<td>-0.162***</td>
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<td>Bank and finance</td>
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<td>-0.0522***</td>
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<td>Real estate</td>
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<td>Law and economics</td>
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<td>0.00383</td>
<td>0.0263</td>
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<td>0.00594</td>
<td>0.0408</td>
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<td>0.0672***</td>
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<td>Culture recreation sport</td>
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<td>0.109***</td>
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<td>0.0121</td>
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<td>-0.00619**</td>
<td>-0.0425***</td>
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<td>Possibility to combine work and family</td>
<td>0.0568***</td>
<td>-0.00722***</td>
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<td>Possibility to choose when to work</td>
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<td>0.00737***</td>
<td>0.0507***</td>
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<td>Possibility to choose how to work</td>
<td>-0.0161</td>
<td>0.00205</td>
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<td>Working under time pressure</td>
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<td>0.00639</td>
</tr>
<tr>
<td>Monotone tasks</td>
<td>0.0329*</td>
<td>-0.00418*</td>
<td>-0.0287*</td>
</tr>
<tr>
<td>Good social cohesion at work</td>
<td>-0.0169</td>
<td>0.00215</td>
<td>0.0148</td>
</tr>
<tr>
<td>Social with co-workers outside work</td>
<td>0.0343**</td>
<td>-0.00436**</td>
<td>-0.0299**</td>
</tr>
<tr>
<td>Short-term contract</td>
<td>-0.0439</td>
<td>0.00557</td>
<td>0.0383</td>
</tr>
<tr>
<td>Leading position</td>
<td>0.0358**</td>
<td>-0.00455*</td>
<td>-0.0313**</td>
</tr>
<tr>
<td>Working hours</td>
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<td>9.92e-05</td>
<td>0.000682</td>
</tr>
<tr>
<td>Tenure</td>
<td>0.000205</td>
<td>-2.60e-05</td>
<td>-0.000179</td>
</tr>
<tr>
<td>Unsocial hours</td>
<td>-0.0259*</td>
<td>0.00329</td>
<td>0.0226*</td>
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</table>
### Observations

<table>
<thead>
<tr>
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<th>9,737</th>
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<td></td>
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</tr>
</tbody>
</table>

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

### Appendix C

**Table 4**: Marginal effects of the ordered logit model without health, self-employment and area of occupations as control variables and specification for each category (Early Leaver, Norm (65) and Stayer)

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Early Leaver</th>
<th>Norm (65)</th>
<th>Stayer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex (1=men, 0=women)</td>
<td>-0.0770***</td>
<td>0.0142***</td>
<td>0.0628***</td>
</tr>
<tr>
<td>Cohort 1942-1945</td>
<td>-0.0392**</td>
<td>0.00722**</td>
<td>0.0320**</td>
</tr>
<tr>
<td>Cohort 1946-1949</td>
<td>-0.0653***</td>
<td>0.0120***</td>
<td>0.0533***</td>
</tr>
<tr>
<td>Cohort 1938-1941</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Married</td>
<td>0.0435***</td>
<td>-0.00802***</td>
<td>-0.0355***</td>
</tr>
<tr>
<td>Foreign born</td>
<td>-0.0301</td>
<td>0.00553</td>
<td>0.0245</td>
</tr>
<tr>
<td>Low education</td>
<td>0.0378**</td>
<td>-0.00696**</td>
<td>-0.0309**</td>
</tr>
<tr>
<td>High school</td>
<td>-0.117***</td>
<td>0.0216***</td>
<td>0.0955***</td>
</tr>
<tr>
<td>Post Graduate</td>
<td>-0.401***</td>
<td>0.0738***</td>
<td>0.327***</td>
</tr>
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<td>Private Pension</td>
<td>5.24e-05**</td>
<td>-9.65e-06**</td>
<td>-4.27e-05**</td>
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<td>0.00429</td>
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<td>Capital income</td>
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<td>0.00663**</td>
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<td>Psychological demanding job</td>
<td>0.0667***</td>
<td>-0.0123***</td>
<td>-0.0544***</td>
</tr>
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<td>Possibility combine work and family</td>
<td>0.0366**</td>
<td>-0.00675**</td>
<td>-0.0299**</td>
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<tr>
<td>Possibility to choose when to work</td>
<td>-0.0978***</td>
<td>0.0180***</td>
<td>0.0798***</td>
</tr>
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</table>
### Appendix D

**Table 5:** Marginal effects of the ordered logit model with *only men*, without health, self-employment and area of occupations as control variable, and specification for each category (Early leavers, Norm (65) and Stayers)

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Early Leavers</th>
<th>Norm (65)</th>
<th>Stayers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohort 1942-1945</td>
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</tr>
<tr>
<td>Cohort 1946-1949</td>
<td>-0.0799***</td>
<td>0.00249</td>
<td>0.0774***</td>
</tr>
<tr>
<td>Cohort 1938-1941</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Married</td>
<td>-0.0237</td>
<td>0.000739</td>
<td>0.0229</td>
</tr>
<tr>
<td>Foreign born</td>
<td>-0.0192</td>
<td>0.000600</td>
<td>0.0186</td>
</tr>
<tr>
<td>Low education</td>
<td>0.0157</td>
<td>-0.000490</td>
<td>-0.0152</td>
</tr>
<tr>
<td>High school</td>
<td>-0.0989***</td>
<td>0.00309</td>
<td>0.0958***</td>
</tr>
</tbody>
</table>

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>z-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post graduate</td>
<td>-0.314***</td>
<td>0.00979</td>
<td>0.304***</td>
<td></td>
</tr>
<tr>
<td>Private Pension</td>
<td>1.97e-05</td>
<td>-6.15e-07</td>
<td>-1.91e-05</td>
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</tr>
<tr>
<td>Labour income</td>
<td>0.0140**</td>
<td>-0.000437</td>
<td>-0.0136**</td>
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</tr>
<tr>
<td>Capital income</td>
<td>-0.0318*</td>
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<td>0.0109</td>
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<tr>
<td>Psychological demanding job</td>
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<td>-0.00111</td>
<td>-0.0345*</td>
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</tr>
<tr>
<td>Possibility to combine work and family</td>
<td>0.0267</td>
<td>-0.000834</td>
<td>-0.0259</td>
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</tr>
<tr>
<td>Possibility to choose when to work</td>
<td>-0.111***</td>
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<td>Possibility to choose how to work</td>
<td>-0.0506*</td>
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</tr>
<tr>
<td>Working under time pressure</td>
<td>0.0224</td>
<td>-0.000700</td>
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<tr>
<td>Monotone tasks</td>
<td>0.0931***</td>
<td>-0.00291</td>
<td>-0.0902***</td>
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<tr>
<td>Good social cohesion at work</td>
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<td>-0.00218</td>
<td>-0.0676**</td>
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<tr>
<td>Social with coworkers outside of work</td>
<td>0.0639***</td>
<td>-0.00199</td>
<td>-0.0619***</td>
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<tr>
<td>Short-term contract</td>
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<td>0.000314</td>
<td>0.00974</td>
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</tr>
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<td>-0.00199</td>
<td>-0.0616***</td>
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</tr>
<tr>
<td>Tenure</td>
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<td>-3.14e-05</td>
<td>-0.000974*</td>
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</tr>
<tr>
<td>Unsocial hours</td>
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<td>Observations</td>
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<td>5,818</td>
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</tr>
</tbody>
</table>

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix E

Table 5: Marginal effects of the ordered logit model with only women, without health, self-employment and area of occupations as control variable, and specification for each category
(Early leavers, Norm (65) and Stayers)

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Early Leavers</th>
<th>Norm (65)</th>
<th>Stayers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohort 1942-1945</td>
<td>-0.0498*</td>
<td>0.0179*</td>
<td>0.0319*</td>
</tr>
<tr>
<td>Cohort 1946-1949</td>
<td>-0.0435</td>
<td>0.0156</td>
<td>0.0279</td>
</tr>
<tr>
<td>Cohort 1938-1941</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Married</td>
<td>0.104***</td>
<td>-0.0375***</td>
<td>-0.0670***</td>
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<tr>
<td>Foreign born</td>
<td>-0.0418</td>
<td>0.0150</td>
<td>0.0268</td>
</tr>
<tr>
<td>Low education</td>
<td>0.0566*</td>
<td>-0.0203*</td>
<td>-0.0363*</td>
</tr>
<tr>
<td>High school</td>
<td>-0.128***</td>
<td>0.0458***</td>
<td>0.0819***</td>
</tr>
<tr>
<td>Post Graduate</td>
<td>-0.549***</td>
<td>0.197***</td>
<td>0.352***</td>
</tr>
<tr>
<td>Private Pension</td>
<td>0.000122**</td>
<td>-4.37e-05**</td>
<td>-7.80e-05**</td>
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<td>0.0264***</td>
<td>0.0471***</td>
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<tr>
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<td>0.000187***</td>
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<td>0.0455***</td>
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<td>-0.0194**</td>
<td>-0.0347**</td>
</tr>
<tr>
<td>Possibility to choose when to work</td>
<td>-0.0793***</td>
<td>0.0285***</td>
<td>0.0508***</td>
</tr>
<tr>
<td>Possibility to choose how to work</td>
<td>-0.0318</td>
<td>0.0114</td>
<td>0.0204</td>
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<td>Working under time pressure</td>
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<td>-0.00282</td>
<td>-0.00504</td>
</tr>
<tr>
<td>Montotone tasks</td>
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<td>0.0414***</td>
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Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1