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GENDER DIFFERENCES  
IN EARLY RETIREMENT  
BEHAVIOUR



The age at which people retire from the labour market has been drifting downwards in most OECD countries. More than a quarter of the OECD countries have an average retirement age below 60 for males, and more than half of the countries have an average age of retirement below 60 for females (Blöndal and Scarpetta 1998). The number of years in employment for men is decreasing, and retirement now begins so early that they spend only half their life at work (The Economist 1999). At the same time fertility is reduced, the health of older people has improved in several countries and people live longer. Fifty years ago, European men and women worked seven years longer than they do now – and lived 11 years shorter. The proportion of elderly in the population is therefore increasing and will continue to grow in the years to come. The decline in the labour force participation of older persons is described by Gruber and Wise (1998: 158) as: “... the most dramatic feature of labor force change over the past several decades”. As a consequence, early retirement causes great concern for the financing of the welfare states in the immediate future. Thus, early retirement is an important topic on the political agenda in most countries, and has already led to changes in the pension systems and rise in the official retirement age in countries like USA, Greece, Italy, New Zealand, Japan, and recently Germany.

In this article, we study the use of various early retirement pathways for men and women, where pathways refer to different institutional arrangements that are sequentially linked to manage the transition from work into old-age retirement (Kohli and Rein 1991). Gender differences in the exit probability may be due to differences in the background characteristics, and/or to various responses to changes in these characteristics. For each individual we have detailed information on age, education, income, etc. In addition, we pay particular attention to fam-

ily characteristics such as marital status, spouse income and wealth, and spouses' labour market status. For married individuals there are several sources of joint retirement behaviour, "added-worker" vs. "assortative mating" effects, and/or correlation in unobserved tastes. Among the older cohorts, men generally have higher education and normally better paid jobs than women. We also know that women generally marry men with higher social status than themselves. Furthermore, men are often the breadwinners of the family. These are examples of issues that may induce gender differences in the use of various retirement pathways. Thus, it is crucial not to restrict the retirement paths of the two genders to being identical. The contribution of this paper is a comparison of male and female retirement behaviour.

Previous research on female retirement behaviour, as compared to male, is limited mainly because of lack of data. The labour force participation rates for elderly are high in Norway compared to most other OECD countries. In particular this is evident for older females. The labour force participation for Norwegian women aged 55–66 years has increased from 40.1% in 1972 to 54.1% in 1997. The labour force participation for men in this age group, on the other hand, has in the same period been reduced from 81.0% to 68.8%. The average retirement age is falling, and for new pensioners it is now 59 years while the standard age of entitlement to public old-age pension is 67 years. As for most of the OECD countries, the proportion of elderly is rising also in Norway, and this trend will continue in the next few decades. Given the significant participation rates for older females, Norwegian data may be particularly suitable for the analysis of joint exit from the labour force. We have utilised the very rich KIRUT database; a database that contains detailed individual information for a random 10% sample of the Norwegian population aged 16–67. We have collected data on more than 10,000 individuals aged 55–61 years in 1989. These individuals are followed until they transit from work or until the end of 1995. In our analysis we use a discrete choice model with several destinations or pathways: disability pension, unemployment benefits, and out of the labour force. Both the disability and unemployment insurance have functioned as informal early retirement pensions in Norway, while no fully public early retirement scheme exists.

## LESSONS FROM THE RETIREMENT LITERATURE

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Research on the labour market shows that there are gender differences in several important areas. Differences are found for example in hourly/weekly wages and annual earnings, labour force participation, occupational attainment and the likelihood of receiving a pension. Women's wages and earnings are lower than men's and so are their labour force participation rates, as well as their likelihood of receiving a pension and getting a promotion (*e.g.* Even and Macpherson 1990, 1994; Altonji and Blank 1999; Spilerman and Petersen 1999). The differences have been persistent over time although the nature and magnitude of differences have changed as men's and women's work histories are becoming more similar (Hayward, Hardy, and Grady 1989; Altonji and Blank 1999).

Despite the important gender differences, most of the research on early retirement decision-making is studies of men (*e.g.* Haveman, Wolfe, and Warlick 1988; Berkovec and Stern 1991; Blau 1994; Meghir and Whitehouse 1997; Riphahn 1997). The analyses of gender differences in early retirement are more limited.

As already pointed out, using Norwegian data to investigate the early retirement process is of great interest since the female participation rate is rather high in Norway. To our knowledge there are only a few microeconomic analyses based on Norwegian data. Two of these are primarily studies of the privately negotiated early retirement scheme - AFP. Hernæs, Sollie, and Strøm's (2000) prime motivation is to model the likely effects of changing the eligibility criteria of the AFP-scheme. In this study, gender differences are restricted to a gender dummy only. This is also the case in the study by Bratberg, Holmås and Thøgersen (2000). They use a competing risk framework and find that AFP to some degree relieves the pressure on disability pension and unemployment benefits. The gender difference in early retirement is given more attention in Dahl, Nilsen and Vaage (2000). However, they do not utilise their data fully satisfactorily. They have annual data, but in general only use information at the beginning and the end of the seven-year time interval. In our study, the data used by Dahl, Nilsen and Vaage (2000) are extended somewhat and, more importantly, the fact that the data contain yearly information is utilised.

Our study differs from most of the studies cited above (and other studies) in the following respects. First, our study pays special attention to female retirement and gender differences in the retirement decision. Second, our data make it possible to distinguish between different

pathways, which is important to capture the forces behind the choice of various pathways. This is especially important since both the behaviour and the characteristics of men and women may induce variation in the preference for or choice of various pathways. Third, our data include a broad range of information on family characteristics, which in our opinion are important both for the study of gender differences and the choice of pathways, and largely neglected in the retirement literature. Neglecting family characteristics leads to a major loss of fit in the case of women, especially in the case of exit from full-time work (Peracchi and Welch 1994).

## INSTITUTIONAL BACKGROUND

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The standard retirement age in Norway is 67 years on the condition that a person gives up the right to keep a specific job. However, some professions and occupations have a lower pension age and some are fixed by law. The compulsory retirement age is 70.

As in several other countries, institutional arrangements that were originally constructed for other purposes, notably unemployment benefits and disability pension, have been used as pathways to early retirement. Until the early 1990s the entitlement conditions for disability pension in Norway were liberal, and labour market conditions were a factor in the disability assessment. Before receiving disability pension, sickness insurance is usually paid for one year, and a subsequent period in a rehabilitation program is required. To qualify for a disability pension, a person must demonstrate that his/her ability to earn an income has been permanently reduced by at least 50%.

Older people are entitled to unemployment insurance for an extended period. Persons who become unemployed when they are 60.5 years or older can receive unemployment insurance until they reach the standard retirement age of 67 years.

There are several early retirement pathways with private provisions in Norway, even though the use of these is in general not very common. The most important non-public early retirement scheme in Norway is Early Retirement Pension Agreement - AFP. This scheme came into effect as of 1 January 1989. The use of the scheme has increased as the retirement age has been reduced (62 as of 1 March 1998), as the replacement rate has been improved (in 1992) and as knowledge of the scheme has increased. The AFP scheme is supported financially by the state (40%), and represents entitlement for those with at least

ten years of social security contributions, and for those whose pension income is at or above a certain minimum. The pension is the same as the full pension entitlement, but is less favourably treated under income taxation than a full old-age pension.

The replacement rate is different for the various types of retirement schemes, and this may give different economic incentives conditional on the retirement pathway that is used. The replacement rate varies between 60% and 90% for the private/non-public retirement schemes. The replacement rate for disability pension is about 62%, but in order to increase the employees' incentives to apply, employers in many firms pay a small company pension in addition to the state paid disability pension, thereby increasing the replacement rate up to 80%. The standard replacement rate for unemployment is 63%. Also for this retirement scheme, several firms pay a small company pension to employees who agree to be "voluntarily" laid off, which increases the replacement rate substantially. The replacement rate for AFP varies between 50% and 60%. Moreover, a new trend is that some firms pay a company pension to former employees in addition to the AFP pension.

## DATA

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The analysis is based on data from the KIRUT database. The base contains detailed individual information on socio-economic background, labour market participation, and social insurance payments for a random 10% sample of the Norwegian population aged 16–67 (the total sample exceeds 300,000 individuals).

Our sample includes observations of individuals born between 1929 and 1934 who occupied a job on 1 January 1989. Initially we utilised only observations for the individuals for which we have, for our study, all the relevant information in all the years from 1989 until 1995. After excluding individuals with missing variables during the sample period, we end up with a balanced sample of 10,315 individuals, 5,383 males and 4,932 females. The sampled individuals were followed until they transitioned into either *disability*, *unemployment*, or *out of work*.

## MODELLING

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The objective of this study is to test empirically how males and females respond differently to variations in relevant characteristics and variables. More specifically, we ask the question, what factors affect the probability of being ob-

served in different end-states in a given year  $t$ , conditional on being in the state of *work* in the previous year,  $t-1$ ? As pointed out by several authors, individuals are either pushed into or choose different early retirement pathways (see for instance Boskin and Hurd 1978; Haveman, Wolfe and Warlick 1988; Kohli and Rein 1991; Riphahn 1997). The underlying hypothesis is that the determinants of the transitions from work into different states are identical, even though the importance of these determinants is different for each of the various transitions.

Formally, we assume that individual  $i$  chooses alternative  $j$  at time  $t$  if the associated utility,  $U_{ijt}$ , is the highest of all  $J$  alternatives. For each individual we define a latent variable,  $Y_{ijt}^*$ , which denotes the change in utility of moving from the state *work* in year  $t-1$  to early retirement in year  $t$ . The (change in) utility is determined by a vector of observable variables,  $\mathbf{x}_{it}$ , including expected income in the different states, personal characteristics, labour market conditions, etc., and a stochastic error term,  $\varepsilon_{ijt}$ .

## Empirical results

### *The probabilities of ending in various end states*

First we have calculated the probabilities of transition to different states for each gender, conditional that the individuals were working at the end of the previous year.

Ignoring the gender differences for a moment, we found that the probabilities of staying employed are decreasing over time. At the same time, the probability of ending in the states *disabled* or *unemployed*, together with *out of work* is increasing over time. The driving force behind this tendency is, of course, the fact that the individuals in our sample are getting older over time. Note also that there seemed to be a relative large increase in the probability of ending up as *out of work* in 1994 and 1995. This is evident for both genders and may be due to reductions in the retirement age in AFP from 66 years in 1989 to 64 in 1993 (October 1). Moreover, for those who had access to AFP, the tendency to utilise it increased in this period. Aggregate numbers state that AFP is more common in the public sector than in the private sector and that the propensity to use AFP is higher for men than for women.

Turning to the gender differences, there seems to be a tendency that females are more likely to end up as disabled, rather than as unemployed, while the opposite is true for males. We also found that there is a slight tendency for women to retire later than men (*i.e.* they are



working longer). Even though care should be taken with regard to the *out of work* group since it is rather heterogeneous, we found that males are slightly more likely to use this pathway than females.

### Multinomial logit model results

The results from the multinomial logit model show several interesting results (Table 1).

**Table 1**  
 Results from the multinomial logit model; significant effects (5% level) marked: + positive effect, - negative effect

	MALES				FEMALES			
	Work	Disab.	Unempl	OFW	Work	Disab.	Unempl	OFW
<b>Family charac.</b>								
Unmarried					+	-		
Widow(er)					+		-	
Divorced			+					
Children	+						+	
Age	-	+	+	+	-	+	+	+
Education	+	-		-	+	-	-	
Experience	+	-	-		+	-	-	
Civil servant	+		-	+	+		-	+
<b>Income/wealth</b>								
Employed	+	-	-		+	-	-	-
Unemployed	+	-			-		+	
Disabled	-	+	+	+	-	+	+	+
Wealth	+	-					+	+
<b>Spouse charac.</b>								
Sp. age diff.								
Income	+	-		-	+	-		
Wealth				+	+		-	
Benefit receiver	-	+			-	+		
<b>Industries</b>								
Agricult./fish.	+	-	-					
Private services	+	-	-	-				
Transp/comm.	+	-	-	+	+	-		+
Real est.+ fin.			-		+	-		+
Educ. + health	+	-	-		+		-	
<b>Year dummies</b>								
1990			-		+		-	
1991					+		-	-
1992	-	+	+		+			-
1993	-		+		+	-	-	-
1994	-	+	+	+				
1995	-		+		+			
<b>Local municip.</b>								
Resid. density				-				
Distance centre				+	+	-		
Unemployment	-	+	+		-	+	+	

The first three variables compare the effects of being single (unmarried, widow(er), or divorced) to that of being married. Overall, there is a tendency of increased probability of early retirement for males, even if divorced's exit to unemployment is the only effect that is significant at the 5% level. This appears not to be the case for females; rather, being unmarried significantly reduces the probability of exiting to disability, and being a widow or divorced reduces the probability of exiting to unemployment.

Since husbands generally are older than their wives, there are more males than females with dependent children (younger than 18 years) in our sample. Having dependent children tends to reduce the probability of early retirement for males, while the opposite is the case for females. As for the negative marginal effects for the males, this might have to do with the obligations following the role of being principal earner. There is, however, at least one other possible explanation. When having children to some degree prevent males from becoming disabled, it might be due to some selection mechanism where men with children have some unobserved attractive characteristic. Thus, in our reduced form model it is not possible to decide whether having children is a pure exogenous indicator, or, alternatively, if it is plagued by some endogeneity problems. So, based on our findings, we should not recommend men to have children just to increase their probability of staying employed and not becoming disabled.

Age has the expected effect that it increases the probability of early retirement. For both genders, the effect is strongest for the exit to disability and out of the labour force. The effects are marginally stronger for males compared to females.

We expect individuals with high human capital investment to be less inclined to early exit from the labour force. Our human capital variables, education and experience, both seem to represent insurance against disability and unemployment. The strongest effect is the females' (reduced) probability of exiting to disability.

Being a civil servant does not affect the probability of entering disability. It is, on the other hand, a remarkably good predictor for not becoming unemployed. This is probably due to few layoffs and the high degree of job protection for this occupational group. The variable in addition correlates positively with the probability of leaving the labour force for other reasons than disability and unemployment. The reason may be the higher use of AFP in the public sector than in the private sector.

The next section of Table 1 presents the influence on early retirement from the income and wealth variables, which contain the main information on pecuniary relations of the individuals in our sample. Ideally, we need expected income streams in all the four states represented in our analysis. As explained earlier, this is modified by the fact that each individual can be observed in one state at the time only. By using previous earnings and labour market records, combined with the benefit and pension rules in force, we manage to construct income variables for the states work, disability and unemployment. We expect the own-effects to be positive (for example, high earnings reduce the probability of leaving a job), and the cross-effects to be negative (for example, high disability pension makes it less attractive to finance early retirement with unemployment benefits). As for earnings, our data clearly support our hypothesis. Increased earnings significantly reduce the probability of exit to any form of early retirement. Note that the response is approximately twice as strong for women compared to men. Furthermore, an increase in the unemployment benefits significantly reduces the males' probability of leaving to disability, and also has the expected positive own-effect on the females' probability of entering unemployment. For the remaining states there are no sizeable effects. Finally, increased disability pension significantly increases the probability of entering disability. But in addition, we estimate a counter-intuitive positive effect on both genders' propensity to exit to unemployment as well as out of the labour force.

The influence of (own) wealth on the retirement decision is not obvious, *a priori*. On the one hand, increased wealth will improve the possibility of early retirement through increased ability of self-support. There is a certain support for this effect in our data, in that the probability of exiting to out of the labour force increases, particularly for females. On the other hand, wealth may be a proxy for both ability and social status. In that case we would expect reduced probability of exit to early retirement to disability and unemployment. The negative reported marginal effect on males' propensity of exiting to disability is consistent with this view, but the positive effect on females' propensity of exiting to unemployment is not.

We also have data on several spouse characteristics, namely spouse age difference, spouse income and wealth, and a dummy for receiving pensions (old age, disability or rehabilitation). Difference in age between the individuals and their spouses has no sizeable effect on the retirement behaviour. Two competing hypotheses are the added

worker-effect versus assortative mating. If the added worker-effect dominates, we would expect compensating behaviour in the cases where the spouses have small resources. For example, if the spouse has low income and wealth, and/or is a pension receiver, this correlates with a low probability of early retirement, since it means that the other spouse must compensate by working extra hard and long. Our evidence is not clear-cut, but there seems to be rather weak support for the added worker-effect in our sample. High spouse income implies a significant reduction in the probability of early retirement for both males and females. Furthermore, having a spouse who is a pension receiver increases the probability of early retirement. Both findings clearly are consistent with the assortative mating hypothesis. As for spouse wealth, the picture is unclear, with insignificant coefficients in most of the cases.

In the estimations we control for employment in six different industries, with manufacturing as the base category. The most striking finding is that being employed in the manufacturing sector strongly increases the probability of unemployment retirement for males, and also has a significant effect on the probability of ending up as disabled. The number of females employed in this sector is relatively low, which probably explains the lack of such a finding for this group. Furthermore, working in the education and health sectors represents strong protection against unemployment, the explanation probably being the same as for civil servants.

The year dummies (1989=0) are meant to take care of the timing and magnitude of business cycles, as well as structural changes in the form of modifications and adjustments of the rules in force. For men there are mostly positive and significant effects on the transitions to disability and unemployment, and negative effects on the probability of staying in work, especially for the years 1992, 1993 and 1994. The pattern is the opposite for women, with negative effects for disability, unemployment, and out of work, and positive effects for work. This lack of gender coincidence is somewhat puzzling. The institutional changes relevant for early retirement (changes in eligibility criteria, introduction AFP, etc.) are in general gender neutral. Similarly, both genders are faced with the same business cycles. The explanation is probably the fact that males and females work in different sectors. Institutional changes and the business cycles hit the sectors differently, more so than we are able to pick up with the rather crude sector dummies previously referred to.

Finally, we control for some local municipality characteristics. With the two first variables we test whether the behaviour differs systematically in urban compared to rural areas. Our data hardly support this hypothesis. Most of the marginal effects are insignificant, and in the cases where we report sizeable effects (out of labour force for males, disability for females), the variables point in opposite directions. As for the local unemployment rate, this turns out to be an important predictor for the probability of early retirement in the form of unemployment. Interestingly, local unemployment rate also correlates positively with the state of disability. This is, in itself, a support to the argument that unemployment and disability are substitutable pathways to early retirement, and that there is an over-utilisation going on in the form of unemployed individuals ending up in disability retirement without being truly disabled.

## DISCUSSION

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The labour attachment for males and females may, at first glance, seem to be growing more and more equal in Norway. The participation rates for females are increasing, particularly for the youngest. The participation rates for older males are, on the other hand, falling. Therefore, it is important that we ask whether younger women will adopt men's retirement pattern, as they grow older. Our micro evidence suggests that there may be several reasons why this will not be the case.

The family structure is changing in the Western countries. A dramatic increase in the dissolution of marriages and cohabitation steadily increases the number of single-person households. While being single appears to increase the probability of early exit for males, there is some evidence that the opposite seems to be the case for females. Secondly, a relatively safe prediction is that females will acquire relatively more education in the years to come. Increased human capital in the form of education will probably reduce the earnings gender gap (at least this appears to be the case in Norway). Our findings indicate that females are responding more strongly to changes in education as well as earnings. The higher (expected) levels and the higher (estimated) responses both point in the direction of reduced probability of early retirement. Thirdly, while males tend to work in sectors with relatively high exit rates to disability and unemployment, notably manufacturing and construction, females far more often work in sectors with a relatively low occurrence of disability and

unemployment, such as health and education. Moreover, these are sectors that are expected to have a growing employment in the coming decades. All these findings indicate that the propensity to retire early will be lower for females than for males for the cohorts to come.

Some reservations have to be made, however. Our results are based on a sample of people that have selected themselves; first, into employment, and thereafter into the different states we evaluate. There are, of course, lots of unobservable phenomena involved in the individual choices. A particularly relevant example is the selection of women in our sample. When we propose that future female cohorts will have lower propensity of early retirement, it builds on the assumption that they will behave and respond equivalently to the women we include in our analysis, namely the 1929–1934 cohorts. We do not know that the younger female cohorts in today's work force respond equally strongly to increased earnings, education, experience, etc. On the contrary, even if Norway has a relatively high participation rate for older female cohorts, it is reasonable to assume that they are a selection with stronger abilities and/or motivation for participation in the work force than the ones that comprise the younger female labour force. The selection problem will be at the core of our future research.

## NOTE

This presentation is based on a paper written together with Øivind Anti Nilsen and Kjell Vaage, Department of Economics, University of Bergen, Norway.

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