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# A Description of Routes out of the Labor Force for Workers in Sweden<sup>\*</sup>

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17 September 2003

## Abstract

This paper collects and reviews information about routes to retirement and exits from the labor force by older workers in Sweden. It gives a concise survey of rules of the major retirement schemes covering disability, sickness and unemployment. Using longitudinal micro data from the period between 1992 and 1999, it also studies alternative measures of retirement, joint retirement behavior of spouses, transition path probabilities, and successive exits in terms of a reduction in working time from full-time to part-time employment.

**Keywords:** Retirement, pension schemes, unemployment, sickness, disability, working hours, longitudinal individual data set, register-based income data, transition matrix.

**JEL classification:** J14, J21, J22, J26

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## 1 Introduction

Retirement has become an important field of research for many reasons, not least because of changes that have been observed in retirement behavior. It has been noted, for example, that older workers, particularly men, are deciding to leave the labor force at a faster rate nowadays than earlier cohorts did and that older workers who have faced a spell of unemployment, long-term sickness, or disability are less likely to return to work. Moreover, there is likely to be an increase in the ratio between retired individuals and workers, caused by increased longevity, increased early retirement and the large birth cohorts of the 1940s.

Workers in Sweden have a set of routes which they can use out of the labor force. Some of these routes are intended for retirement purposes and some, it can be argued, are not. Compulsory pension plans, such as the national old age pension and the occupational pensions (pensions negotiated in central agreements between the unions and employers' associations), and non-compulsory plans, i.e., private pensions, constitute formal exit routes. The social security programs – the sickness, disability, and unemployment insurance systems – constitute informal retirement routes. They form the dominating income source for a significant share of non-working older individuals. The pension system generates a problem of moral hazard since using social security programs for some years prior to retirement will not affect old age pension entitlements. Instead, these benefits generate pension rights, while occupational pensions do not.

This paper describes paths to retirement in Sweden, both by examining empirical data and by surveying rules, with the particular aim of forming the basis for an econometric model of the retirement decision for workers in Sweden. It would be helpful to read this paper in conjunction with Hakola (2003), which offers a literature survey, a theoretical background to retirement modeling, and a thorough description of measures of incentives commonly used in the economic retirement literature.<sup>1</sup>

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<sup>1</sup> That paper and the present one may both be seen as background papers to an econometric model of retirement in Sweden. This model is to be included in a larger microsimulation model, SESIM, which resides at the Ministry of Finance in Sweden (<http://www.sesim.org/>).

The variation and complexity of the routes that lead to final retirement are sometimes underrated. In order to fully understand retirement and the gradual reduction of people's working careers, it can be important to take all of the potential income sources into account. Recent research in Sweden includes papers by Palme and Svensson (1997, 2002a, 2002b), RFV (2002) and Andrén (2001). (See Hakola, 2003, for an extended literature survey.) These papers cover much of the relevant information about such matters as the relative importance of exit routes, but there are certain questions they leave unanswered. For instance, they do not address joint decision-making by spouses in choosing retirement/a labor market exit. The common data source for the papers mentioned above, with the exception of Andrén, was the Longitudinal Individual Data set (LINDA), which is a register-based longitudinal data set with income registers and population censuses as the primary register components.<sup>2</sup> The household definition in LINDA makes it feasible to collect information about such questions as the joint labor market status of spouses and transitions between sources of income.<sup>3</sup>

Not much attention is paid in these studies to mixes of work and retirement either, for example part-time retirement.<sup>4</sup> Policies aiming to induce older workers to switch from full-time to part-time employment might be a way to maintain labor force participation. Thus a future retirement study should ideally include part-time retirement. LINDA provides the opportunity to empirically investigate this issue further since the data base includes information about part-time/full-time employment.

In addition, these papers fail to examine the impact of health on retirement. Focusing too little on conditions at the workplace in relation to health deterioration might create a false impression as to the role of economic incentives in retirement decisions. Unfortunately, LINDA provides no information about health and workplace conditions.

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<sup>2</sup> Documentation regarding LINDA can be found on the web at <http://www.nek.uu.se>. SESIM uses LINDA as well.

<sup>3</sup> Information about the spouse of a sampled individual (or a cohabiter of a sampled individual if they have children together) was automatically recorded in the data.

<sup>4</sup> Wahlberg (2002) estimated a model of early retirement with partial early retirement, full early retirement and continuing work as alternatives, but did not include disability pension, sickness and unemployment insurance schemes in his model. These may be even more important for early withdrawal, see, e.g., Section 3.4 of this paper.

Using longitudinal micro data from LINDA during the period between 1992 and 1999, this paper studies alternative measures of retirement, joint retirement behavior of spouses, transition path probabilities, and successive exits in terms of a reduction in working time from full-time to part-time employment. The next section presents some stylized facts about the labor market participation of older workers. The paper is then divided into two main parts; one surveys the main aspects of the income security system, including major retirement paths, disability, sickness, and unemployment (Section 3), while the other examines labor market exit paths empirically (Section 4). A summary of findings and concluding remarks are found in Section 5.

## **2 Labor force participation, unemployment and working hours**

The labor force participation rate (LFPR) has decreased for men in practically all age groups since the 1960s; see the top panel of Figure 1 (borrowed from Palme and Svensson, 2002b). The decline is most marked in the 60-64 age group. In 1963, about 85% of men in this group participated in the labor force, which was some 10 percentage points below the participation rate of 45-54-year-olds. By 2001 the LFPR had fallen to about 60% among this group, thus creating a 30 percentage point gap relative to 45-54-year-olds. The development in comparable countries has been much more dramatic, so Sweden has actually done relatively well (see Palme and Svensson, 2002b, Figure 2).

Among women, in contrast, the LFPR increased in all age groups during this period (bottom panel, same figure). In later years, however, the increase in women's LFPR has flattened out, and it fell during the 1990s for women aged 45-54. Whether this is a stable pattern is difficult to say, considering the economic downturn in the 1990s. A gap in LFPR between the 60-64 and 45-54 age groups is also found for women, but here the percentage point difference seems to have remained rather constant over time, at about 25 percentage points since the beginning of the 1980s.

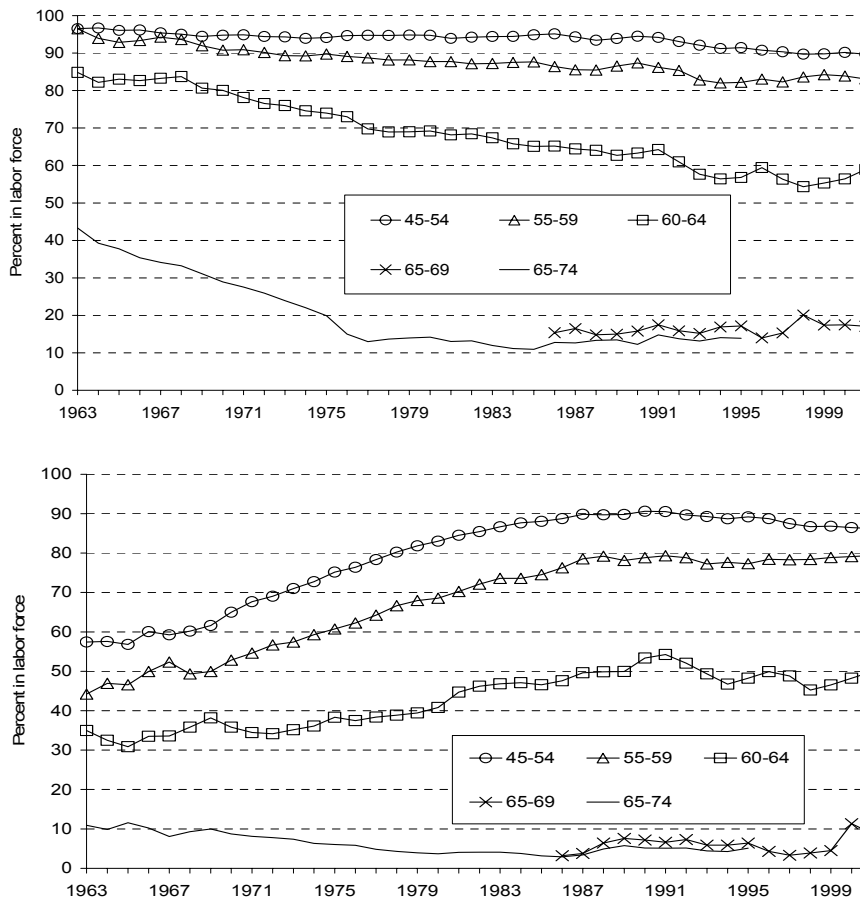


Figure 1 Trends in labor force participation rates for men (top panel) and women (bottom panel) (*Source: The Labour Force Surveys 1963-2001*)

On the national level, economic fluctuations like those seen during the 1990s seem to have a transitory rather than permanent effect on older people's labor force participation. Holmlund (2003) showed that the employment-to-population ratio (thus excluding the unemployed from the numerator) for the oldest group (60-64) was roughly the same after the economic downturn of the 1990s as it was before.

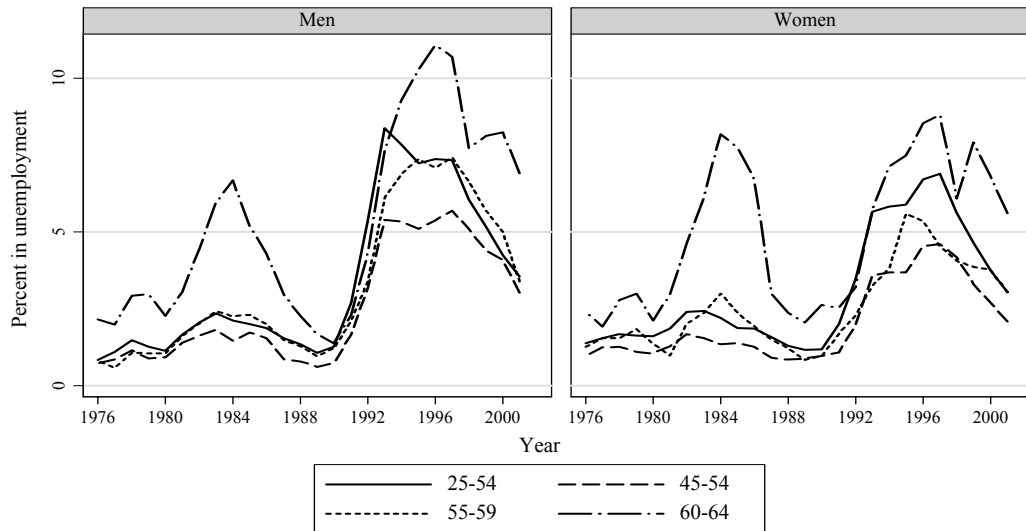


Figure 2 Unemployment rates by age group (*Source: The Labour Force Surveys, 1976-2001*)

There is a clear age pattern in unemployment, see Figure 2. In practically every year during 1976-2001, the unemployment rate was higher among elderly workers aged 60-64 relative to other workers (except for workers under the age of 25).<sup>5</sup> Unemployment rates for older workers aged 60-64 (and for those under 25) are much more volatile than for other age groups. We should also note that the unemployment rate during this period in general was lower for workers aged 55-59 compared with those aged 60-64. In some years during the first half of the 1990s, the unemployment rate was actually lower for workers aged 55-59 than those in the 25-54 age group. This may be a result of labor market legislation in Sweden that protects workers with high seniority. For women, it may also be that older women have an advantage in the labor market relative to younger women because of their reduced likelihood of childbearing.

<sup>5</sup> The group of workers under the age of 25 is not included in the figure. The unemployment rate of this group has usually been higher than that of all other age groups during the study period.

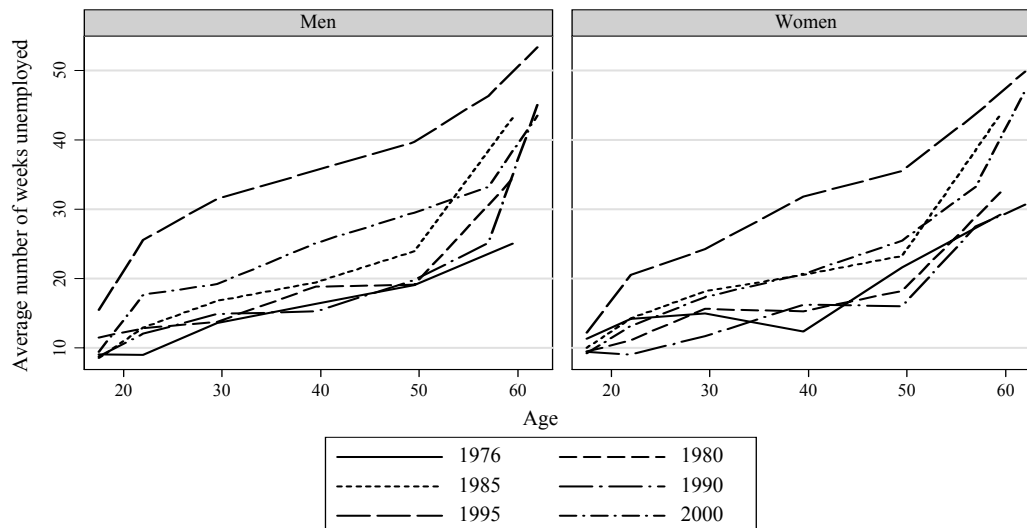


Figure 3 Average number of weeks in unemployment if unemployed (*Source: The author's calculations, using The Labour Force Surveys*)

We might expect that labor market legislation would lead to a lower risk of becoming unemployed among older workers. However, the reason behind the high unemployment among 60-64-year-olds seems instead to be that the duration of unemployment is much longer; Figure 3 indicates that unemployment duration in 1995 was on average 50 weeks at age 60, compared with 35 weeks at age 40. Persistent unemployment may be a result of either a less intense job search or a lower demand for labor. Either way, long term unemployment may be a relatively common exit route from the labor market for older workers. (Labor force exits account for a significant share – 40%, according to Holmlund and Storrie, 2002 – of the outflow from unemployment.)

Figure 4 also shows interesting variations between age groups as well as significant fluctuation over time in the average time spent working. Over the period as a whole, the average number of weekly work hours fell for older men and increased for older women. For most groups of men there have been few changes, e.g., men aged 35-54 work an average of 41-42 hours per week. At the end of the period there is a modest decline in work hours.



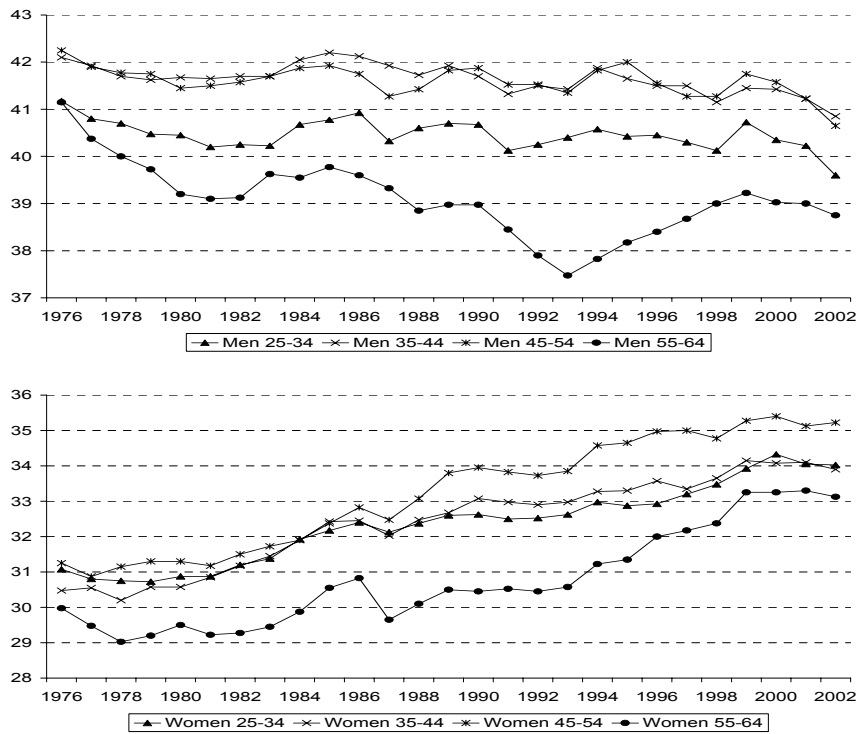


Figure 4 The average number of weekly work hours (*Source: The Labour Force Surveys, 1976-2002*)

Diverging from this steady pattern are men in the 55-64 age group, whose work hours per week gradually declined from an average of 41 hours in 1976 to about 37 hours in 1993. This decline was temporary, coinciding with the economic downturn of the 1990s. Between 1993 and 1999, work hours increased to an average of 39 hours per week. In the last couple of years, however, the general trend in the number of work hours has been falling. There is also a small but evident drop in average number of work hours which coincides with the economic downturn seen at the beginning of the 1980s. On average, women work fewer hours than men, but during the last twenty-five years their average weekly hours have increased quite substantially, and this holds true also for women in the oldest age group (55-64). More women are working full-time than in the past.



Figure 5 The fraction of workers with full-time employment, by age, gender and year  
(Source: LINDA)

A more detailed description is given in Figure 5, which shows the percentage of employed persons with full-time employment, based on data from LINDA.<sup>6</sup> The fluctuation in work hours is in keeping with the pattern shown in the previous figure: the percentage of employed persons with full-time job contracts increased for men between 1993 and 1997 and then declined somewhat in 1999. We also notice a dramatic drop in work hours around the age of 60, especially for men. The age at which this drop occurs has fluctuated, just as the level of work hours has, during the 1990s: in 1997 the decline in work hours was not observed until 62 or 63 years of age, while in 1993 it occurred at 59 or 60 years of age.<sup>7</sup>

We see, then, that older men in particular are deciding to leave the labor force at an earlier age than in the past. Labor market conditions for older workers appear to be

<sup>6</sup> See Section 4.1 for a description of the data. Only those with a 100% employment contract recorded in the data were counted as full-time employed. Both the private and public sector are included in the figure.

<sup>7</sup> It is, however, unclear whether the tendency toward less full-time work as age increases arises as an effect of individuals reducing their individual employment rate when they age (e.g. going from full-time to part-time) or whether full-time employed workers retire earlier than other groups. To disentangle which story fits the data best, one would have to examine transitions between different types of employment at the micro level.

highly dependent on the economy as a whole. With the exception of very young workers, below the age of 25, we find that it is older workers who have the highest rate of unemployment during economic downturns. This may be due not so much to a higher risk of becoming unemployed, but rather to the fact that older workers who are laid off remain unemployed for a much longer time than any other age group. In addition, older workers, and particularly older men, vary more in their work effort (as measured by their number of work hours) over the business cycle than younger cohorts of workers do. This may be interpreted as a labor demand effect.

### **3 The income security system and pathways to an early exit from the labor force**

The income security system consists of two main parts: the old age pension programs (public old age pensions and the occupational pensions as agreed upon by the unions and employers' associations) and the social security programs (sickness, disability, and unemployment insurance). Other influential fields of legislation include regulations governing special housing allowances for pensioners and those regarding income and capital taxes.<sup>8</sup>

In discussing the income security system, I include here both the time period covered by the empirical part of the paper and more recent years, thus highlighting some of the rather considerable changes, i.e. the new pension system, that the income security system has undergone.<sup>9</sup>

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<sup>8</sup> Palme and Svensson (2002b) suggest that it may be misleading to consider only the incentives generated by the old-age pension schemes. Income taxes and housing allowances are also important for participation behavior, something which is not often pointed out. In particular, policies created to make income distribution among pensioners more equal, i.e., progressive taxes and means tested housing allowances, counteracted the actuarial adjustments in pension schemes, especially for low income earners.

<sup>9</sup> Parts of this section rely on Palme and Svensson (2002a, 2002b, 1997).

### 3.1 Old age pension

Until the new pension system was launched in 2003, Sweden's old-age pension programs consisted of the public old-age pension (OAP), the part-time pension and the occupational pensions (TJP).

#### 3.1.1 *The public old-age pension before the reform*

The public old-age pension consisted of the basic part (folkpension, FP), the supplementary part (ATP) and the part-time retirement pension, which was abolished by the end of 2000. All Swedish citizens and all persons residing in Sweden are entitled to the basic pension. It provides roughly the same amount regardless of previous earnings, but is reduced if the individual has resided in Sweden for less than 40 years or worked in Sweden for less than 30 years. Like every other social insurance scheme, it is linked to the base amount (BA).<sup>10</sup> ATP is determined by the individual's earnings history, and amounts to 60% of the average income below the social security income ceiling during the 15 years with the highest earnings.

The partial pension scheme was launched in July 1976 for those aged between 60 and 65. The partial pension allowed workers to combine part-time work with a part-time pension; this plan expired at the end of 2000.

#### 3.1.2 *Early old-age pension claims*

After July 1976, when the retirement age was lowered to 65 from 67, workers were permitted to draw old-age pensions starting at the age of 60 (the age was raised to 61 in 1998). Workers may also postpone receipt of their pension until the age of 70. Palme and Svensson (2002b, Table 1) gave an overview of pension determination, actuarial adjustment and eligibility. The actuarial adjustment of FP and ATP is 0.5% per month on early claims, before the 65<sup>th</sup> birthday. Early old age pension claims can be made in part ( $\frac{3}{4}$ ,  $\frac{1}{2}$ ,  $\frac{1}{4}$ ) or in full. It is common to combine these payments with early occupational pension claims (see below).

### 3.1.3 *Occupational pensions*

For most groups, the pension also includes occupational pensions (TJP). These pensions are compulsory for the approximately 95% of the labor market whose jobs are covered by central agreements. There are basically four different occupational pension plans, covering different parts of the labor market: blue-collar workers in the private sector (STP), white-collar workers in the private sector (ITP), central government employees, and local government employees. Occupational pensions (except for STP) can be drawn early, from the age of 60, with an actuarial adjustment of 6% per year. See Palme and Svensson (2002b, Table 1) for an overview of each program and how it determines pension level as a function of earnings history, actuarial adjustment and eligibility.

### 3.1.4 *The new pension system*

Ståhlberg (1995) argues that the old pension system may have led to financial instability as a result of an increase in early retirement, along with increased longevity, low economic growth and the large birth cohorts of the 1940s. The average pension level rose during the 1990s, while there was a decrease in the share of retired individuals without ATP, and new pensioners have consistently received higher ATP benefits than older ones (National Social Insurance Board, <http://www.rfv.se>).

Sundén (2000) argues that since Sweden has accumulated reserves, the new system, described below, should be financially stable in the long run. The goals of the new pension system are financial stability, fairness, and redistribution (Sundén, 2000). By putting a ceiling on earnings in determining benefits and levying the employer payroll tax on full earnings, the system redistributes income from high income earners to low (Sundén, 2000).

The new pension system was approved by Parliament in June 1998. The first payments under this system were made in January 2001. It replaces FP, ATP and partial retirement pension plans. The new public old-age pension consists of the income pension, the premium pension and the guarantee pension. The new system uses the con-

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<sup>10</sup> The BA is also used to calculate pension-relevant income, pension points and maximum levels within social insurance. The BA is stipulated for one year at a time by the Swedish Parliament, and has gradually become more and more closely linked to the consumer price index (CPI). Since 1999, the base amount (BA) was renamed the price base amount, and has since been linked 100% to price movements.

cept of notionally defined contribution, which creates a link between contributions and benefits. Hence, the income pension is a function of the individual's entire earnings history, not only the 15 best years as in the old ATP system. However, pension rights are not limited to gainful employment, but are also extended to studies, military service, and care of small children. Moreover, the retirement age is not fixed. The income pension and the premium pension can be drawn starting at the age of 61, while the earliest age for receiving the guarantee pension is 65. There are actuarial adjustments for early pension receipt as well as for delayed benefit claims. Pensions in the new system are indexed to labor earnings rather than to prices, as in the old system, and to changes in life expectancy.

Transition rules will apply for cohorts born between 1938 and 1953, whose pensions will be determined in part by the old system, in part by the new.<sup>11</sup> Pensions will be taxed according to the same rules as work income; in the old system OAP income meant special deductions. This pension taxation will apply also to birth cohorts 1937 and earlier as well, and an adjustment in the basic benefit amount (*grundskyddet*) will be made to compensate these birth cohorts for their higher tax payments. As for the cohorts to whom transition rules will apply, the ATP will be linked to labor earnings indices rather than the BA. The basic part of the pension (FP) will continue to follow the BA, however.

Like the old system, the new one is set up as a pay-as-you-go scheme. Only a small part, the premium pension, is funded. It might be argued, then, that potential financial problems associated with the retirement of the large 1940s birth cohorts have not really been solved. However, elements are in place to balance the system if the financial pressure becomes too great. One of these is to allow the pension index to deviate periodically from the income index, and instead to let it follow the available growth rate of the system ("the break").

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<sup>11</sup> The cohort born in 1938 will have 1/5 of their pension determined by the new system and the remainder by the old. The next cohort will have an additional 1/20 of their pension determined by the new and the rest by the old system.

### 3.1.5 *Private pensions*

For a long time now it has been possible to sign up for private pension schemes and enjoy postponement of income tax within certain limits, but, historically, few have done so (Bager-Sjögren and Klevmarken, 1998). There was, however, a substantial increase in those opting for private pension schemes during the 1990s. The author's own calculations, presented in Table 1 (using LINDA data described in Section 4.1), suggest that about twice as many saved for their retirement in a private pension insurance program in 1999 as in 1992. In general, women are more likely than men and older workers more likely than younger ones to save for retirement in a private pension plan. About 32% of the men and 42% of the women in the 50-64 age group had a private pension in 1999, compared with 21% and 20%, respectively, in 1992. The largest increase, in relative terms, can be found for workers younger than 35 or older than 60. However, there has been an increase in every age group, with the largest one among women aged 60-64; among this group the share of those having private pension insurance tripled, from 9% in 1992 to 30% in 1999.

## 3.2 **Social security programs and labor market insurance programs**

The social security program consists of sickness insurance (SI) and unemployment insurance (UI). There has recently been a substantial change in the sickness and disability insurance programs. The disability pension scheme (DI) has now expired and been replaced by SI. Prior to January 1, 2003, i.e., the period covered in the empirical part of this paper, DI was a part of the social security program.<sup>12</sup>

### 3.2.1 *UI and SI*

Benefits under the UI system consist of a part that is related to income and one that is not (*grundbeloppet*, formerly known as *Kontant arbetslöshetsstöd*, KAS). The income-related part of UI requires participation in an officially approved unemployment benefit fund.

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<sup>12</sup> This section relies on The National Social Insurance Board (RFV, <http://www.rfv.se>), the Swedish National Labour Market Administration (AMV, <http://www.ams.se>), and Palme and Svensson (2002a, 2002b, 1997).

UI can be drawn by an unemployed individual for a maximum of 300 days,<sup>13</sup> provided that the person is actively seeking employment. The number of days receiving UI can be extended if the unemployed person can show a work spell during the last 12 months or has participated in an activity that counts as “excluded time”, which in principle means that the unemployed individual was unable to take on a job during the last 12-month period. Then this time can be excluded from consideration, thus extending the period of benefit receipt.<sup>14</sup>

Holmlund (2003, Figure 4.3) shows how, during the 1990s, the average effective replacement ratio also depended on the benefit ceiling, not only on nominal replacement ratios for different wage percentiles. Interestingly, the combination of a slightly declining benefit ceiling and continuous nominal wage growth led to a substantial fall in effective replacement ratios for workers with above-median earnings.

In case of sickness, SI replaces income losses proportionally up to the social security ceiling, which is fixed at 7.5 times the BA. Since April 1993, there is a one-day qualifying period before the SI benefit may be claimed. Eligibility for the SI benefit requires a certificate from a physician from the eighth day of a sickness spell. From 1992 on, compensation for the first 14 days of a sickness spell has been paid by the employer (sick pay, “sjuklön”).<sup>15</sup>

The replacement ratio in the SI has been changed several times during the 1990s. In general, these changes in the replacement ratio also apply to UI. Today 80% of previous labor earnings, up to an income ceiling determined by the government, is re-

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<sup>13</sup> Until February 2001 the limit was 450 days for those 57 or older; now it is 300 days for everyone.

<sup>14</sup> Time that can be excluded includes completing educational training beyond the compulsory school level in a course lasting at least 12 months and eligible for study allowances. Participation in a labor market program also counts as “excluded time” since the unemployed person was unable to take a job. Labor market programs include ”arbetsmarknadsutbildning, arbetspraktik, stöd till start av näringsverksamhet, aktivitetsgaranti, ungdomsgarantin för 20-24-åringar, förberedande insatser, arbetsinriktad rehabilitering, vägledning eller platsförmedling, datorek/aktivitetscenter, förberedande eller orienterande utbildningar, projekt med arbetsmarknadspolitisk inriktning, friår”. Other permissible reasons for not accepting a job offer that may thus be counted as “excluded time” are sickness, military service, certain educational training, care of one’s own child less than 2 years old, and employment which is partly or fully subsidized by the Swedish National Labour Market Administration (AMV).

<sup>15</sup> Between January 1, 1997 and March 31, 1998 the sick pay period was prolonged to 28 days. The general SI can be supplemented with additional insurance negotiated by parties in the labor market, e.g., the group insurance *AGS-försäkring* (*avtalsgruppsjukförsäkring*) agreed upon by the Swedish Trade Union Confederation (LO) and the Swedish Employers' Confederation (SAF).



placed by UI.<sup>16</sup> A notable difference in economic compensation between SI and UI, however, is that the social security ceiling is higher in SI than in the UI scheme (22 750 kronor/month compared to 15 950 kronor/month in 1998). Because of this, there may be an incentive for unemployed persons to claim sickness benefits instead of UI benefits. This incentive may be increased further by the fact that there is a limited number of days under UI, which might be saved by collecting SI instead of UI.<sup>17</sup>

### 3.2.2 *DI*

DI is granted to persons between 16 and 64 who suffer from a reduced capacity to work. It can be on a permanent (*förtidspension*) or temporary basis (*sjukbidrag*). A person is eligible for DI if his or her work capacity is reduced by at least 25%. DI is payable in full or at  $\frac{3}{4}$ ,  $\frac{2}{3}$ ,  $\frac{1}{2}$  or  $\frac{1}{4}$  of the full rate basic pension (FP) and supplementary pension (ATP), depending on the degree of the working capacity that is lost.<sup>18</sup>

Like the OAP, DI consists of a basic part (FP), an income-related part (ATP supplement) and a special supplement. The rules for calculating DI largely follow those of the OAP scheme, but without the actuarial adjustment for early retirement in the income-related portion. For the purpose of ATP calculation, it is assumed that the insured person would subsequently have had a pension-qualified income of the same magnitude as before the disability pension (“assumed” pension points). Persons receiving low or no ATP at all are awarded a pension supplement.

The compensation rates in DI and OAP used to be the same. Since July 1, 1995, however, the level of the basic pension (FP) in DI has been reduced to 90% of the base amount for single pensioners and 72.5% for married pensioners, while it was 96% of the base amount for singles and 78.5% for married people in the OAP system. Since January 1, 1996, disability pensioners receive the lower amount even if their spouse is

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<sup>16</sup> The replacement ratio in the SI was in 1987 90% of insured income, in 1991 it was decreased for short sick spells, in 1996 it was set to 75% for long sick spells and in 1998 it was raised to 80% for all spells of illness.

<sup>17</sup> Examining a period in which the replacement ratios were 80% in both systems, Larsson (2002) found some empirical support for the hypothesis that unemployed individuals with an economic incentive to report sick, such as high previous labor earnings, were more likely to do so than other workers.

not drawing a pension. The reduced levels have been partly offset by a raised pension supplement.<sup>19</sup>

On January 1, 2003, DI ceased to be part of the general old-age pension system and became part of the sickness insurance (SI) scheme. This seems, however, to involve a change in terminology rather than a reform of the rules in force. Temporary DI (*sjukbidrag*) has been replaced by temporary SI (or the so-called *aktivitetsersättning*) and permanent DI (*förtidspension*) by SI. Eligibility for benefits due to a prolonged illness-related reduction in work capacity has been raised from the age of 16 to July 1 of the year the individual turns 19. Eligibility assessment is otherwise the same. The reduction of work capacity is assumed to last one year, but this may vary according to individual assessments of likely duration.

The system includes either income-related compensation or a guaranteed compensation level for those with low or no work earnings prior to disability. The income-related compensation is based on the assumed income, the average of the top three years during a certain period. After 12 months, if the individual wishes to re-enter working life on a trial basis, he or she may apply for a delayed compensation period.

### 3.2.3 *Work injuries insurance*

Since July 1, 1977, injuries sustained at work qualify for payments under the Work Injuries Insurance Act (LAF). This insurance covers all persons gainfully employed in Sweden, and in some cases persons working abroad as well. Injuries that occur during military service or in prisons, for example, are covered by a law called the Public Personal Injuries Guarantee Act (LSP).

A work injury is defined as an accident or illness resulting from harmful influences at work. Injuries occurring on the way to and from work are also classified as work inju-

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<sup>18</sup> It has been possible to receive a disability pension “for labor market reasons” since July 1972. This possibility was discontinued in 1991, i.e., before the period covered by the empirical part of this paper. Workers 63 and over (lowered to 60 as of July 1974) could receive a disability pension (DI) without a medical reason if their rights to unemployment compensation had expired, and they were unable to find employment.

<sup>19</sup> Since the SI benefit for most individuals is higher than the benefit from DI, Andrén (2001) suggested that this could create an economic incentive for individuals to take the SI pathway and remain in it as long as possible, before a permanent exit via DI.

ries. On January 1, 1993, additional requirements for recognition of work injuries were put in place. On July 1, 1993, the special work injuries cash benefit was coordinated with the regular sickness benefit, so that a worker whose work capacity is reduced by at least  $\frac{1}{4}$  and who falls sick loses payments under LAF during the sickness period, but is instead entitled to the usual sick insurance benefit.

A person whose earnings have been reduced by at least one fifteenth as a result of a work injury is entitled to payments in the form of an annuity. This annuity is usually based on the person's income that qualifies for sickness benefits. Payments for injuries that occurred before July 1, 1977 fall under an earlier work injuries insurance act (YFL).

### **3.3 Housing allowances and income taxes**

#### *3.3.1 Housing allowance*

In 1995, the municipal housing allowance was replaced by a housing allowance for pensioners (BTP). Old-age pensioners, DI recipients and survivor's pensioners with low incomes are entitled to BTP. In addition, these groups are eligible for a special housing allowance (SBTP) if their income is inadequate to cover reasonable housing costs and ensure acceptable living conditions. In January 2003 a new means tested benefit was introduced (*Äldreförsörjningsstödet*) that seeks to guarantee a certain minimum level of acceptable living conditions for persons 65 and older whose guaranteed pension is reduced because of a short residence period in Sweden.

In 1995, the allowance covered at most 85% of housing costs up to a ceiling and above a certain minimum level. According to Palme and Svensson (2002b), about 30% of old-age pensioners received housing allowances in 1995. Since women in general have lower pensions and less favorable overall economic circumstances than men, about twice as many women as men receive BTP. Since 1995, women's ATP has grown faster than men's, which has leveled out this difference to some extent. In 1999 BTP made up an average of 20% of disposable income for those who received it, but, for pensioners with high housing costs who received only FP, the housing allowance may represent almost one half (46%) of disposable income (*Source: RFV, <http://www.rfv.se/>*).

### 3.3.2 Taxes

Since the tax reform in 1991, work income and capital income have been taxed separately. Capital income is subject to a state tax at a rate of 30% (30% of capital income losses are tax deductible). Since 1995, work income has fallen into three tax brackets. Incomes above the tax-free limit are taxed by the municipality (a tax rate of around 30%, depending on the municipality). Higher incomes above a first break-point but below the second break-point are also subject to a state tax at a rate of 20%. This tax rate is raised to 25% for work incomes above the second break-point. Before 1995 the second break-point had not been introduced, so the rate of state tax was 20% for all wage earnings above the first break-point.<sup>20</sup>

## 3.4 Trends in the payment of benefits over time

Figure 6 (borrowed from RFV, 2002) provides some information about the relative importance of different benefits. For a set of income types, age groups (born 1919-1944), and years, it shows the relative frequencies of the payment of various benefits, i.e., the population share with a positive amount of income. Only men are included here, but the picture is similar for women. A caveat is needed, however, since an individual may have income from several sources simultaneously, including from work. It is therefore impossible to infer such information as individuals' main source of income or what caused an exit from the labor market. The figure is nevertheless helpful, particularly in view of the long time period it covers.

It appears that DI is a relatively frequent income source for early retirees, but the raw frequency data do not account for the fact that DI can be combined with other sources of income. The first step out of the labor market to DI is usually via a spell of SI (see Palme and Svensson, 2002a, Table 4, and Section 4.3.2 of the present paper). The figure includes SI after the 15<sup>th</sup> sick day.

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<sup>20</sup> In 2003 the first and second break-points corresponded to annual gross wage incomes of 301 000 and 447 200 kronor, respectively, before basic allowances and deductions for pension contributions. Pension contributions were, in 2003, 7% of gross wage earnings on earnings below a certain level (set at 330 063 kronor in 2003). It entitled the worker to a 75% tax reduction on the contribution made. At the same time only 25% of the pension contribution was tax deductible. These shares, and the basic allowance, have changed quite substantially between 2000 and 2003, however (<http://www.rsv.se>).

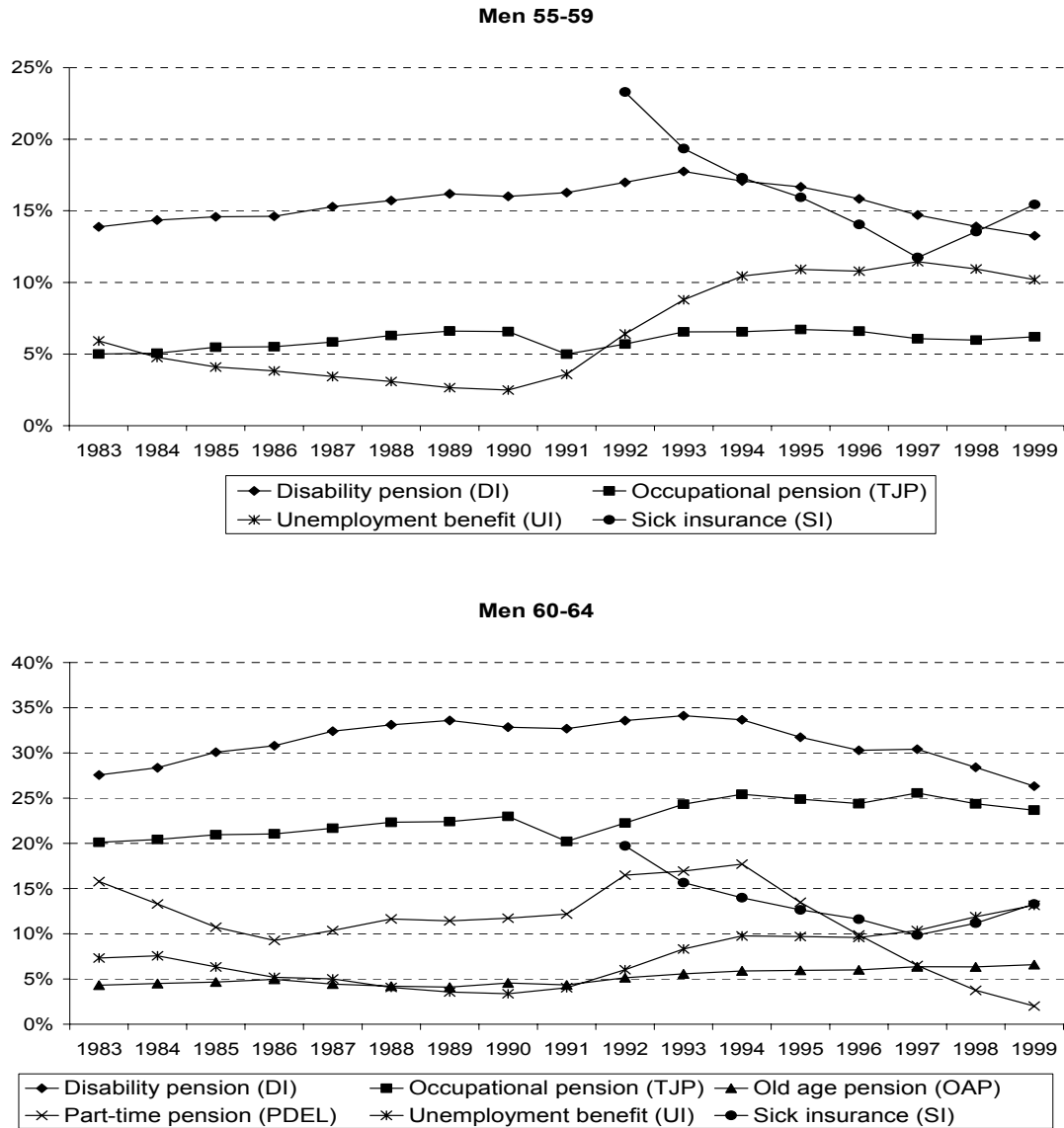


Figure 6 Frequency of benefit receipt, men (*Source: LINDA, 1983-1999*)

There is reasonable evidence to suggest that there was an increase during the 1990s in long term non-employment that was related to disability and sickness. As the figure shows, the relative frequency of DI receipt rose steadily until 1993 and then dropped in the following years. RFV (2002) suggests that this may have been due to a general tightening of the insurance system during the 1990s; it became more difficult to claim DI. Moreover, beginning in 1991 it was no longer possible to obtain DI for labor market reasons. Alm Stenflo (2002) argues that DI receipt has been replaced by long spells of SI – not just because of the change in the DI and SI income security systems– and that there have been only minor overall changes in the sum of these two in

recent years. It may be that the increase in (long-term) SI since 1997 has led to an increase in granting DI in subsequent years (see RFV, 2002).

There are other notable changes, for instance in UI receipt. These reflect business-cycle variations in general, but also show an adverse impact on 60-64-year-olds as compared with 55-59-year-olds. This is in keeping with Figure 2. As Figure 6 shows, until 1997 the relative frequency of those who collected UI increased for both age groups. While the increase flattened out and was even replaced by a decline among 55-59-year-olds thereafter, it continued to rise among 60-64-year-olds. This is puzzling, since the unemployment rate in the latter age group declined (for men) after 1997.

TJP receipt is more frequent in the older age group (for most groups of workers early receipt of TJP is not possible until the age of 60). For men aged 60-64 the TJP was the most frequent benefit after DI. The figure suggests that TJP became slightly more frequent during the study period, and more so for 60-64 than 55-59-year-olds. OAP receipt before the age of 65 has been of little significance, which is not surprising considering the actuarial adjustment of pension payments that are received early. The rules for part-time pensions have changed a great deal during the study period, and fluctuations in utilization may be linked to these changes (see RFV, 2000). This exit path was abolished by the end of 2000.

## **4 Data, empirical considerations and results**

### **4.1 Data source**

The Longitudinal INdividual DAta set (LINDA) is a register-based longitudinal data set drawn from income registers and population censuses.<sup>21</sup> It consists of a large panel of individuals, about 300 000 individuals annually, and their household mem-

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<sup>21</sup> For a detailed description of LINDA, see Edin et al (2001), and <http://www.nek.uu.se>. LINDA is a joint endeavor between the Department of Economics at Uppsala University, The National Social Insurance Board (RFV), Statistics Sweden, and the Ministries of Finance and Labour. The historical part of the data collection is funded by the Swedish Council for Planning and Coordination of Research (FRN), the Swedish Council for Social Research (SFR), and RFV.

bers (with the definition of household given below), representative of the overall population from 1960 to 2000.

The core registers consist of once-a-year income registers and population censuses taken every fifth year, starting in 1960. In general, the information in LINDA is richer for later years. Starting in 1990, the database was expanded significantly with the inclusion of additional register information. The registers relevant to our purposes include the income registers for individuals and households, the pension register (Pensionsregistret, RFV), the pension eligibility register (Pensionspoängsregistret, RFV), the sick-leave register (Sjukfallsregistret, RFV), and the register for housing taxation values (Taxeringsvärden, RSV).

For employed individuals in 1992 and later, LINDA also provides information about the percentage of normal (full-time) employment, ranging from 1%-100%, and monthly earnings on a full-time basis.<sup>22</sup> These data cover all employed persons in the public sector and parts of the private sector. For the private sector, Statistics Sweden took a random sample of firms and collected data on earnings and type of employment for workers in the selected firms. The times of measurement vary between sectors and years, but have usually been during one month in the autumn. A drawback for a retirement study is that these data are available only for ages 18-64.<sup>23</sup>

Sections 4.2 and 4.3 use the LINDA panel for 1992-1999, including sample individuals only above the age of 50. Table 2 shows the number of observations by age and gender. Age is measured on December 31, which means that eligibility for pension schemes such as OAP and TJP, as well as qualification or disqualification for UI, SI, and DI, will be a bit uncertain in the data since eligibility is normally tied to birthday, not calendar year. The data base also contains information on all family members of a

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<sup>22</sup> However, monthly earnings and percentage of normal (full-time) employment are not independently measured, since monthly earnings are calculated as a function of actual earnings and the percentage of normal (full-time) employment.

<sup>23</sup> Normal employment is defined as employment with contracted weekly hours of work equivalent to full-time (100%), with consideration given to partial leaves of absence. The measure aggregates employments if there is more than one. For employed individuals with no contracted weekly hours of work, the actual hours of work are used instead. An employment which is partly or fully subsidized by the Swedish National Labour Market Administration (AMV), with zero hours of work during the study period (because of leave of absence), with unknown hours of work or compensation, marine employ-

sampled individual, as long as they remain in the household. The family concept is used in Section 4.4 when examining the retirement correlation between spouses. The family is then defined using the overall-population register (Registret över totalbefolkningen, RTB).<sup>24</sup>

## 4.2 Definitions of retirement

Income register data from LINDA contain no direct information on retirement status. Thus a central issue is how to identify retirement and non-retirement using these data. Several problems arise in this context (for a discussion of the subjective concept of retirement, see Hakola, 2002).

1) Which type of register information, work income or pension benefits, should be used to determine retirement? Defining retirement in terms of zero income from work will not cover working retired persons who, after formal retirement, continue to work to some extent. These individuals may or may not be receiving pension benefits, since old age pension benefits are not income tested in Sweden. Others may quit work without collecting pension benefits (or any other type of benefit) because, for instance, they depend on the family breadwinner. The percentage of normal (full-time) employment available in LINDA can also be used, but since it is measured during one month of the year, it may be inconsistent with annual income measures.

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ments, as well as those who are employed by the hour or on a temporary basis are not included (see <http://www.scb.se>).

<sup>24</sup> There are three definitions of a household in LINDA, covering somewhat different periods: 1) The income register definition (1968-1998), which defines families as they are regarded for tax purposes, i.e., married living together with or without children and non-married cohabitants with common children. 2) The register for the whole population (Registret över totalbefolkningen, RTB) defines families (as of 1999) in the following way: An RTB family consists of a maximum of two generations of individuals who have a relationship through marriage, registered partnership, biological, adoptive, or foster parents, who may be divorced or separated but have custody of a child (or children). Non-married cohabitants with common children are also included. LINDA has since added additional family members according to the RTB concept for 1991-1998. The last household definition is 3) The Population and Housing Census definition, which is based on whether individuals actually reside together. Edin et al (2000) gave a short illustration of the consequences for family definition of the differences in the first and third definitions. The main difference is that the income register and RTB do not include non-married cohabitants without common children, who are included in the census. This latter definition, however, is available only in Population and Housing Census years, i.e., once every fifth year from 1960 to 1995. Using it for non census years would hence involve some assumptions about family stability.



2) It is probably too rigid to categorize individuals as either working full-time or retired full-time, without the option of something in between, as is usually done in retirement studies. This fails to take into account those individuals who phase out their working careers gradually and make use of a set of alternative pathways out of the labor force, either one at a time or in combination.

3) Related to the above is the data frequency provided by LINDA. All information is aggregated over a period of 12 months, so there is no information on the within-year distribution of income. What is recorded as a combination of income sources in a given year may, in fact, be a sequence within that year. This, of course, limits the information value of the data, the possibility of identifying different kinds of behavior. For instance, we would regard behavior quite differently if someone a) reduced work from full-time the previous year to 50% of full-time in the current year or b) maintained full-time work during the first six months of the current year and then stopped working completely.

3) Usually retirement is analyzed under the assumption that it is irreversible, which does not take into account the fact that an individual may go back and forth between retirement and work.

Palme and Svensson (2002a) discussed two alternative definitions of retirement: 1) A person was considered full-time retired if he or she had income from labor amounting to less than 1 BA in a particular year and did not regain income higher than 1 BA in a subsequent year of the study; and 2) a person was considered full-time retired if social security income (pensions, sickness and unemployment insurance, etc.) exceeded 80% of total income from employment (and this did not change in subsequent years). Both definitions implied that individuals were considered either retired or not. Furthermore, retirement was assumed to be irreversible; Palme and Svensson (2002a) excluded individuals from their study who returned to work after having left.

Palme and Svensson (2002a) decided to use the first of these two definitions, i.e., they classify part-time retired individuals with work income above 1 BA as working, while uncompensated retired persons are considered retired. They point out that these two definitions might classify individuals differently, depending on their circum-

stances – partially retired low-income workers, those who live on savings, those who depend on income from someone else in the household, and those working in the informal sector of the economy (mainly women). Differences in classification may also arise because old age pension benefits are not income tested.

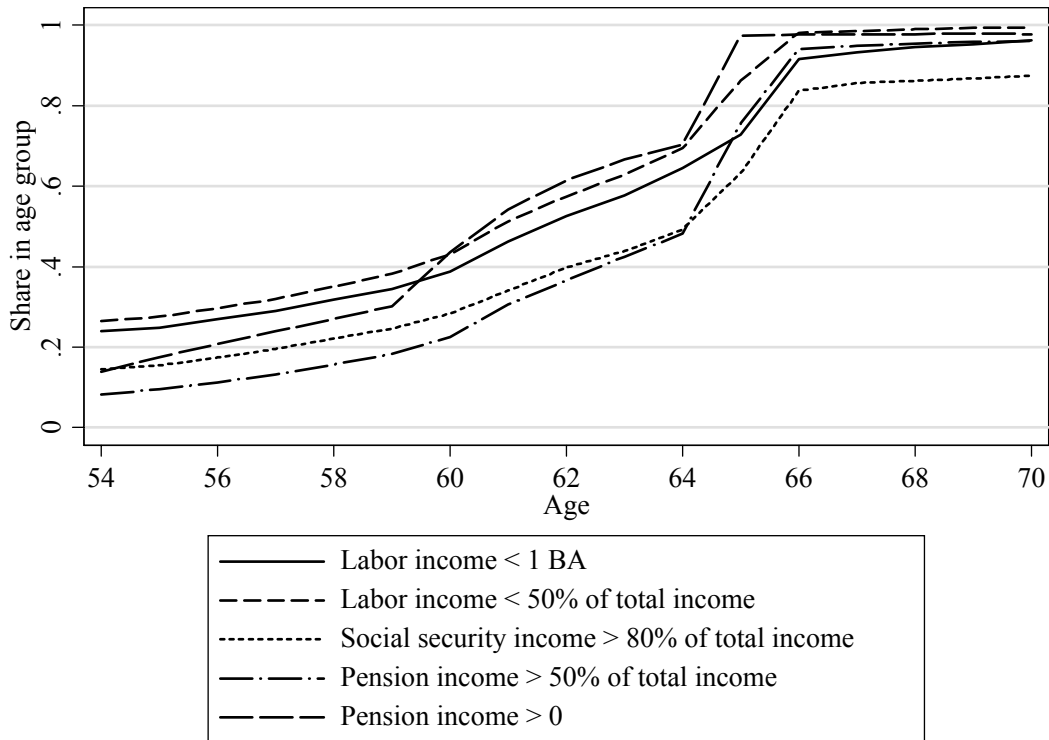


Figure 7 Retirement definitions, males, by age (*Source:* Author's own calculations using LINDA, pooled for 1992-1999)

Clearly, retirement is measured quite differently depending on which retirement definition is used, as is seen in Figure 7, which shows the empirical proportions of men who would be considered retired under five alternative retirement definitions. The first and third definitions are identical to the ones mentioned in the previous paragraph. The second, also taken from Palme and Svensson (2002a), defines a person as retired if labor income is not the main source of income (i.e., less than 50% of total income), while the fourth and fifth definitions define someone as retired if, respec-

tively, pension income is the dominating income source or if any pension income is received (cf. Figure 6).<sup>25</sup>

Some interesting comparisons can be made. For instance, the five definitions result in a rather wide range in the percentage of workers classified as retired. About 45% of men aged 60 have some pension income, but for only about half of these is pension income their main income source. The other half thus have other incomes which are more important. After 65 almost all have pension income, while it is the main source of income for about 95%. Between 85 and 90% of this age group have social security income amounting to 80% of total income; in other words, about 10-15% of the men aged 65 and older would not be classified as retired under Palme and Svensson's (2002a) second definition. In this age group very few have work income as their main income source. It may be that these individuals either rely on a family member for support or that they live on savings or passive business incomes.

This comparison does not lead to a conclusive recommendation as to which retirement definition is most appropriate. The aim of the classification must be to describe a person's primary status as accurately as possible. I choose to categorize individuals by their main source of income on an annual basis (more than 50% of total annual income), a definition which also appears in Palme and Svensson (2002a). Keeping in mind that individuals may have more than one income source, I will also examine the contemporaneous combination of incomes at some length.

### **4.3 Labor market exit paths and transitions between states**

This section presents evidence regarding transition and labor market exit path probabilities, using the main income definition. Income sources included in total income are income from (abbreviations in parenthesis)

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<sup>25</sup> Social security income is the sum of old age pension (OAP), occupational pension (TJP), disability insurance (DI), sickness insurance (SI), unemployment benefits (UI), and partial pension (PDEL). Private pensions (PRIVP) are also included in social security income, even though they are not part of the public social security system and are non-compulsory. Pension income is the sum of OAP, TJP, DI, PARTIALP and PRIVP. Total income is social security income plus work income (WORK), active (BUSACT) and passive (BUSPAS) business incomes, and capital income (CAPINC). The exact definition of each type of income is given in the Appendix.

1. work (WORK),
2. active business (ACTBUS),
3. passive business (PASBUS),
4. capital (CAPITAL),
5. disability pension (DI),
6. partial pension (PDEL),
7. old age pension (OAP),
8. occupational pension (TJP),
9. private pension (PRIVP),
10. sickness insurance benefits from the fifteenth sick day on (SI),
11. unemployment insurance benefits (UI), and
12. transfer payments, social assistance and other benefits (TRANS).

The definitions of these types of income are given in the Appendix. The main income support of an individual is thus one of the twelve possibilities listed above, whichever amounts to 50% or more of total income. If total income is zero or if none of these sources exceeds 50% of total income, two additional categories are used, denoted “No income” and “Mixed”, respectively.

The relative importance of the various income sources under the income definitions listed above is shown in Table 3 and Table 4 for men and women, respectively, for the year 1998. The dominant income sources include WORK, ACT BUS, DI, OAP, TJP, SI and UI. Not surprisingly, some sources of income are rarely dominant, for example income from capital. As will be shown in Section 4.3.3 below, capital is usually a secondary income source.

Early steps toward withdrawal from the labor market are evident: up to the age of 65, the proportion of the WORK category decreases by age group, while the proportions of DI, TJP, UI and the mixed category increase. The percentage of men (but not women) with SI as their main income source increases until the age of 60 and then decreases. It may be that transitions into DI receipt (either after first having drawn SI, or directly) increase by age, a result also found in Palme and Svensson (2002a).

More importantly, the tables also show that there are rather large income differences between groups. Note that the mean and median measures in these tables apply to the total annual income for each group. For instance, those in the early OAP receipt (especially women), DI, and TRANS categories have much lower total incomes than those who are in the UI category. Men in PASBUS, TJP, or PRIVP have, on average, higher total incomes than other groups. The income differences persist for older men in their 70s (not shown). Comparing the mean and the median measures for these high income groups, however, it is clear that relatively few high incomes drive the mean value (i.e., the income distribution seems to have a long right-hand-side tail).

#### *4.3.1 Two-year transition probabilities*

Table 5 (men) and Table 6 (women) give the transition probabilities between all 14 main income categories for different age groups, using the LINDA panel 1998/1999 (sample individuals only). The main source of income in 1998 is given on the vertical axis and that in 1999 on the horizontal axis. Probabilities are averaged over everyone who exits/enters/remains in a given state, independent of prior history.

The results suggest that early exits from work are mainly through TJP, SI, UI, and mixed incomes. Between the ages of 60 and 64, the outflow probability increases for all of these exit types, including the outflow from work to unemployment, which, for men, increases in probability from 1.3% to 3.8%. Only a small fraction move from work to OAP before the age of 65. Between ages 65 and 66 (not shown) the main transition is into OAP from almost every other category.

A general impression is that income states are quite persistent before the compulsory retirement age. Individuals are more likely to remain in a given income state than they are to change. For example, 93% of the men aged 55-59 with work as their main source of income continue to have work as their primary income source the next year. This work survival probability drops with age but remains rather high, 82% for men aged 60-64. Between 60 and 64, 5% of men (7% of women) exit from work income to TJP. The low outflows from TJP suggest that it is highly likely that individuals will continue to collect TJP the next year as well.

The UI state, too, shows a relatively high persistence. According to my tables, the likelihood that an unemployed person will manage to move from unemployment to another main income source is between 12% and 27%, depending on the individual's sex and age. Few unemployed persons ever return to work. The outflow from UI back to work decreases substantially with increasing age; for men it drops from 13% to 6% between age group 55-59 and age group 60-64. In comparison, the SI state shows much less persistence. Only 49% of the men aged 55-59 with SI as their main income source continue to receive most of their income from SI the following year. The main outflow from SI is to DI, while the exit from work directly to DI is quite uncommon. One interpretation, pointed out by Palme and Svensson (2002a), is that people exit to DI via SI.

DI shows a very high persistence; the probability of continuing to have DI as one's main income source is between 96% and 99%, depending on the individual's age and gender. Thus, at least after 60, there are very few older workers who return to work after receiving DI. Between 60 and 64, some 2 or 3% of DI recipients then choose to take OAP early, while the rest remain with DI.

The outflow from SI back to work drops with increasing age, but, since the inflow to DI from SI increases with age from about 25% to 40%, the group of UI recipients grows larger while the group of SI recipients decreases as workers age. Women experience a higher probability of exiting work via SI than do men, but in the 60-64-year-old age group they are somewhat more likely than men to return to work after receiving SI. On the other hand, men appear to be more likely to return to work after UI than women. As mentioned earlier, Palme and Svensson (2002a) removed those individuals from consideration who re-entered the labor market after a spell of retirement, either through the old age pension system or the social security system. My results show that re-entry into work involves a small but not inconsequential group. To some extent this may, of course, depend on the status definition one uses.

#### 4.3.2 *Paths*

Paths are examined over an eight-year panel between 1992 and 1999. The results shown in the last section may be less informative about the probability of a *chain* of events. It may be wrong to assume that the outflow (inflow) probability between two

years can be averaged over everyone who exits, independent of the duration in the state and what states that individual has passed through before. Furthermore, the category “mixed” is less than fully satisfactory, since it may represent a temporary situation between two income states. If instead of studying two-year transitions, we examine a longer chain of events, it might be possible to remove some of this ambiguity by assigning shorter periods of mixed income receipt to the state immediately before or after (and by examining the mixed category in more detail).

The study focuses on individuals whose main income comes either from work or from active business (both are henceforth labeled “WORK”) in the first observation of the study period. By doing so I will introduce a problem of left censoring; it is possible that some individuals had withdrawn earlier from the labor market and then re-entered it in 1992, creating a mixture of individuals with divergent work histories. In order to rule this out, it would be necessary to investigate the income history of respondents prior to 1992 – basically expanding the panel backwards in time. This has not been done. The analysis will include two birth cohorts: those aged 55 in 1992 (aged 62 in 1999) and those aged 60 in 1992 (aged 67 in 1999). Only individuals with full eight-year panel records are included, so that paths of equal length can be compared.<sup>26</sup>

The raw tabulation of the full eight-year paths is shown in Table 7 and Table 8 for men and women, respectively, with the restrictions noted above. According to the results, unbroken spells of work are, not surprisingly, more common for workers aged 55 than workers aged 60. The probability that a worker will continue to be employed for another four years is about 27 percentage points lower if we compare individuals at ages 55 and 60; for men these probabilities are 67% and 40%, respec-

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<sup>26</sup> The group under study is chosen for convenience and not because it is representative. The choice of path length (window width) to examine is, furthermore, not self-evident. Eight-year paths may be too detailed; the number of possible paths increases by a factor of 14 (the number of possible income sources) for every year in the path, and the number of observations in each possible path approaches zero. A shorter window width than the length of my panel (8 years) implies more observations per path, since the data can then be pooled by age independently of calendar year. The inference may furthermore depend on the choice of starting age, since it is conditioned on work in the initial year of the panel. However, the main results presented in the text seem to hold also for five-year paths (not shown). As could be expected, pooling calendar years over age years may mitigate potential calendar year effects which might be present in the eight-year path tabulation. The shorter path length quadruples the number of observations and reduces the number of rare income path combinations, which should be advantageous for inference.

tively (obtained by summing probabilities over relevant paths).<sup>27</sup> About 47% of the 55-year-old male workers are still working eight years later, and about 11% choose to exit through TJP before the age of 62. Other important paths, included in the upper part of Table 7, involve exiting before 62 either through UI or through a mixture of SI and DI. There are exits through mixed sources, but these periods are short, and, presumably, represent mixes of the income types that are dominant immediately before and after the period in question.

One can also see from the lower section of these tables that the “normal” exit (OAP as the first main income source after retirement at age 65-66) is taken by about one third of those whose main income comes from work at age 60. As noted above, early receipt of OAP is not very common. For those working at 60, the main reasons for not continuing to work until they reach 65 are that they either enter a TJP scheme, become unemployed or start collecting some combination of SI and DI. Palme and Svensson (2002a) found that the average number of years with UI was higher than with SI, but then SI normally turns into DI.

Exit via a combination of SI and DI (and via short periods of mixed income) is about as frequent for those whose main income comes from work at 55 as for those whose main source of income is work at 60. However, shifting directly from work to DI is somewhat more frequent for the latter group. The speed with which individuals start receiving DI accelerates with age. Palme and Svensson (2002a) as well found that those who retire at older ages make a faster transition into DI. The period with SI thus becomes shorter, and SI might not constitute the main income source during the calendar year and may thus not be recorded in my tables. The comparison between the two age groups may, however, be somewhat difficult to make due to the fact that the selection of individuals that work at 60 may be different compared to those that work at 55: individuals with bad health may already be selected out from the labor force at the age of 60.

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<sup>27</sup> Using the two-year transition probabilities presented in Table 5 to calculate the 4-year work survival probability presented in the text would overestimate the chance of continuing to work another 4 years. Thus there are relatively more transitions between two consecutive years than there are over a longer span of time. The memory of the process, accordingly, is longer than 1 year.



Andrén (2001) found a gender difference in the transition from SI to DI: women transitioned from long-term sickness spells to DI much faster than men. Either women who were ill over a long period had more serious health problems than men who were sick for a long time, or DI determination was not gender neutral. For instance, the rehabilitation of long-term sick workers may have been targeted to meet men's needs more than women's. Of those who work at age 55, my results suggest that proportionally more women move to DI before 62 years of age compared to men (5% compared to 3.5%). There is no, or a very small, gender difference in this respect in the group that work at age 60.

#### *4.3.3 Contemporaneous combinations of incomes*

Even if one income source is dominant, secondary sources may be of importance as well. As noted above, a substantial number of exits occur through mixed sources of income. A period of mixed sources of income may be a transitory period into retirement (when, for example, a person works part of the year and then retires and starts to claim pension benefits) or a more permanent combination of benefits and earnings. As noted, the major income source before and after the period of mixed income may, in some cases, provide information about labor market withdrawal.

It is evident from Table 3 and Table 4 that the group with mixed income sources increases in the 60-64 and 65-69 age groups relative to younger workers. At ages 65-59 about 10% of the men have income from mixed sources, with no single source accounting for more than 50% of the total. Among older men the percentage falls to about 2-4% (not shown). A reasonable interpretation is that the period around the 65<sup>th</sup> birthday represents a transitory period of mixed work and retirement (which may, however, be concentrated in a narrower age range than the one shown in these tables).

On average, about 2.5 sources of income per year are recorded per individual in the data for 50-80-year-olds. For the 65-69 age group, those with mixed income sources or with PDEL, TJP, or SI as their main income source have a higher number of income sources, on average, than other men in that age range. Not surprisingly, it is those with mixed income sources who have the highest number of simultaneous income sources, each relatively small, within a given year; in order to qualify for this group they must have at least three income sources. Those with capital incomes and

those with TRANS as their dominant income source have relatively few additional sources of income.

Table 9 shows the top-ten list of common income combinations recorded in the same calendar year. A couple of things are worth noticing. Capital income is a typical second income: Before the age of 65, it is most likely that work and capital income will be combined, while the combination of OAP and capital income dominates later in life. It may also be observed, interestingly enough, that older individuals with work as their first income source often have some sort of benefit income (SI or UI) as well. As people move on from the 55-59 to the 60-64 age group, the combination of DI and capital income increases substantially in importance, especially for women. It is evident, moreover, that the scenario in which work is the only income source becomes less likely as individuals age and, as noted above, the number of different combinations observed in the data increases considerably. We can therefore conclude that in the years before permanently retiring, many individuals have more income sources than earlier in life, and that these income sources are often of a more temporary nature.

#### **4.4 Dependence between married couples/cohabiters**

Hurd (1990), Blau (1998), among others, suggest the importance of joint labor market decisions because of complementary leisure habits, cross-spousal correlation of unobservable factors (assortative mating), and intra-household economic effects (e.g., pensions may depend on whether the spouse is retired). Papers by Palme and Svensson take into account the spouse's behavior by letting it influence the pension benefit calculations, but ignore other possible influences on individual choice.

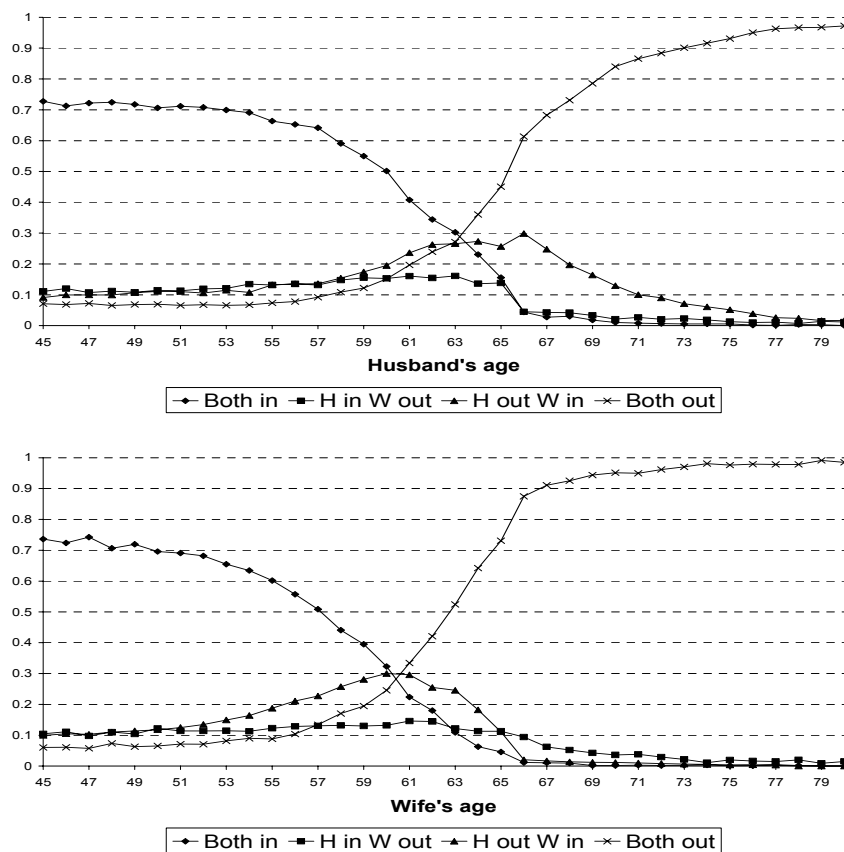


Figure 8 Joint labor force status of spouses/cohabiters, by age of husband (top panel) and wife (bottom panel) (*Source: LINDA 1998*)

How do husbands and wives retire? Figure 8 shows the share of families that fall into one of the four possible combinations of husband's and wife's labor market status, by husband's age (top panel) and wife's age (bottom panel), using the 1998 LINDA.<sup>28</sup> The data give a strong indication that spouses plan for joint withdrawal from the labor force. The most common combination before the age of 63 for husbands and 59 for wives was for both to be in the labor force. After those ages it was most common for both husbands and wives to have left the labor force. A situation in which couples have mixed employment status, i.e., in which one works and the other does not, is never the most common case.

<sup>28</sup> Labor force participation is classified according to Palme and Svensson's (2002a) definition of having work income of more than 1 BA in 1998, and married or cohabiting is defined based on the RTB register (by the variable BFAMST; see the Appendix for variable definition). The couples' main source of income was not investigated.

Families with mixed employment status are most common when the husband is 63 and the wife is 60. The age difference between spouses may help to explain this, since the larger the age difference, the greater is the chance that one spouse has reached “normal” retirement age and the other has not. In general wives are a few years younger than their husbands. I find that in cases in which the wife is working while her husband has retired, the husband is generally much older than his wife. The combination of a retired wife and a working husband is very rare in the data.<sup>29</sup> Much the same pattern was found by Blau (1998, Fig. 3), but since the combination of a non-working wife and a working husband is more common in the US than in Sweden, comparisons are less straightforward.

## 5 Summary and conclusions

This paper has examined exit paths to retirement among older Swedish workers, using a large micro panel data set (LINDA). The most important conclusion to be drawn is that people retire in many and complicated ways. Only about one third of those whose income from work is their main income source at age 60 take the so-called normal route out of the labor force, which is to work steadily until their 65<sup>th</sup> birthday, when they retire and start collecting pension benefits. Early retirement with early receipt of old age pension benefits is quite rare. Instead, early retirement from the labor market is financed through occupational pensions, sickness insurance, disability pensions and unemployment benefits.

A fraction of older workers return to work after receiving a series of non-labor incomes, including income from unemployment insurance, but the fraction varies by age, gender, and the first major income source aside from work. Data suggest that unemployment is quite persistent among older workers and that the probability of returning to work declines with age, while long-term sickness spells often lead to permanent or temporary disability pension receipt, especially after the age of 60. Few ever stop receiving a disability pension to return to work.

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<sup>29</sup> I find that for the group of 55-70-year-olds, if both spouses are in (out of) the labor force, the mean husband and wife age difference is 3.8 (2.5). The couples with mixed employment status have an expected variation in age difference compared with others: if the husband is in and his wife is out of the

Not only the main income, but also secondary income sources tell us something about what is going on. Periods of mixed income, with no income source accounting for more than 50% of the total, become more common as compulsory retirement age nears. The number of income sources in the years immediately before and after retirement is usually higher than at other times. Income combinations that include a disability pension, sickness insurance or unemployment benefits as the secondary income source become more common among older people with increasing age, while work as the single income source becomes less frequent.

Stylized facts suggest that the labor market for men 60 and over is very dependent on the economy as a whole, both in terms of higher unemployment rates during economic recessions and a higher variation in labor supply over the business cycle, compared with the labor market for prime-aged male workers below the age of 60. Micro data suggest both that the outflow from unemployment (back to employment) is lower for this group and that inflow to unemployment (from work) is higher. Falling outflow from unemployment to employment may be a result of the fact that employers categorize job seekers by age and that older workers are less intense in their job search than younger ones. Older workers who find themselves unemployed may be induced to leave the labor force permanently. Increasing inflow to unemployment among older workers may be unexpected, considering Swedish labor market legislation that protects workers with high seniority.

Finally, data suggest that spouses' retirement decisions are best described as a mutual agreement between spouses. My sample shows that independent of age, couples are more likely both to work or both not to work than to have mixed labor market status. A simple reason why some couples do not follow this pattern is a larger age difference.

A future study should involve an examination of the economic incentives built into the income security and income tax systems in Sweden. The notable difference in economic compensation between sickness insurance and unemployment insurance,

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labor force the mean age difference is 2.2, and if the husband is out of and the wife is in the labor force

generated by the difference in the social security ceiling (higher in the sickness insurance scheme) and the fact that there is a limited number of days under unemployment insurance, may create an incentive for unemployed persons to claim sickness benefits instead of unemployment benefits. There might also be economic incentives to continue to claim sickness insurance before a permanent exit via disability pension because of differences in compensation rates. Occupational pensions are less favorable as an early exit route relative to exits via sickness, unemployment insurance and disability pension because the latter programs generate pension rights, while occupational pensions do not.

The results shown in this paper can be explained by eligibility rules of pensions and other income security systems and the functionality of the labor market for older workers (labor demand). However, important factors for work participation are also changes in the health of older individuals, changes in the propensity to take advantage of various income security schemes instead of putting effort into work, and changes in preferences for work, consumption and leisure as people age.

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the mean age difference is 5.4.

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## Appendix

### Income definition

Total income consists of the following components.<sup>30</sup>

	<i>Category</i>	<i>Definition and variable name in LINDA 1999</i>
1)	WORK	Work earnings, net of sickness insurance, parents' allowance, unemployment allowance, unemployment compensation, care allowance. (TLONT)
2)	BUSACT	Income from active business; includes income from private firms and from trading companies (NAKTE +NAKTHB)
3)	BUSPAS	Income from passive business; includes income from private firms and from trading companies (NPASE +NPASHB)
4)	CAPINC	Capital income; from banks, shares, bonds and other valuable papers (KKUKAP)
5)	DI	Disability pension *
6)	PARTIAL PENS	Partial pension (PDEL)
7)	OAP	Old age pension *
8)	TJP	Occupational pensions. Blue collar workers (STP), white collar workers (ITP), central government, government-owned companies (1994-1999), local government, and individually negotiated occupational pensions. (PSTP +PITP +PSTJP+ PBTJP +PKTJP +PKUAPEN)
9)	PRIVP	Private pension; sum of private pension insurance/taxable life annuity(PKUSLSP)
10)	SI	Sickness insurance benefits; tax-free and taxable sickness benefit, maternity allowance, disease carrier allowance and sick pay guarantee allowance. From the 15 <sup>th</sup> sick day. (Since 1992, the first two weeks of a sickness period has been paid by the employer.) (ISJUK+TSJUK)
11)	UI	Unemployment insurance benefits; unemployment benefit fund ( <i>A-kassa</i> ), ALU, KAS, daily allowance and training allowance ( <i>dagpenning</i> and <i>utbildningsbidrag</i> ) in labor market training programs.(TARBST= TKASKU +TKASSA+TKUALU +TARBUT)
12)	TRANS	Transfer payments and benefits; includes housing allowance for families with children, the supplement for pensioners, the special complement for pensioners, and the complementary supplement for pensioners, and social assistance. (IBOSTB+ISOCBID+ IBTP+ IBTPS+IBTPK)

\*) In LINDA, DI and OAP are registered in the same variables. If both DI and OAP were paid out, disability pension was calculated as the share (given by BFPE) of basic pension (given by PFP) plus the share (given by BATPE) of ATP (given by PATP) that was paid out as disability pension. To this amount, disability pension according to AGS (given by PAGESFT) was added in 1998 and 1999. The part that was OAP was calculated in a similar way.

The procedure might induce bias if a person has both OAP and DI since it ignores the fact that DI has a lower share of the BA than (early) receipt of OAP (full OAP is 78.5% of 1 BA for married/cohabiters and 96% for singles, while the corresponding shares for DI are 72.5% and 90%, i.e., 6 percentage units lower for DI). The procedure might hence underestimate the amount paid out as OAP and overestimate that of DI.

If positive pension amounts were paid out but the shares of DI and OAP were missing in the data, then the income was assigned 100% to DI if the individual was less than 65 years of age, and 100% to OAP if the age was greater than or equal to 65. This should bias DI upwards before 65 (according to the rules, DI is not to be paid out after 65).

<sup>30</sup> The complete list of variable definitions is available from the author.

Table 1 The coverage of private pension insurance schemes 1992 and 1999

Age	Men 1992	Men 1999	Women 1992	Women 1999
00-19	0.1%	0.1%	0.1%	0.1%
20-24	5.3%	9.8%	6.3%	10.8%
25-29	11.5%	25.6%	15.1%	28.8%
30-34	17.0%	33.5%	22.1%	39.1%
35-39	20.5%	32.6%	25.6%	42.0%
40-44	23.4%	33.1%	28.0%	44.5%
45-49	25.0%	34.8%	30.2%	46.1%
50-54	26.2%	34.5%	29.5%	48.2%
55-59	22.0%	34.4%	20.8%	45.0%
60-64	12.3%	25.5%	8.6%	29.6%
Total	12.7%	21.1%	14.8%	26.8%

Note: Private pension insurances are identified by the general deduction for private pension insurance which salary earners are allowed to make. The deduction is determined by last year's income. LINDA variables are AVPENS in 1992 and APENS in 1993-1999.

Table 2 Sample size

Year	50-59	60-69	70-79	80-89	90-99	100-109	Men	Women	Total
1992	31 166	28 314	25 118	12 666	1 913	33	45 739	53 471	99 210
1993	32 598	27 770	25 147	13 018	2 010	32	46 366	54 209	100 575
1994	34 406	27 393	25 174	13 304	2 046	35	47 329	55 029	102 358
1995	36 012	27 045	25 316	13 461	2 192	40	48 231	55 835	104 066
1996	37 615	26 828	25 324	13 527	2 324	43	48 974	56 687	105 661
1997	38 989	26 964	25 011	13 604	2 396	47	49 758	57 253	107 011
1998	40 076	27 132	24 878	13 754	2 484	35	50 489	57 870	108 359
1999	40 911	27 476	24 722	13 733	2 593	42	51 103	58 374	109 477
Total	291 773	218 922	200 690	107 067	17 958	307	387 989	448 728	626 990

Table 3 Mean and median of total annual income by the main source of income (more than 50% of the income from the indicated source) for men in 1998

Men	50-54 Obs. 22 073			55-59 Obs. 15 892		
	mean	50 <sup>th</sup> percentile	freq	mean	50 <sup>th</sup> percentile	freq
Main source of income						
No income	0	0	0.96%	0	0	0.84%
Mixed income (no income>50%)	178 865	168 654	1.30%	230 314	200 363	1.91%
WORK	301 017	258 188	77.42%	299 266	254 618	69.94%
ACTBUS	149 709	128 952	6.55%	159 435	138 603	6.20%
PASBUS	139 757	47 629	0.11%	289 366	220 600	0.12%
CAPITAL	56 267	4 038	1.16%	116 774	5 754	1.30%
DI	129 186	124 953	4.70%	136 944	130 966	8.80%
PDEL	.	.	0.00%	.	.	0.00%
OAP	.	.	0.00%	.	.	0.00%
TJP	304 101	318 909	0.05%	274 063	217 293	1.57%
PRIVP	154 144	139 905	0.14%	203 815	159 701	0.60%
SI	164 805	167 612	1.82%	178 444	178 369	2.20%
UI	122 916	133 248	4.15%	147 683	153 739	5.24%
TRANS	86 469	82 530	1.64%	89 271	86 975	1.28%
ALL	261 939	234 641	100.00%	255 836	226 455	100.00%
	60-64 Obs. 11 838			65-69 Obs. 10 577		
Main source of income	mean	50 <sup>th</sup> percentile	freq	mean	50 <sup>th</sup> percentile	freq
No income	0	0	0.58%	0	0	0.25%
Mixed income (no income>50%)	275 370	239 108	5.36%	356 445	343 643	9.66%
WORK	288 038	249 052	42.94%	396 931	304 460	3.30%
ACTBUS	153 099	133 477	4.38%	272 501	240 007	0.69%
PASBUS	548 403	160 662	0.11%	623 888	463 019	0.09%
CAPITAL	182 053	7 542	1.15%	243 190	168 346	0.32%
DI	147 167	142 332	21.63%	49 647	51 888	0.07%
PDEL	118 652	131 323	0.07%	.	.	0.00%
OAP	134 523	130 322	1.93%	163 877	156 328	80.85%
TJP	254 388	210 093	11.55%	368 541	341 446	2.69%
PRIVP	240 563	198 485	1.01%	399 290	341 179	0.37%
SI	192 874	193 369	1.60%	199 858	189 848	0.09%
UI	161 869	155 626	6.73%	158 251	157 044	0.53%
TRANS	99 174	106 279	0.97%	101 496	107 216	1.10%
ALL	229 085	199 734	100.00%	196 815	166 082	100.00%

Note: Mean and median are given for the total annual income. Measured in 1998 Swedish kronor.

Table 4 Mean and median of total annual income by the main source of income (more than 50% of the income from the indicated source) for women in 1998

Women	50-54 Obs. 20 119			55-59 Obs. 14 552		
Main source of income	mean	50 <sup>th</sup> percentile	freq	mean	50 <sup>th</sup> percentile	freq
No income	0	0	1.23%	0	0	1.31%
Mixed income (no income>50%)	158 049	146 598	1.68%	175 168	158 999	2.69%
WORK	205 228	194 387	77.22%	200 020	190 167	69.14%
ACTBUS	120 774	97 450	2.99%	110 652	91 503	2.50%
PASBUS	394 704	179 100	0.09%	96 856	51 433	0.17%
CAPITAL	35 919	2 408	1.48%	29 316	2 582	2.10%
DI	109 199	105 912	7.75%	107 709	102 480	12.71%
PDEL	.	.	0.00%	.	.	0.00%
OAP	.	.	0.00%	.	.	0.00%
TJP	297 496	188 594	0.04%	158 808	149 100	0.64%
PRIVP	162 143	146 920	0.07%	77 009	53 485	0.28%
SI	138 931	134 837	2.48%	139 079	139 120	2.75%
UI	106 946	113 338	3.81%	124 660	131 121	4.86%
TRANS	64 834	56 816	1.17%	72 198	77 629	0.85%
ALL	182 591	178 741	100.00%	171 966	167 448	100.00%
	60-64 Obs. 11 693			65-69 Obs. 10 689		
Main source of income	mean	50 <sup>th</sup> percentile	freq	mean	50 <sup>th</sup> percentile	freq
No income	0	0	1.44%	0	0	0.44%
Mixed income (no income>50%)	183 348	169 102	4.49%	195 026	174 433	5.17%
WORK	185 002	177 484	40.48%	213 436	192 919	2.50%
ACTBUS	106 923	85 216	1.99%	208 069	181 919	0.28%
PASBUS	141 103	93 975	0.18%	206 606	161 477	0.07%
CAPITAL	29 680	3 344	2.74%	266 903	116 554	0.32%
DI	106 899	99 780	26.02%	86 583	43 698	0.05%
PDEL	64 515	85 468	0.04%	55 953	55 953	0.01%
OAP	76 704	67 491	1.66%	108 508	101 582	87.14%
TJP	147 445	140 053	11.28%	145 611	132 300	2.22%
PRIVP	107 409	76 286	0.77%	236 481	194 940	0.42%
SI	141 705	139 247	1.85%	165 121	156 380	0.05%
UI	131 483	135 670	6.10%	124 039	123 907	0.41%
TRANS	73 780	77 754	0.97%	71 279	76 373	0.93%
ALL	144 239	137 355	100.00%	117 077	106 314	100.00%

Note: See Table 3.

Table 5 Transition probability for men 1998-1999 between main sources of income  
(more than 50% of income from the indicated source)

Men 55-59															
98 \ 99	No income	Mixed	Work	ACTBUS	PASBUS	Capital	DI	PDEL	OAP	TJP	PRIVP	SI	UI	TRANS	Total
No income	<b>74.6</b>	0.0	7.9	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	3.2	12.7	100.0 <i>63</i>
Mixed	0.0	<b>29.3</b>	16.4	5.2	0.9	0.0	27.6	0.0	0.0	1.7	1.7	6.9	7.8	2.6	100.0 <i>116</i>
Work	0.1	1.2	<b>93.1</b>	0.5	0.0	0.6	0.2	0.0	0.0	1.1	0.1	1.7	1.3	0.0	100.0 <i>5089</i>
ACTBUS	0.5	1.4	5.0	<b>90.3</b>	0.2	0.9	0.0	0.0	0.0	0.0	0.2	0.7	0.5	0.5	100.0 <i>441</i>
PASBUS	0.0	25.0	12.5	25.0	<b>37.5</b>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0 <i>8</i>
Capital	6.1	1.8	14.9	7.0	0.0	<b>64.0</b>	0.9	0.0	0.0	0.0	2.6	0.0	0.9	1.8	100.0 <i>114</i>
DI	0.0	0.5	0.2	0.3	0.0	0.0	<b>98.3</b>	0.0	0.0	0.2	0.3	0.2	0.0	0.2	100.0 <i>650</i>
PDEL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0
OAP	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0
TJP	0.0	2.5	2.5	0.0	0.0	0.0	1.3	0.0	0.0	<b>93.8</b>	0.0	0.0	0.0	0.0	100.0 <i>80</i>
PRIVP	2.2	4.4	10.9	2.2	2.2	2.2	0.0	0.0	0.0	0.0	<b>73.9</b>	0.0	2.2	0.0	100.0 <i>46</i>
SI	0.0	5.9	11.2	0.6	0.6	0.0	26.6	0.0	0.0	0.0	0.6	<b>49.1</b>	4.7	0.6	100.0 <i>169</i>
UI	0.2	5.3	13.1	1.0	0.0	0.2	0.2	0.0	0.0	0.2	0.5	4.1	<b>74.6</b>	0.5	100.0 <i>413</i>
TRANS	3.2	2.4	3.9	1.6	0.0	0.8	3.9	0.0	0.0	0.0	0.0	0.8	1.6	<b>81.9</b>	100.0 <i>127</i>
Total	0.9	2.0	66.8	6.2	0.1	1.5	10.0	0.0	0.0	1.9	0.7	2.7	5.4	1.7	<b>100.0</b>
	<i>69</i>	<i>149</i>	<i>4889</i>	<i>451</i>	<i>7</i>	<i>111</i>	<i>733</i>	<i>0</i>	<i>0</i>	<i>135</i>	<i>52</i>	<i>200</i>	<i>397</i>	<i>123</i>	<i>7316</i>
Men 60-64															
98 \ 99	No income	Mixed	Work	ACTBUS	PASBUS	Capital	DI	PDEL	OAP	TJP	PRIVP	SI	UI	TRANS	Total
No income	<b>68.1</b>	0.0	6.4	6.4	0.0	4.3	0.0	0.0	4.3	0.0	0.0	0.0	0.0	10.6	100.0 <i>47</i>
Mixed	0.0	<b>37.6</b>	6.9	2.5	0.8	1.2	19.2	0.0	5.3	9.8	3.7	1.6	10.2	1.2	100.0 <i>245</i>
Work	0.1	3.4	<b>82.1</b>	0.2	0.1	0.6	0.6	0.0	0.7	5.4	0.5	2.5	3.8	0.0	100.0 <i>2556</i>
ACTBUS	1.2	4.4	3.6	<b>75.9</b>	0.8	2.8	2.4	0.0	4.4	0.0	1.6	0.4	2.0	0.8	100.0 <i>253</i>
PASBUS	0.0	14.3	0.0	0.0	<b>42.9</b>	0.0	14.3	0.0	28.6	0.0	0.0	0.0	0.0	0.0	100.0 <i>7</i>
Capital	4.0	1.3	4.0	2.7	0.0	<b>69.3</b>	2.7	0.0	5.3	2.7	5.3	0.0	1.3	1.3	100.0 <i>75</i>
DI	0.1	0.6	0.1	0.1	0.0	0.0	<b>96.0</b>	0.0	2.8	0.1	0.1	0.1	0.0	0.1	100.0 <i>1167</i>
PDEL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0
OAP	0.0	2.6	5.1	0.0	0.0	0.0	0.0	0.0	<b>91.0</b>	1.3	0.0	0.0	0.0	0.0	100.0 <i>78</i>
TJP	0.0	1.4	0.4	0.0	0.0	0.0	0.0	0.0	0.2	<b>97.7</b>	0.2	0.2	0.0	0.0	100.0 <i>564</i>
PRIVP	0.0	6.4	6.4	0.0	0.0	1.6	0.0	0.0	4.8	0.0	<b>79.4</b>	0.0	1.6	0.0	100.0 <i>63</i>
SI	0.0	13.6	2.9	0.0	0.0	0.0	41.8	0.0	1.0	1.0	0.0	<b>39.8</b>	0.0	0.0	100.0 <i>103</i>
UI	0.3	5.1	6.1	0.3	0.0	0.0	0.5	0.0	1.5	2.5	0.8	2.8	<b>80.2</b>	0.0	100.0 <i>393</i>
TRANS	6.6	1.1	0.0	0.0	0.0	0.0	4.4	0.0	1.1	0.0	0.0	0.0	2.2	<b>84.6</b>	100.0 <i>91</i>
Total	0.9	4.4	38.4	3.7	0.2	1.4	22.0	0.0	3.0	12.9	1.5	2.2	7.9	1.6	<b>100.0</b>
	<i>48</i>	<i>247</i>	<i>2169</i>	<i>211</i>	<i>10</i>	<i>79</i>	<i>1240</i>	<i>1</i>	<i>167</i>	<i>728</i>	<i>84</i>	<i>122</i>	<i>447</i>	<i>89</i>	<i>5642</i>

Note: Age is measured in 1998. Frequency in italics.

Table 6 Transition probability for women 1998-1999 between main sources of income (more than 50% of income from the indicated source)

Women 55-59															
98 \ 99	No income	Mixed	Work	ACTBUS	PASBUS	Capital	DI	PDEL	OAP	TJP	PRIVP	SI	UI	TRANS	Total
No income	<b>83.5</b>	0.0	2.4	0.0	0.0	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.1	100.0 85
Mixed	0.6	<b>39.3</b>	11.6	0.6	0.0	1.2	26.0	0.0	0.0	1.7	2.3	11.6	5.2	0.0	100.0 173
Work	0.1	1.3	<b>93.2</b>	0.1	0.0	0.3	0.2	0.0	0.0	0.6	0.0	2.6	1.5	0.0	100.0 4887
ACTBUS	0.6	1.7	4.4	<b>89.4</b>	1.1	1.7	0.6	0.0	0.0	0.0	0.6	0.0	0.0	0.0	100.0 180
PASBUS	0.0	14.3	0.0	0.0	<b>42.9</b>	28.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.3	100.0 7
Capital	5.3	0.7	8.6	3.3	0.0	<b>74.8</b>	2.7	0.0	0.0	0.0	2.0	0.7	2.0	0.0	100.0 151
DI	0.1	0.1	0.2	0.1	0.0	0.0	<b>99.0</b>	0.0	0.0	0.0	0.0	0.2	0.1	0.0	100.0 828
PDEL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0
OAP	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0
TJP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<b>100.0</b>	0.0	0.0	0.0	0.0	100.0 15
PRIVP	0.0	0.0	0.0	0.0	0.0	5.0	5.0	0.0	0.0	5.0	<b>80.0</b>	0.0	0.0	5.0	100.0 20
SI	0.5	10.7	10.7	0.0	0.0	0.5	24.4	0.0	0.0	0.0	0.0	<b>51.3</b>	1.5	0.5	100.0 197
UI	0.6	4.7	15.4	0.3	0.0	0.9	0.6	0.0	0.0	0.0	0.0	4.7	<b>73.0</b>	0.0	100.0 344
TRANS	7.5	0.0	0.8	0.8	0.0	2.3	2.3	0.0	0.0	0.0	0.0	0.0	0.0	<b>86.5</b>	100.0 133
Total	1.5	2.5	66.6	2.5	0.1	2.1	13.3	0.0	0.0	0.7	0.4	3.8	4.8	1.8	<b>100.0</b>
	102	175	4676	174	6	149	933	0	0	46	26	267	340	126	7020
Women 60-64															
98 \ 99	No income	Mixed	Work	ACTBUS	PASBUS	Capital	DI	PDEL	OAP	TJP	PRIVP	SI	UI	TRANS	Total
No income	<b>84.1</b>	0.0	1.9	0.0	0.0	4.7	0.9	0.0	2.8	0.0	0.0	0.0	1.9	3.7	100.0 107
Mixed	0.0	<b>39.4</b>	8.9	0.0	0.0	2.2	19.9	0.0	2.7	15.9	1.8	5.3	4.0	0.0	100.0 226
Work	0.2	5.1	<b>79.4</b>	0.1	0.0	0.9	0.8	0.0	0.4	6.9	0.1	3.2	2.9	0.0	100.0 2555
ACTBUS	0.9	4.6	1.8	<b>84.4</b>	0.9	3.7	1.8	0.0	0.9	0.0	0.9	0.0	0.0	0.0	100.0 109
PASBUS	0.0	0.0	0.0	11.1	<b>77.8</b>	0.0	11.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0 9
Capital	7.3	1.1	1.1	1.1	0.6	<b>79.8</b>	2.8	0.0	3.4	0.6	1.1	0.6	0.0	0.6	100.0 178
DI	0.0	0.6	0.1	0.0	0.0	0.2	<b>96.5</b>	0.0	2.4	0.2	0.2	0.0	0.0	0.0	100.0 1321
PDEL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
OAP	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	<b>95.7</b>	0.0	0.0	0.0	0.0	2.1	100.0 47
TJP	0.4	0.4	0.2	0.0	0.0	0.2	0.4	0.0	0.2	<b>98.2</b>	0.0	0.0	0.0	0.0	100.0 496
PRIVP	1.9	1.9	0.0	0.0	1.9	3.7	3.7	0.0	1.9	0.0	<b>83.3</b>	1.9	0.0	0.0	100.0 54
SI	0.8	11.9	8.7	0.0	0.0	0.0	38.1	0.0	1.6	0.8	0.0	<b>36.5</b>	1.6	0.0	100.0 126
UI	0.0	2.4	2.4	0.0	0.0	1.1	0.3	0.0	1.6	1.4	0.5	2.2	<b>87.8</b>	0.3	100.0 369
TRANS	9.0	0.8	0.8	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	<b>88.7</b>	100.0 133
Total	2.2	4.6	36.3	1.7	0.2	3.3	24.5	0.0	2.0	12.3	1.0	2.6	7.2	2.2	<b>100.0</b>
	126	262	2078	98	10	188	1403		112	707	59	150	412	125	5730

Note: See Table 5.

Table 7 Eight-year income source paths, conditional on work or active business  
(work) the first year, men

Men aged 55 in 1992								
N=1157	55	56	57	58	59	60	61	62
46.7%	Work	Work	Work	Work	Work	Work	Work	Work
4.4%	Work	Work	Work	Work	Work	Work	TJP	TJP
2.3%	Work	Work	Work	Work	Work	TJP	TJP	TJP
2.0%	Work	Work	Work	Work	Work	Work	Work	TJP
1.9%	Work	Work	Work	Work	Work	Work	Work	Mixed
1.5%	Work	Work	Work	Work	Work	Work	Work	UI
1.4%	Work	Work	Work	Work	Work	Work	Work	SI
1.1%	Work	Work	Work	Work	Work	Work	DI	DI
1.1%	Work	Work	UI	UI	UI	UI	UI	UI
1.0%	Work	Work	Work	Work	Work	UI	UI	UI
1.0%	Work	DI	DI	DI	DI	DI	DI	DI
1.0%	Work	Work	Work	Work	TJP	TJP	TJP	TJP
0.9%	Work	Work	Work	Work	Work	Work	Mixed	Mixed
0.8%	Work	Work	Work	UI	UI	UI	UI	UI
0.8%	Work	TJP	TJP	TJP	TJP	TJP	TJP	TJP
0.8%	Work	Work	Work	Work	Work	Mixed	DI	DI
0.8%	Work	Work	Work	Work	Work	Work	SI	DI
0.8%	Work	Work	Work	Work	Work	Work	SI	SI
0.7%	Work	Work	Work	Work	Work	Work	OAP	OAP
0.7%	Work	Work	Work	Work	Work	DI	DI	DI
0.6%	Work	Work	Work	SI	DI	DI	DI	DI
0.6%	Work	Work	Work	TJP	TJP	TJP	TJP	TJP
0.5%	Work	Work	Work	Work	UI	UI	UI	UI
0.5%	Work	Work	Work	Work	Work	SI	DI	DI
0.5%	Work	UI	UI	UI	UI	UI	UI	UI
25.8%	(other)							

Table cont



N=785	Men aged 60 in 1992							
	60	61	62	63	64	65	66	67
14.4%	Work	Work	Work	Work	Work	Work	OAP	OAP
12.5%	Work	Work	Work	Work	Work	OAP	OAP	OAP
7.4%	Work	Work	Work	Work	Work	Mixed	OAP	OAP
2.2%	Work	Work	Work	Work	Work	Work	Work	Work
1.9%	Work	DI	DI	DI	DI	OAP	OAP	OAP
1.9%	Work	TJP	TJP	TJP	TJP	TJP	OAP	OAP
1.9%	Work	TJP	TJP	TJP	TJP	OAP	OAP	OAP
1.8%	Work	UI	UI	UI	UI	OAP	OAP	OAP
1.5%	Work	Mixed	DI	DI	DI	OAP	OAP	OAP
1.4%	Work	Work	TJP	TJP	TJP	TJP	OAP	OAP
1.4%	Work	Work	Work	Work	TJP	TJP	OAP	OAP
1.3%	Work	Work	Work	Work	Mixed	OAP	OAP	OAP
1.3%	Work	Work	Work	TJP	TJP	OAP	OAP	OAP
1.1%	Work	Work	Work	Work	Work	Work	Mixed	Mixed
1.1%	Work	Work	TJP	TJP	TJP	OAP	OAP	OAP
0.9%	Work	Work	Work	Work	Work	Mixed	Mixed	Mixed
0.9%	Work	Work	Mixed	DI	DI	OAP	OAP	OAP
0.9%	Work	SI	DI	DI	DI	OAP	OAP	OAP
0.8%	Work	Work	UI	UI	UI	UI	OAP	OAP
0.8%	Work	Work	Work	Mixed	Mixed	OAP	OAP	OAP
0.8%	Work	Mixed	Mixed	Mixed	Mixed	Mixed	OAP	OAP
0.8%	Work	Work	UI	UI	UI	OAP	OAP	OAP
0.8%	Work	Work	Mixed	Mixed	Mixed	Mixed	OAP	OAP
0.8%	Work	Work	Work	Work	Work	Work	Mixed	OAP
0.8%	Work	Work	Work	Mixed	Mixed	Mixed	OAP	OAP
0.6%	Work	Work	Work	Work	UI	OAP	OAP	OAP
0.6%	Work	Work	Work	TJP	TJP	TJP	OAP	OAP
0.6%	Work	Mixed	Mixed	Mixed	Mixed	OAP	OAP	OAP
0.6%	Work	Work	DI	DI	DI	OAP	OAP	OAP
0.6%	Work	Work	Work	Work	Work	Work	Work	OAP
0.6%	Work	Work	Work	Mixed	DI	OAP	OAP	OAP
0.6%	Work	Work	Work	Work	UI	Mixed	OAP	OAP
0.5%	Work	Work	Work	Work	TJP	OAP	OAP	OAP
0.5%	Work	Work	SI	DI	DI	OAP	OAP	OAP
0.5%	Work	Work	Work	Work	SI	OAP	OAP	OAP
0.5%	Work	Work	Work	Work	Mixed	Mixed	OAP	OAP
0.5%	Work	Work	Work	DI	DI	OAP	OAP	OAP
0.5%	Work	OAP	OAP	OAP	OAP	OAP	OAP	OAP
31.3%	(other)							

Note: Tabulation is conditional on work or active business being the main source of income (more than 50% of income from the indicated source) in the initial year of the panel (1992). Balanced panel. Tabulation is by age in the initial year.

Table 8 Eight-year income source paths, conditional on work or active business  
(work) the first year, women

N=1126	Women aged 55 in 1992							
	55	56	57	58	59	60	61	62
47.4%	Work	Work	Work	Work	Work	Work	Work	Work
4.9%	Work	Work	Work	Work	Work	Work	TJP	TJP
2.0%	Work	Work	Work	Work	Work	Work	Work	TJP
2.0%	Work	Work	Work	Work	Work	Work	Work	SI
2.0%	Work	Work	Work	Work	Work	Work	Work	Mixed
1.8%	Work	Work	Work	Work	Work	Work	Work	UI
1.7%	Work	Work	Work	Work	Work	TJP	TJP	TJP
1.2%	Work	Work	Work	Work	Work	Mixed	DI	DI
1.1%	Work	Work	Work	Work	Work	Work	UI	UI
1.0%	Work	Work	Work	Work	Work	UI	UI	UI
0.9%	Work	Work	Work	Work	Work	SI	DI	DI
0.8%	Work	Work	Work	Work	Work	Work	Mixed	Mixed
0.7%	Work	Work	Work	Work	Work	Mixed	TJP	TJP
0.7%	Work	Work	Work	Work	Work	Work	SI	SI
0.6%	Work	Work	UI	UI	UI	UI	UI	UI
0.6%	Work	Work	Work	Work	Work	Work	SI	DI
0.6%	Work	Work	Work	Work	UI	UI	UI	UI
0.6%	Work	Work	Work	Work	Work	Work	DI	DI
0.6%	Work	Work	Work	Work	TJP	TJP	TJP	TJP
0.5%	Work	UI	UI	UI	UI	UI	UI	UI
0.5%	Work	Work	Work	UI	UI	UI	UI	UI
0.5%	Work	Mixed	DI	DI	DI	DI	DI	DI
0.5%	Work	SI	DI	DI	DI	DI	DI	DI
0.5%	Work	Work	Work	Work	Work	Work	Mixed	DI
0.5%	Work	Work	Work	TJP	TJP	TJP	TJP	TJP
25.5%	(other)							

Table cont

N=777	Women aged 60 in 1992							
	60	61	62	63	64	65	66	67
12.6%	Work	Work	Work	Work	Work	Work	OAP	OAP
10.0%	Work	Work	Work	Work	Work	Mixed	OAP	OAP
8.4%	Work	Work	Work	Work	Work	OAP	OAP	OAP
4.1%	Work	Work	Work	Work	TJP	TJP	OAP	OAP
3.6%	Work	TJP	TJP	TJP	TJP	TJP	OAP	OAP
2.4%	Work	Work	Work	Work	TJP	OAP	OAP	OAP
2.3%	Work	Work	Work	TJP	TJP	OAP	OAP	OAP
1.9%	Work	Work	TJP	TJP	TJP	OAP	OAP	OAP
1.7%	Work	Work	Work	Work	Mixed	OAP	OAP	OAP
1.7%	Work	Work	Work	Mixed	TJP	OAP	OAP	OAP
1.5%	Work	Work	Work	Work	Work	Mixed	Mixed	Mixed
1.5%	Work	TJP	TJP	TJP	TJP	OAP	OAP	OAP
1.4%	Work	Work	Work	Work	TJP	Mixed	OAP	OAP
1.3%	Work	Work	Work	Mixed	Mixed	OAP	OAP	OAP
1.3%	Work	Work	TJP	TJP	TJP	TJP	OAP	OAP
1.2%	Work	Work	Work	Work	Work	TJP	OAP	OAP
1.2%	Work	Work	Work	Mixed	DI	OAP	OAP	OAP
1.0%	Work	SI	DI	DI	DI	OAP	OAP	OAP
1.0%	Work	Work	Work	Work	Work	Work	Work	Work
0.9%	Work	Work	Work	Work	Mixed	Mixed	OAP	OAP
0.9%	Work	Work	Mixed	DI	DI	OAP	OAP	OAP
0.9%	Work	DI	DI	DI	DI	OAP	OAP	OAP
0.8%	Work	Mixed	DI	DI	DI	OAP	OAP	OAP
0.8%	Work	Work	Work	Work	OAP	OAP	OAP	OAP
0.8%	Work	Work	Work	Work	Work	UI	OAP	OAP
0.8%	Work	Work	DI	DI	DI	OAP	OAP	OAP
0.6%	Work	Work	Work	UI	UI	OAP	OAP	OAP
0.6%	Work	Work	Work	OAP	OAP	OAP	OAP	OAP
0.6%	Work	Work	Work	Work	Mixed	TJP	OAP	OAP
0.6%	Work	Mixed	Mixed	Mixed	Mixed	Mixed	OAP	OAP
0.6%	Work	Work	Mixed	TJP	TJP	OAP	OAP	OAP
0.6%	Work	TJP	TJP	TJP	TJP	Mixed	OAP	OAP
0.6%	Work	Work	UI	UI	UI	OAP	OAP	OAP
0.6%	Work	Work	Work	Work	UI	Mixed	OAP	OAP
0.5%	Work	UI	UI	UI	UI	OAP	OAP	OAP
0.5%	Work	Work	Work	Work	Work	Mixed	OAP	Mixed
0.5%	Work	Mixed	Mixed	DI	DI	OAP	OAP	OAP
0.5%	Work	Mixed	TJP	TJP	TJP	OAP	OAP	OAP
0.5%	Work	Mixed	Mixed	Mixed	Mixed	OAP	OAP	OAP
0.5%	Work	Work	Work	Mixed	TJP	TJP	OAP	OAP
0.5%	Work	Work	Work	Work	SI	OAP	OAP	OAP
0.5%	Work	Work	SI	DI	DI	OAP	OAP	OAP
24.7%								

Note: see Table 7.

Table 9 Top-ten list of the most frequent contemporaneous combinations of income; income types are in the order of importance, 1992-1999.

Men 50-54 N=82787		Men 55-59 N=64234	
46.6%	WORK / CAPINC	40.7%	WORK / CAPINC
11.1%	WORK	7.8%	WORK
3.3%	WORK / SI / CAPINC	3.9%	WORK / SI / CAPINC
2.6%	BUSACT / CAPINC	2.5%	DI / CAPINC
1.7%	WORK / UI / CAPINC	2.5%	BUSACT / CAPINC
1.6%	WORK / SI	1.6%	WORK / PRIVP / CAPINC
1.1%	DI / TRANS	1.6%	DI / TRANS
1.1%	CAPINC	1.5%	DI
1.1%	DI / CAPINC	1.5%	WORK / UI / CAPINC
1.0%	TRANS	1.3%	WORK / SI
28.8%	(other)	35.1%	(other)
Men 60-64 N=53747		Men 65-59 N=50995	
17.0%	WORK / CAPINC	24.7%	OAP / TJP / CAPINC
6.3%	DI / CAPINC	6.5%	OAP / TJP
3.8%	WORK / PARTIALP / CAPINC	5.2%	OAP / TJP / PRIVP / CAPINC
3.1%	WORK	4.2%	OAP / CAPINC
2.6%	DI	3.4%	OAP / CAPINC / TJP
2.5%	TJP / CAPINC	2.9%	OAP / TJP / WORK / CAPINC
1.9%	DI / TRANS	2.6%	OAP / TJP / CAPINC / WORK
1.9%	WORK / SI / CAPINC	2.1%	OAP / WORK / TJP / CAPINC
1.8%	DI / TJP / CAPINC	2.1%	OAP / PRIVP / TJP / CAPINC
1.8%	TJP / WORK / CAPINC	2.0%	OAP / TJP / CAPINC / PRIVP
57.3%	(other)	44.3%	(other)
Women 50-54 N=78541		Women 55-59 N=63037	
42.7%	WORK / CAPINC	37.1%	WORK / CAPINC
9.8%	WORK	6.7%	WORK
5.5%	WORK / SI / CAPINC	5.6%	WORK / SI / CAPINC
2.5%	WORK / UI / CAPINC	3.7%	DI / CAPINC
2.1%	WORK / SI	2.4%	WORK / DI / CAPINC
1.6%	DI / CAPINC	2.2%	CAPINC
1.6%	WORK / CAPINC / SI	1.9%	WORK / CAPINC / SI
1.4%	DI / TRANS	1.8%	WORK / UI / CAPINC
1.3%	WORK / DI / CAPINC	1.8%	DI
1.3%	CAPINC	1.7%	DI / TRANS
30.2%	(other)	35.1%	(other)
Women 60-64 N=55683		Women 65-69 N=56403	
16.5%	WORK / CAPINC	24.1%	OAP / TJP / CAPINC
8.1%	DI / CAPINC	7.9%	OAP / CAPINC
3.5%	CAPINC	6.1%	OAP / CAPINC / TJP
3.1%	TJP / CAPINC	5.1%	OAP / TJP
2.9%	WORK / PARTIALP / CAPINC	4.6%	CAPINC
2.7%	WORK	2.8%	OAP / TRANS / CAPINC
2.6%	DI	2.4%	OAP / TJP / PRIVP / CAPINC
2.5%	WORK / SI / CAPINC	2.4%	OAP / TRANS / TJP / CAPINC
2.1%	DI / TRANS	2.2%	TRANS
2.0%	WORK / DI / CAPINC	2.0%	OAP / PRIVP / TJP / CAPINC
54.0%	(other)	40.4%	(other)

Note: Only observations with positive total income and the ten most frequent income combinations included in table.