
**Work history, retirement choices and incomes in old age
A case study of Sweden**

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Abstract

The paper studies the relationship between work experiences, experience of an early transition from work to retirement and people's pension incomes. The research focus is on an empirical evaluation of explanatory factors underlying income disadvantage in post-retirement phase of life. In particular, the research seeks to shed light on working-life and early retirement experiences that lead to income disadvantage in old age and thus the information obtained is highly relevant to how future trends in employment, family demographics, and decision towards early retirement will have an impact on retirement incomes.

All empirical work is undertaken for Sweden using the 1978-1999 SWIP (SWedish Income Panel), which provides access to 22 years of panel data on income, labour market and demographic attributes of the Sweden-born and foreign-born Swedish population. The dataset offers us a unique opportunity to carry out this research mainly because of its panel length, its large sample size (especially for the foreign-born Swedish population) and the quality of its income data.

The analyses are performed using descriptive results as well as multivariate regression analysis. Our initial findings suggest that unemployment has perverse effect on retirement incomes only when it is experienced prior to age 58. Social assistance experience has a strong negative impact on family pension income, and the effect is stronger for men than for women and for high-educated pensioners than for low educated pensioners. Early retirement for 1-5 years has little or no impact, but early retirement for more than 5 years clearly affects negatively pension incomes. There is also clear evidence that those who had rising earnings trajectory later in working life end up with higher retirement incomes. Surprisingly, the results for foreign-born Swedish are very similar to that for the Sweden-born (when controlling for other relevant factors), and this can be attributed to the strong redistributive element in the pre-reformed Swedish social insurance system.

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1. Introduction

An important objective for a modern welfare State has always been to provide safeguard against deterioration in income and living standards that arise out of experiences of unemployment, disability and sickness and other such involuntary life course events. One critical policy question with respect to poverty reduction strategies for elderly people has been to know what the individual, the employer and the State can effectively do to mitigate the negative effects on retirement incomes of such disruptions during working lives. This paper addresses this question by studying how, in the Swedish welfare state, the retirement incomes are related to the employment experiences during working life and also to the timing of transition from work to retirement. It is of particular interest to our study to examine what are the scaring effects of unemployment, early retirement and social assistance on pensions and how they might differ across Sweden-born and foreign-born populations. The information generated through this research will highlight what behavioural responses from individuals and what additional protection from the State can improve retirement incomes.

A growing body of empirical studies show how unemployment experience affects individuals' subsequent labour market situation (see for example Arulampalm, 2001, Gregg 2001 and 2005, Gregory and Jukes, 2001). For instance, Gregory and Jukes (2001) use data for British men during 1984–1994 and find that both the experience of unemployment and its duration depress subsequent earnings. Their main finding is that unemployment experience ending in any of the last three quarters reduces earnings by 10%, while for earnings after two years of the unemployment event the reduction is only of 3.7%. However, to our knowledge, there appears to be very little research on how work history and early retirement experiences affect retirement incomes,¹ partly because of the lack of suitable panel data. Also, there is very little evidence how migrants may have a differential impact compared to indigenous population. This paper seeks to fill this gap; it also extends our earlier research on income situation of the elderly in Sweden (on income mobility of the Swedish and foreign born elderly² and on early retirement behaviour among immigrants to Sweden³).

¹ One important exception to this is the work of Elena Bardasi and Stephen Jenkins (2002), “Income in later life: Work history matters”, Policy Press, UK, although the work has been based on only nine years of data from the British Household Panel Study.

² See A. Zaidi and B. Gustafson (2006), “Income mobility amongst the elderly in Sweden during the 1990s”, *International Journal of Social Welfare*, forthcoming.

³ See B. Gustafsson and T. Österberg (2003) “Ursprung och förtidspension (Immigrants and Early Retirement)”, Chapter 3 in Ekberg, J.(Editor) Egenförsörjning eller bidragsförsörjning? Invandrarna.

Sweden in this respect is an interesting case study as there are reasons to expect that the scaring effects of non-employment during working life will be small, partly for the fact that the unemployment compensation also includes pension credits and there are other forms of redistribution in the system. Also, in the form of the Swedish Income Panel (SWIP), we have access to a rather large panel dataset, having information for many years, and it also allows us to study samples of native as well as foreign-born Swedish populations. Our initial findings suggest that unemployment has perverse effect on retirement incomes only when it is experienced prior to age 58. Social assistance experience has a strong negative impact on family pension income, and the effect is stronger for men than for women and for high-educated pensioners than for low educated pensioners. Early retirement for 1-5 years has little or no impact, but early retirement for more than 5 years clearly affects negatively pension incomes. There is also clear evidence that those who had rising earnings trajectory later in working life end up with higher retirement incomes. Surprisingly, the results for foreign-born Swedish are very similar to that for the Sweden-born (when controlling for other relevant factors), and this can be attributed to the strong redistributive element in the Swedish social insurance system.⁴

The rest of the paper is laid out as follows. In the next section, we outline our analytical framework. Section 3 describes the dataset in use and the research methodology used. In Section 4 we report descriptive results. The multivariate modelling results are presented in Section 5. Results for the foreign-born population are given in Section 6. Concluding discussion is given in Section 7.

arbetsmarknaden och välfärdsstaten. Rapport från Integrationspolitiska maktutredningen, Stockholm: Statens offentliga Utredningar (SOU 2004:21)

⁴ This aspect is further discussed in Ann-Charlotte Ståhlberg (2002) “Gender and Social security: Some Lessons from Europe”, European Journal of Social Security, vol 4, 227 – 239

2. Analytical framework

The research has been undertaken by adopting the theoretical framework of the lifecourse approach, with a focus is on an empirical evaluation of life course experiences during late in working lives on income disadvantage in post-retirement phase of life. The essence of the lifecourse approach is that it looks into interlinkage between different phases of life (e.g. between working life and retirement). Thus, rather than viewing any stage of life or any age group in isolation, this approach is concerned with an understanding of the place of that state in an entire life continuum.⁵ The approach presents a dynamic analytical framework within which to evaluate the income situation of the elderly, and it will therefore offer insights that are available neither through cross sectional studies (e.g. sample surveys which may reveal the link between income and characteristics only at one point in time) nor through panel datasets of short duration (which may only reflect on income dynamics specific to a single phase of life). In particular, this research will shed light on *processes* that lead to income disadvantage amongst the elderly and thus the information obtained will be highly relevant to policymakers.

The specific research questions that we want to address are:

- What impact years in unemployment have on incomes in old age and how does it vary across varying attributes (e.g. men/women, low/high educated, Sweden/foreign-born)?
- What is the impact on pension incomes of being in receipt of social assistance and in taking early retirement?

The Swedish income panel data for 1978-1999 periods has been used. The variables of interest are: the receipt of unemployment compensation (available for the year 1978-1999), levels of earnings (1978-1999), social assistance receipts (1985-1999), early retirement experience (1982-1999), and receipt of sickness compensation (1982-1999). The attributes of interest are education, age, gender, marital status, country of birth and the year of immigration. We study pension income of those who are at age 66 in the last five waves of the panel (1995-1999) – i.e. those born between 1929 and 1933 – and relate it to their work history during preceding years. Why do we choose this subgroup? The choice will allow us to analyse incomes of those who are in their post-retirement phase of life and then find a link between their income entitlements and their work histories.

⁵ For a detailed exposition of this argument, see various chapters in Hareven and Adams (eds) (1982) *Ageing and Life Course Transitions: An interdisciplinary Perspective*. London: Tavistock.

Other analytical choices must also be made in the analyses intended in this empirical work. There are alternative ways of defining experiences of unemployment and that of social assistance, and we also test out alternative definitions. To define whether someone was **unemployed** during a year, we make use of data on the receipt of unemployment compensation in three alternative ways: (1). Unemployment compensation is positive in the year in question (i.e. an occurrence of unemployment, however small it may be); (2). Sum of annual unemployment compensation is greater than a predetermined threshold equal to the price base amount;⁶ and (3). Unemployment compensation is greater than three times the price base amount.⁷ To define the **social assistance** experience, we used the following definitions: (1). One or more months of social assistance receipt in a year; (2). Six or more months; (3). Eight or more months; and (4). 12 months. **Earnings** had been defined high if they are in excess of 7.5 * the price base amount. **Early retirement** is defined using specific definitions of early retirement under “Folkpension”, and also specific codes of early retirement for “ATP” pension. In the analyses undertaken, we work with only those who were present for at least 15 out of 22 years, and this represents about 75% of the total sample. Where necessary, both the individual pension incomes as well as family pension income had been used.

3. Data

The results reported are based on the Swedish Income Panel (SWIP). This database consists of large longitudinal samples originally drawn to investigate the labour market situation of persons who immigrated as adults to Sweden. The samples were drawn from the Register of the Total Population (RTB) at Statistics Sweden (SCB). This register is frequently updated and contains all people registered as residing in the country, excluding asylum-seekers. When an individual emigrates or dies, it should be reported to RTB. It is generally perceived that RTB has good quality data in most respects, although there are reasons to suspect that emigration to countries other than the Nordic countries is underreported.

⁶ The Swedish system of social insurance uses the price base amount when defining many benefits in order to present their real purchasing power. We end up preferring this method of unemployment_compensation>base, since it provides us a comparable official unemployment rate. For intuition, the base amount in 2004 reflects about 50 days of unemployed days for those insured (unionised) and for those on non-contributory unemployment benefits, it represents 122 days of unemployment.

⁷ Typically, a low earner who received unemployment compensation for a full year will be qualified as unemployed in this category.

SWIP was constructed by taking a sample of 1 per cent of the Sweden-born people from RTB for 1978 (which yields a sample size of about 77,000 individuals), as well as a 10-per cent sample of foreign-born people (which yields a sample size of around 60,000 individuals). Additional samples (10 per cent) were drawn from people who immigrated during the 1979-1998 period. The size of the samples varies naturally with the size of the immigration flow; it ranges from 3,000 to 7,000 individuals for each year. For 1999 we have information for all recently arrived immigrants in Sweden.

Variables in SWIP measure demographic circumstances collected from RTB. Most variables are derived by matching with the annual income registers at the tax office (SCB). Thus, we have access to yearly information for a number of income variables and also for a variable that measures the annual income tax. In the register, the disposable income for each individual is the sum of wages, self-employment income, capital income, and transfers received while taxes are deducted. The register also has information on sums received such as means-tested housing benefits and social assistance.

If an adult individual is included in SWIP, his/her partner has also been included in the panel and all relevant information collected. A partner is defined as someone who is married to or cohabiting with the selected individual, but the latter applies only when the cohabitants are parents of a dependent child. In this manner, we define a household and derive its disposable income by adding the disposable income of the spouses. This definition of a household is narrow and more akin to that of a family or a benefit unit rather than a household. Using this definition, two adults who live together and share resources but are neither married nor parents of the same dependent child will appear as two households. This is undoubtedly a limitation for the study of the economic situation of young adults; however, amongst the elderly, who are the focus of this study, multi-person households are less common.

When required, we adjust the disposable income of each household with the square root of the number of household members⁸, and assign this income ('equivalent disposable income') to each household member. Our study concentrates on adults only, and children only figure indirectly in the size of the equivalent income of the household and its members.

⁸ We also have information on the number of dependent children, thus the household size information is recorded quite reliably.

4. Work histories

For our analyses we use one sub-sample of native born and another of foreign-born who were born between 1929 and 1933 and examine these persons' incomes when they were at the age of 66. This means persons born 1929 are observed in 1995, those born 1930 in 1996 and so on until persons born in 1933 who are observed in 1999. The work, unemployment, social assistance, sickness and retirement history data of this subgroup has been drawn from all earlier waves of the panel.

We derive all measures of work history from the various income variables available in SWIP. Doing this we can go as far as back to 1978 for earnings and unemployment compensation and to 1985 for receipt of social assistance. As an illustration of this data, we present Figures 1-4. In Figure 1, annual unemployment rate for Swedish born population only is presented (using the definition of unemployment compensation greater than the price base amount).

Figure 1: Unemployment trends across men and women (1978-1999)

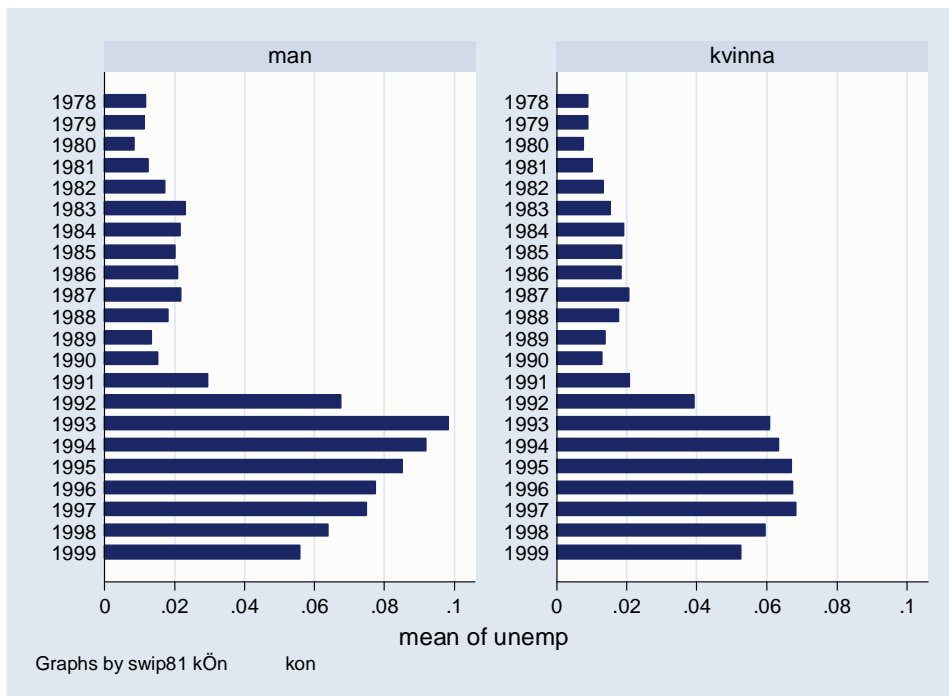
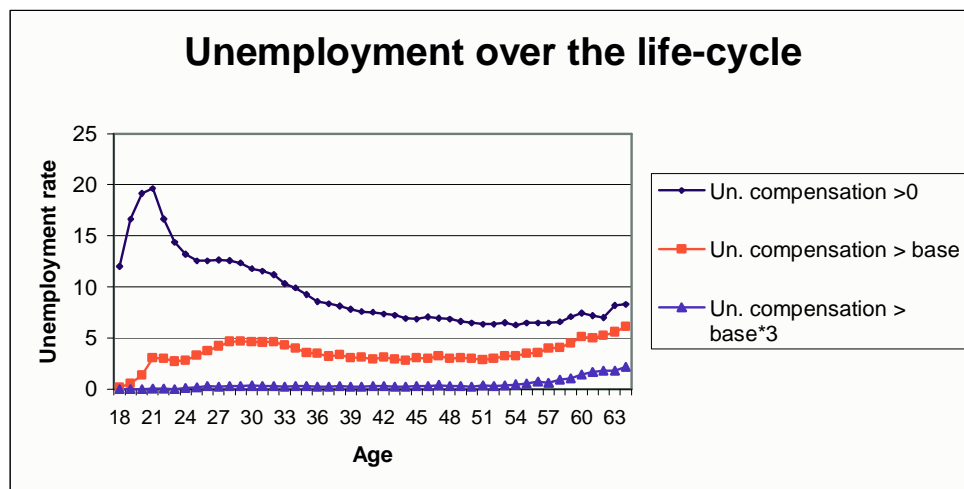


Figure 2 shows how unemployment varies during working life (from 18 to 64), computed over the entire period 1978 to 1999 (again the subsample of Sweden-born only is presented). For Figure 2, all three measure of unemployment are described. Results show that unemployment is a common experience for younger persons, and there are also signs of unemployment to increase at the end of one's working life. In fact, the unemployment occurrence with high values of unemployment compensation (to receive unemployment compensation larger than 3-times price base amount) happened only after the age 54. This last result could be seen from the perspective that requirements to active search for a job and to be involved in active labour market programmes typically fades when persons approach the statutory retirement age of 65.

**Figure 2: Unemployment over the life-cycle
(on the basis of data during 1978-1999)**



Occurrence of social assistance receipt during the period 1985 to 1999 is illustrated in Figure 3, which shows a pattern related to unemployment receipt, but with a time-lag. Thus social assistance receipt decreased during the second part of the 1980s, then increased to decrease at the end of the observation period. Social assistance receipt is most common among young adults as shown in Figure 4, and the rate of receipt decrease by age.

Figure 3: Social assistance trends across men and women (1985-1999)

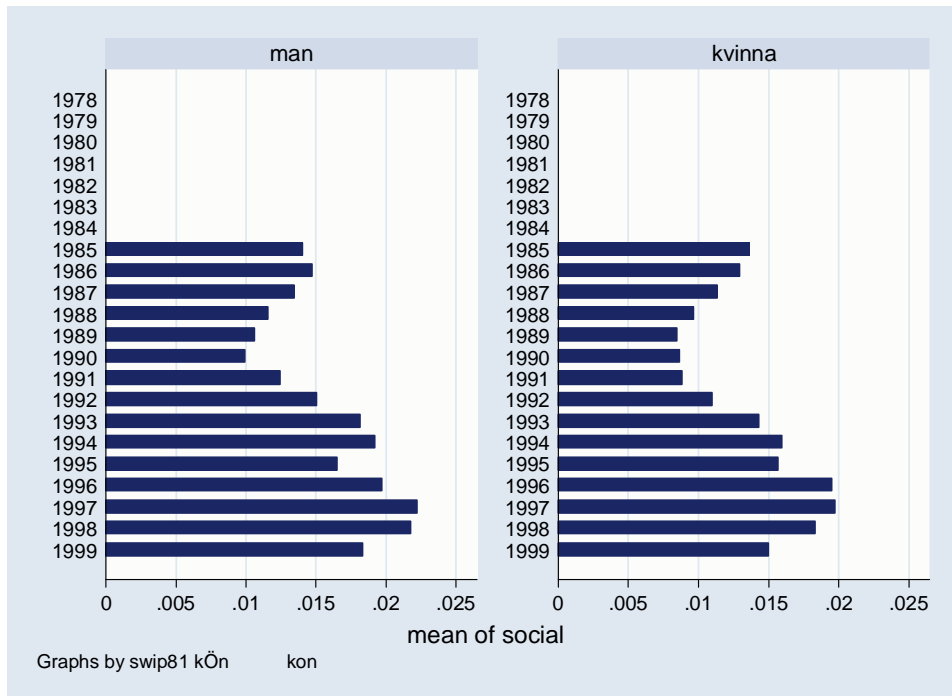
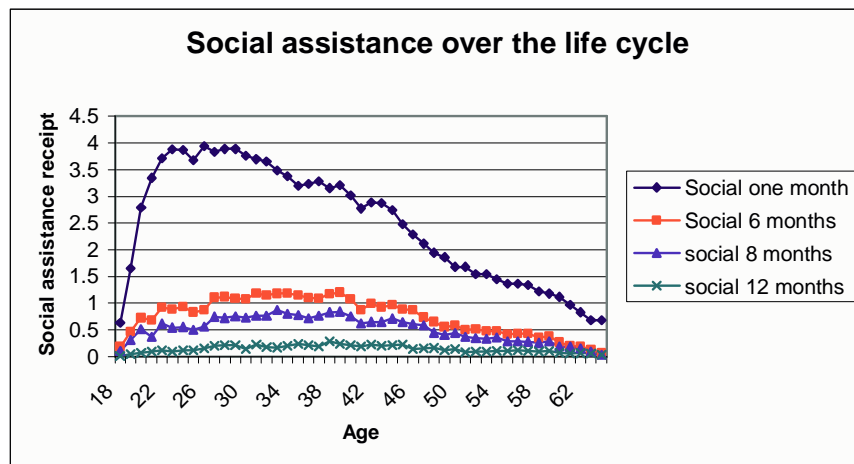


Figure 4: Social assistance receipts over the life-cycle (on the basis of data during 1985-1999)



5. Work histories and incomes at age 66 (for Sweden-born only)

5.1 Linking unemployment experience and individual income

Figure 4 and 5 present the bi-variate link between unemployment experience and individual pension income, subdivided by gender and education, respectively.⁹ Unemployment here is defined as having unemployment compensation greater than the price base amount. Overall, in Figure 4, we do not see a consistent bivariate link between rising years of unemployment and individual pension incomes. The most consistent result is observed for male pensioners, who have non-increasing levels of pension incomes with increasing number of years in unemployment. However, if we compare pension income for those with no unemployment experience with those who had four or more years of unemployment, we see a clear scarring effect on pension income of unemployment during working life. The effect is stronger for men than for women, and also for high educated pensioners to low educated pensioners.¹⁰

The weak link in the above results may be due to the fact that 15 years of work is all that was required for a full pension entitlement in the pre-reformed system. Figure 2 (included in Section 4) showed that unemployment experience tends to rise again after about age 55 and, given the 15 year rule, this unemployment experience late in working life may not be detrimental to one's pension income. Thus, we also analyse the link between unemployment experience before the age of 58 and pension income (see Figure 5). Here we also do not see any consistent impact of rising years of unemployment on pension incomes: one year of unemployment results in lower individual pension income compared to those who had no unemployment, but then there is no consistent pattern for each additional year of unemployment. However, the individual pension income for those with four or more years of unemployment is much lower than the individual income for those who had no unemployment experience, and the impact is somewhat stronger for men than for women, and for high educated than for low educated pensioners.

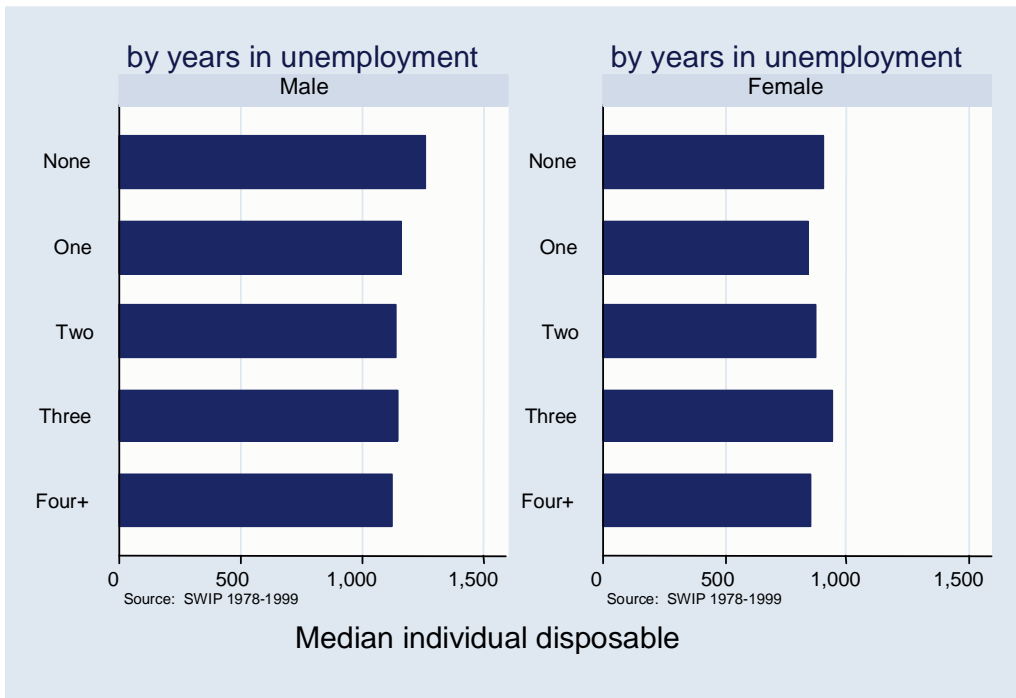
The above analyses imply that there had been some degree of pension protection against unemployment experience, but the picture is more complex than is shown here. *Firstly*, individuals who had strong contributory record can afford to be unemployed with sufficient unemployment compensation and these are the individuals who will also have decent pension

⁹ “Low educational attainment” is defined as lower middle or less and “high educational attainment” includes middle, upper middle and university. Those with missing value are included amongst the low educated individuals.

¹⁰ All income figures in this paper are expressed in 100s of Swedish Kronas, given in 1999 prices.

(through their contributory record). *Secondly*, what we refer to as individual pension income has other income components (such as housing allowance), which are income-related and not dependent on contributory record. The impact on pension income is nevertheless significant when one has a greater duration of unemployment (for four or more years).

Figure 5: Linking unemployment experience and individual incomes (by gender)



(by education)

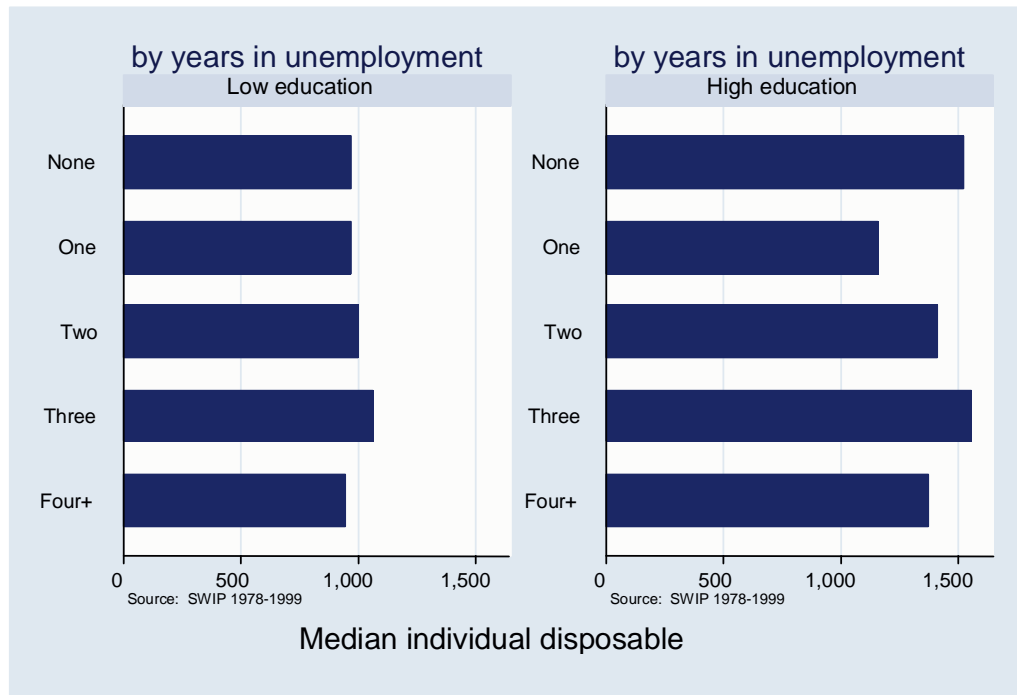
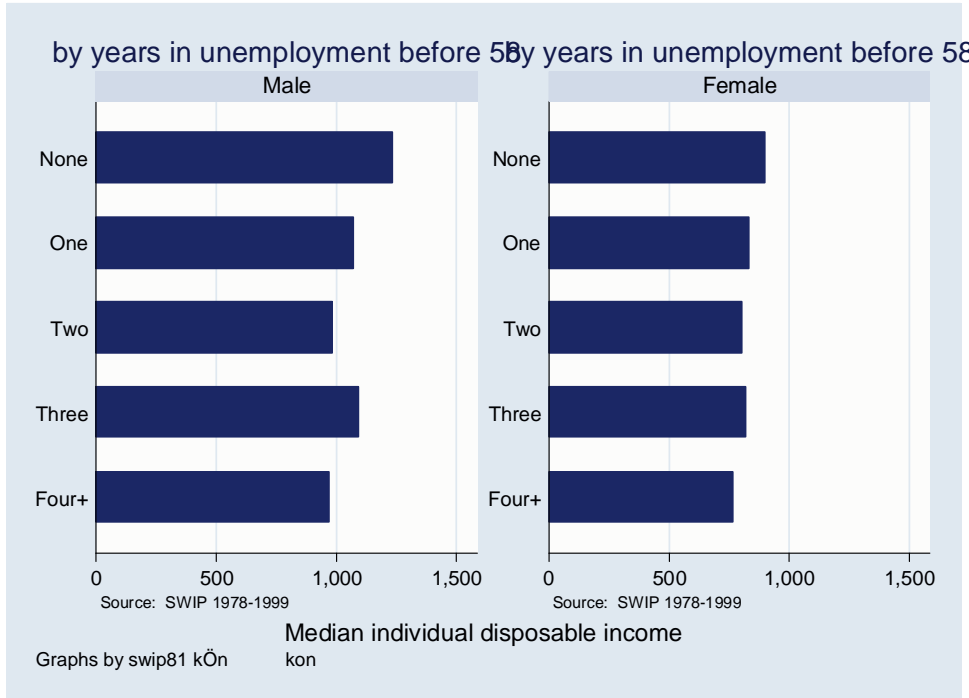
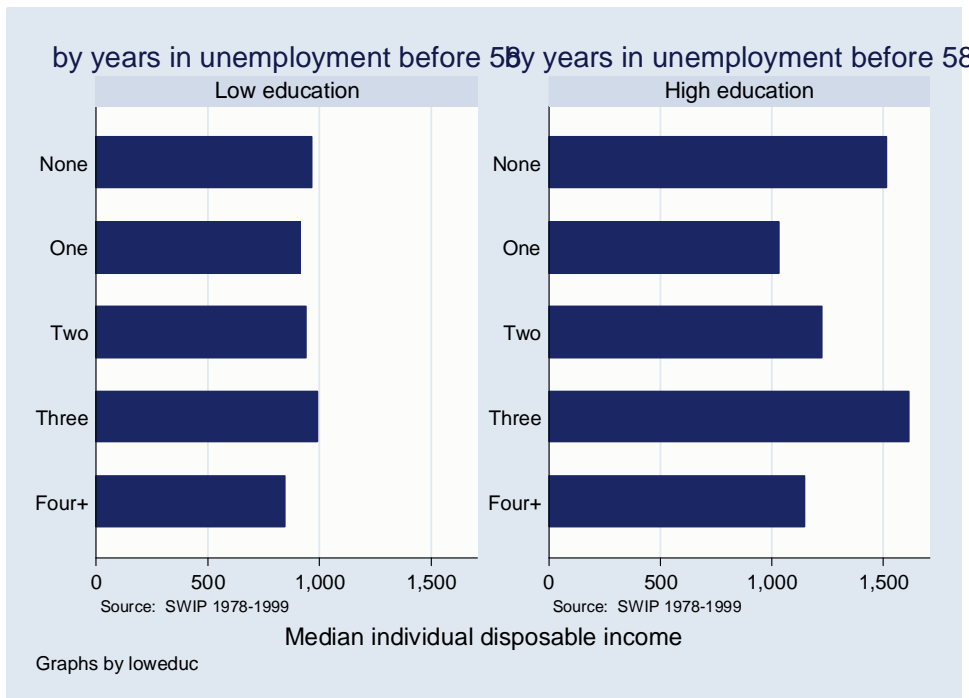


Figure 6: Linking unemployment experience before 58 and individual incomes (by gender)



(by education)



5.2 Linking social assistance experience and family income

The experience of social assistance is not widespread amongst the subgroup in question. Thus, we work with a cumulative sum of months in social assistance and categorise them into three categories: no experience of being in receipt of social assistance, one month of social assistance, and two or more months of social assistance receipt. Since the social assistance could be received at the family level, we make use of a derived variable that gives us the number of months the family has been in receipt of social assistance benefits.

Results presented in Figure 6 highlight that for men the impact of being in receipt of social assistance is significant and negative. However, the impact for women is not as expected, in fact quite the reverse. When we look at the family income instead of the individual income (in Figure 7), we note consistently a lower pension income for those who had more months spent in the receipt of social assistance. For instance, the pension income for male pensioners who had two or more months of receipt of social assistance is almost half of income of those who had no experience of social assistance. The experience of receipt of social assistance in the later stages of one's working life is likely to also reflect other attributes, such as low education and low level of formal employment in earlier parts of one's working life. It seems to be the case that the social assistance receipt later in one's working life would therefore serve as a good instrument of an interrupted work history.

Figure 6: Linking social assistance experience and individual income in retirement, by gender

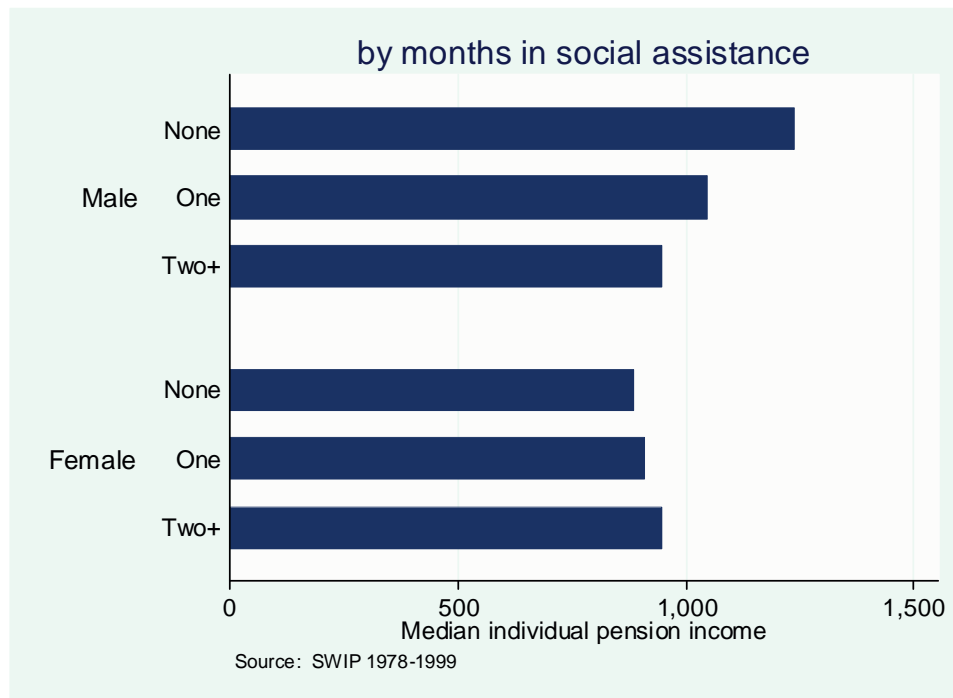
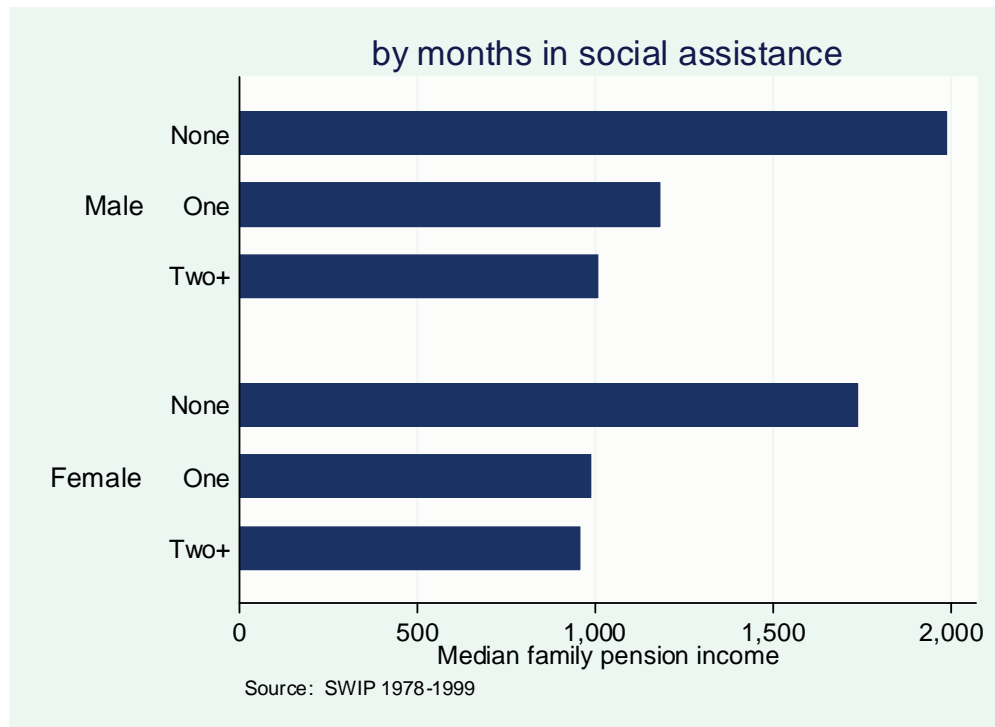


Figure 7: Linking social assistance experience and family income in retirement, by gender



5.3 Linking early retirement experience and individual income

It is not surprising to see that the experience of early retirement also leads to lower individual pension income on average (see Figure 8). The effect is much stronger for longer period of early retirement, and more significant for men than for women. Men with 10 or more years of early retirement have incomes that are less than two-third of incomes of those with no early retirement.

Figure 8: Implications of retiring early on individual incomes (by gender)

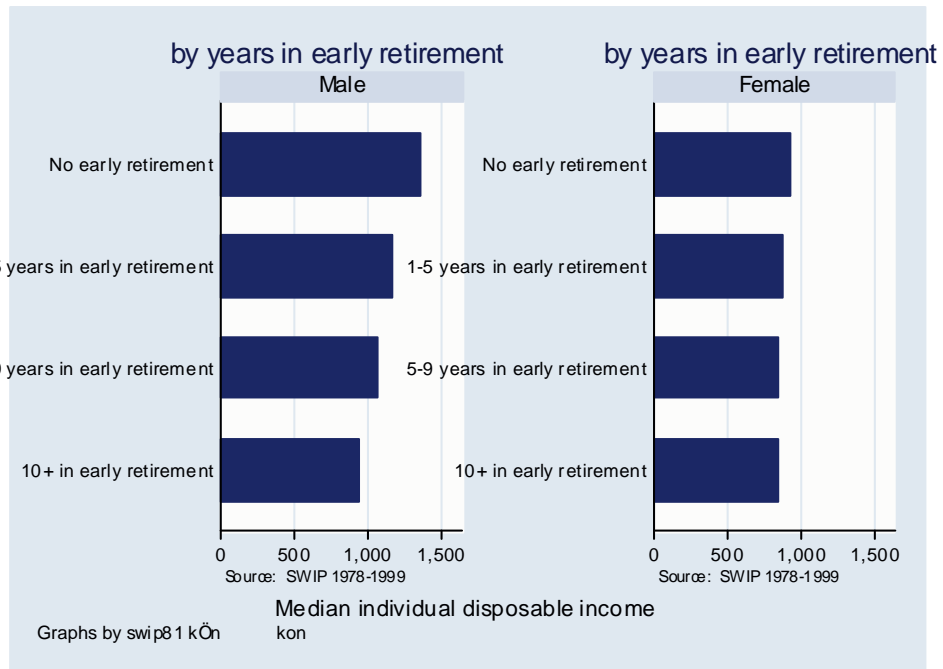
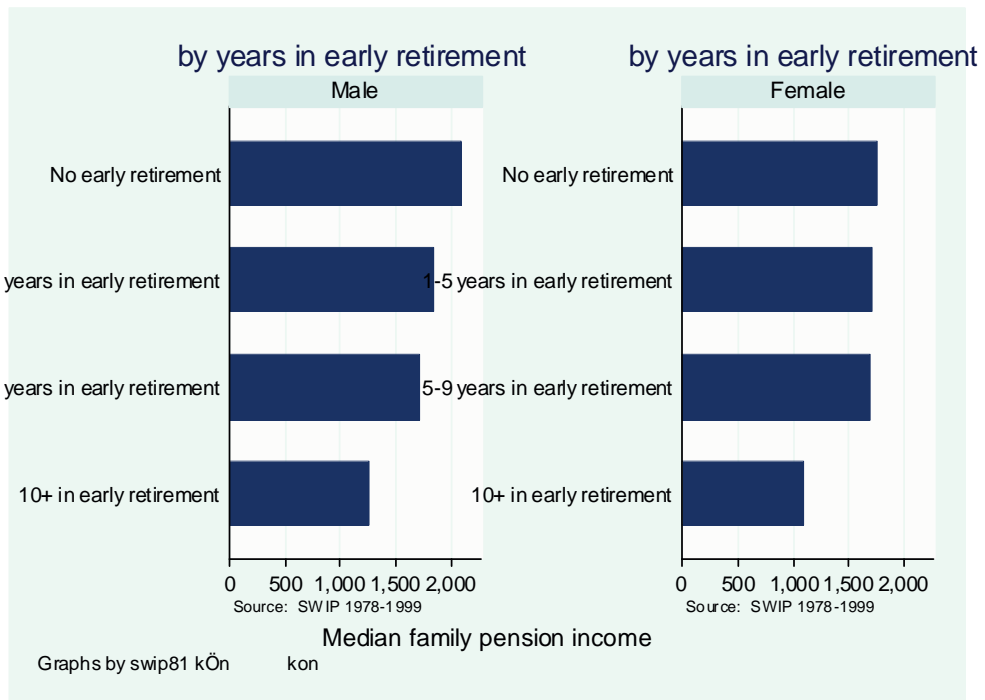


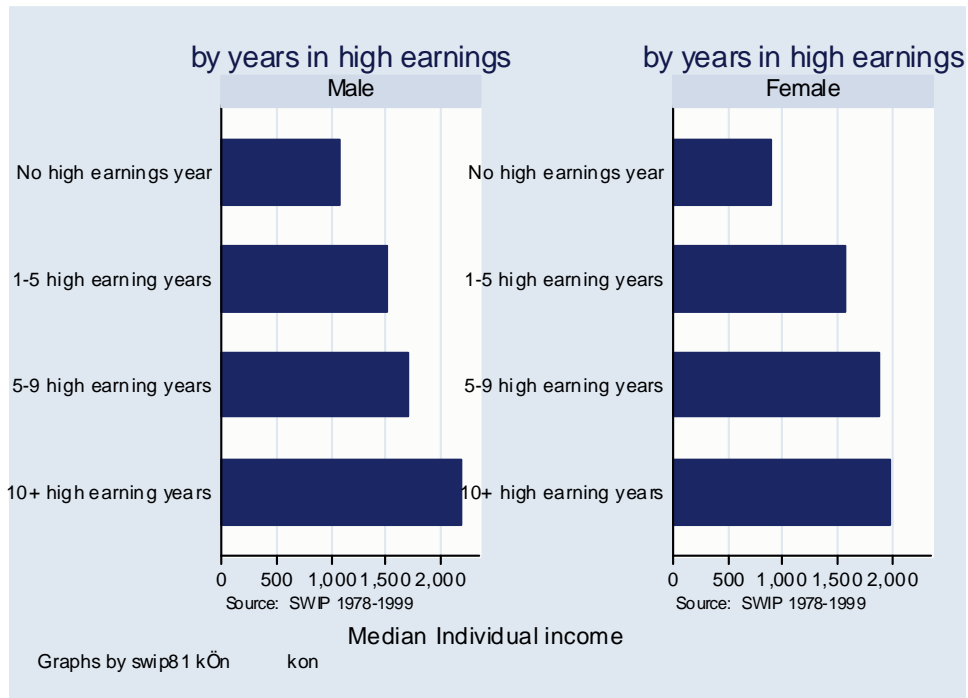
Figure 9: Implications of retiring early on family incomes (by gender)



5.4 Linking high earnings experience and individual pension income

It is not surprising to see that pensioners who had more years of high earnings enjoy higher individual pension incomes on average (see Figure 10). It is also notable that, once we control for number of years in high earnings during working life, there is very little gender differential in individual pension incomes.

Figure 10: High earnings and its impact on individual pension incomes (by gender)



5.6 Multivariate analyses of determinants of individual pension income

The above descriptive analyses are also supplemented by the multivariate regression analyses, making use of (log) individual pension income as the dependent variable. A whole range of explanatory factors are included, and we seek to test in our interaction terms whether there is any pension penalty or reward for women associated with any of the working life experience. The specification for which results are reported in Table 1 has been obtained by carrying out a systematic specification search, with a focus on including the work life experience and early retirement experience in the final specification.

The first coefficient of our regression results suggests that women have significantly lower individual income: they have about 35% lower individual income than men (the coefficient for females is -0.354). However, this is not entirely true, mainly for the fact that when we take into consideration the coefficients for all interaction terms, the above mentioned result will be true for only a specific group of women. For example, the interaction effect of being a woman as well as single is strongly positive (0.267), and thus the first-mentioned result is largely true for those women who live with their partner. Other interaction terms should also be evaluated before making a judgement about the gender differentials in individual income.

We also find that the years of unemployment has a significant negative effect on individual pension income only if the experience of unemployment has been before the age of 58. This is consistent with our descriptive analyses above. Our results suggest that each additional year in unemployment before the age of 58 will decrease individual pension income by about 4% (the coefficient is -0.037). The impact of one month or more in social assistance has a larger impact: the individual pension income is about 14% lower for those who one or more month of social assistance experience in comparison to those who had no experience. The interaction term “females in social assistance” shows that the impact is less for women (14% - 10%) than for men in social assistance (although this coefficient is statistically insignificant). This differential impact of social assistance is also consistent with our descriptive analyses.

Early retirement by 5-9 years reduces the individual pension income by 7%, and early retirement by 10 or more years reduces the individual pension income by about 17%. Note that there are no significant gender differences in these results. In fact, our estimates show that women gain more in terms of personal income at age 66 than men from having high earnings in the later parts of their labour market career. This is a specificity of the pre-reformed Swedish pension system in which these cohorts contributed, and these redistributive elements are supposed to diminish radically as the new pensions system is gradually introduced for younger cohorts.¹¹

¹¹ Several studies of Ståhlberg has shown this, see for example Ståhlberg (2002) in which the author discusses gender issues on social insurance in a wider frame.

Table 1: Determinants of individual income at age 66 (for birth cohorts 1929-1933)

Dependent variable: Log individual income	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]	
Females	-0.354	0.018	-19.230	0.000	-0.391	-0.318
Single	-0.006	0.018	-0.370	0.714	-0.041	0.028
Single females	0.267	0.024	11.100	0.000	0.220	0.314
Highly educated	0.204	0.016	13.010	0.000	0.173	0.234
Number of years in unempl	0.010	0.010	1.000	0.318	-0.009	0.028
Females * no. of years unemployed	0.002	0.012	0.140	0.890	-0.022	0.025
High educ * no. of years unemployed	-0.012	0.015	-0.830	0.409	-0.041	0.017
Number of years in unempl (before 58)	-0.037	0.013	-2.830	0.005	-0.062	-0.011
A month or more in social assistance	-0.139	0.037	-3.730	0.000	-0.212	-0.066
Female * a month or more in social assistance	0.099	0.056	1.760	0.079	-0.011	0.209
1-5 years in early retirement	-0.028	0.020	-1.350	0.177	-0.067	0.012
5-9 years in early retirement	-0.073	0.028	-2.610	0.009	-0.129	-0.018
10 or more years in early retirement	-0.168	0.034	-4.980	0.000	-0.235	-0.102
female* 1-5 years in early retirement	0.012	0.029	0.430	0.668	-0.044	0.069
Female * 5-9 years in early retirement	0.016	0.038	0.430	0.670	-0.058	0.090
Female * 10 or more years in early retirement	0.050	0.045	1.130	0.258	-0.037	0.138
1-5 years in high earnings	0.243	0.023	10.400	0.000	0.197	0.289
5-9 years in high earnings	0.379	0.039	9.610	0.000	0.302	0.456
10 or more years in high earnings	0.592	0.026	22.500	0.000	0.540	0.643
female * 1-5 years in high earnings	0.124	0.046	2.720	0.007	0.034	0.213
Female * 5-9 years in high earnings	0.325	0.102	3.190	0.001	0.125	0.524
female * 10 or more years in high earnings	0.194	0.081	2.410	0.016	0.036	0.353
Constant	7.013	0.014	488.080	0.000	6.985	7.042

Source	SS	df	MS
Model	345.070773	22	15.6850352
Residual	363.627092	3471	.104761479
Total	708.697865	3493	.202890886

Number of obs = 3494
F(22, 3471) = 149.72
Prob > F = 0.0000
R-squared = 0.4869
Adj R-squared = 0.4837
Root MSE = .32367

6. Work histories and incomes at age 66 (for foreign-born only)

Following the same methodology as used for the Sweden-born population (in Section 5), we generated the results for the foreign-born population as well. The choice of working with only those who had been present in the panel for at least 15 years has also been applied. This rules out those foreign-born pensioners whose contribution to the social insurance system in Sweden will be for short duration only; thus it becomes more meaningful to compare the foreign-born to the Sweden-born population. Also, the subgroup of foreign-born people in Sweden is a very diverse group. For example, close to one-third of our sample of foreign-born people are from Finland, and they will be very different from several small groups of migrants from Eastern Europe (largely from Yugoslavia) and refugees from other less developed parts of the World. Despite the large sample size for the panel as a whole, for our analyses in this paper, it is not possible to further categorise the group of foreign born into these subgroups. When possible, we made a distinction between European migrants (from Nordic countries, and from Eastern and Western Europe) and migrants from the rest of the World (refugees as well as non-refugees).

Our descriptive results suggest very little or no difference in our findings with respect to the impact of working life experience of unemployment, social assistance and early retirement on pension incomes. In Annex A, we include some selective descriptive results to highlight this phenomenon. Figure A.1 shows that the impact of unemployment experience on individual pension income is ambiguous also for the foreign-born pensioners, and Figure A.2 shows that the impact of the social assistance experience is perverse for both men and women only when one looks at the family pension income. Figure A.3 gives a rather similar picture of the impact of early retirement years on pension income as has been observed for the Sweden-born population. More insightful analyses for the foreign-born population of pensioners will be undertaken in the revised version of this paper.

7. Concluding discussion

This paper is about the relationship between work history and incomes in old age. It helps us evaluate factors underlying income disadvantage in post-retirement phase of life. The work is undertaken using the 1978-1999 Swedish Income Panel, which provides 22 years of panel data on income, labour market and demographic attributes of the Sweden-born and foreign-born Swedish population. The analyses are performed using descriptive results as well as multivariate regression analysis. We find that unemployment has perverse effect on retirement incomes only when it is experienced prior to age 58. Social assistance experience has a strong negative impact on family pension income, and the effect is stronger for men than for women and also for high educated pensioners than for low educated pensioners. Early retirement for 1-5 years has little or no impact, but early retirement for more than 5 years affects negatively pension incomes. Those who had rising earnings trajectory later in working life end up with higher retirement incomes. Surprisingly, the results for foreign-born Swedish are very similar to that for the Sweden-born (when controlling for other relevant factors), and this can be attributed to the strong redistributive element in the pre-reformed Swedish social insurance system.

It can be said that the redistributive element of the pre-reformed pension system may not be present in the new defined-contribution type pension system, and thus the minimal impact of employment disruptions may not hold true for future generations. On the other hand, one may also argue that the reformed system has removed any disincentives towards longer working career and therefore it has become more equitable. One can suspect that, in the future, shorter working careers of women and those of the foreign-born Swedish will result in lower pension incomes than is the case for the current cohorts of the recently retired pensioners.

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Annex A.1: Descriptive results for foreign-born pensioners

Figure A.1: Unemployment years and individual income for foreign-born pensioners

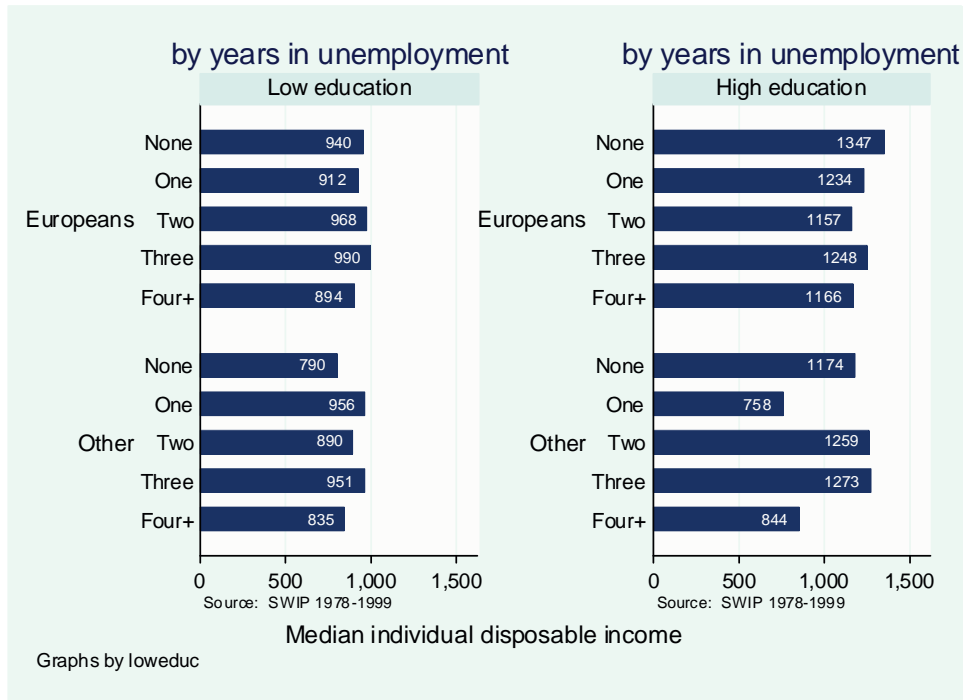
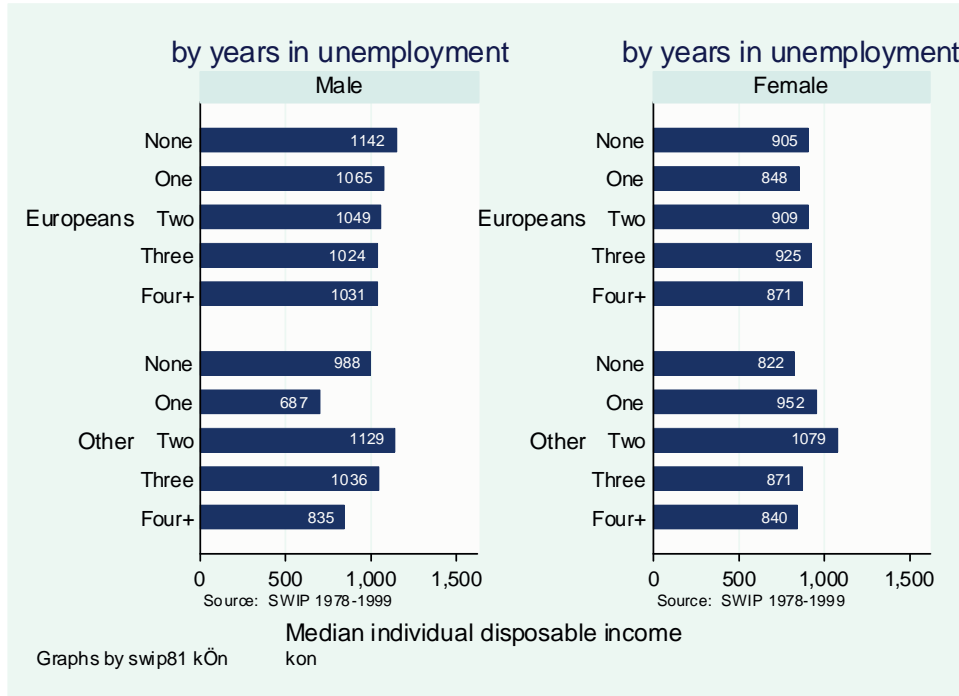
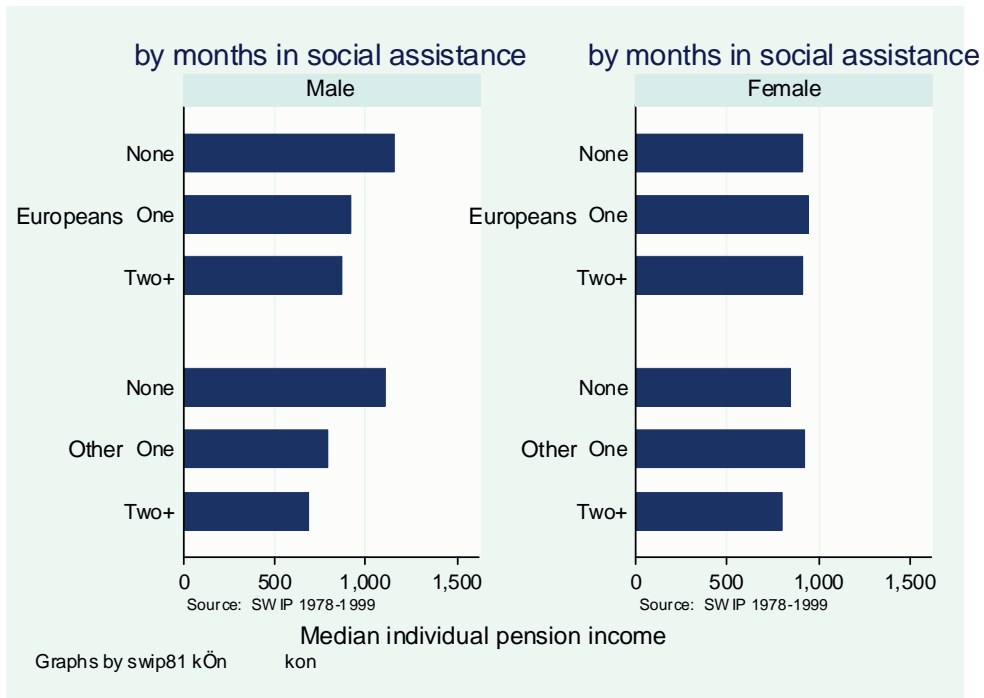


Figure A.2: Social assistance and income in old age for foreign-born pensioners

a. Individual income



b. Family income

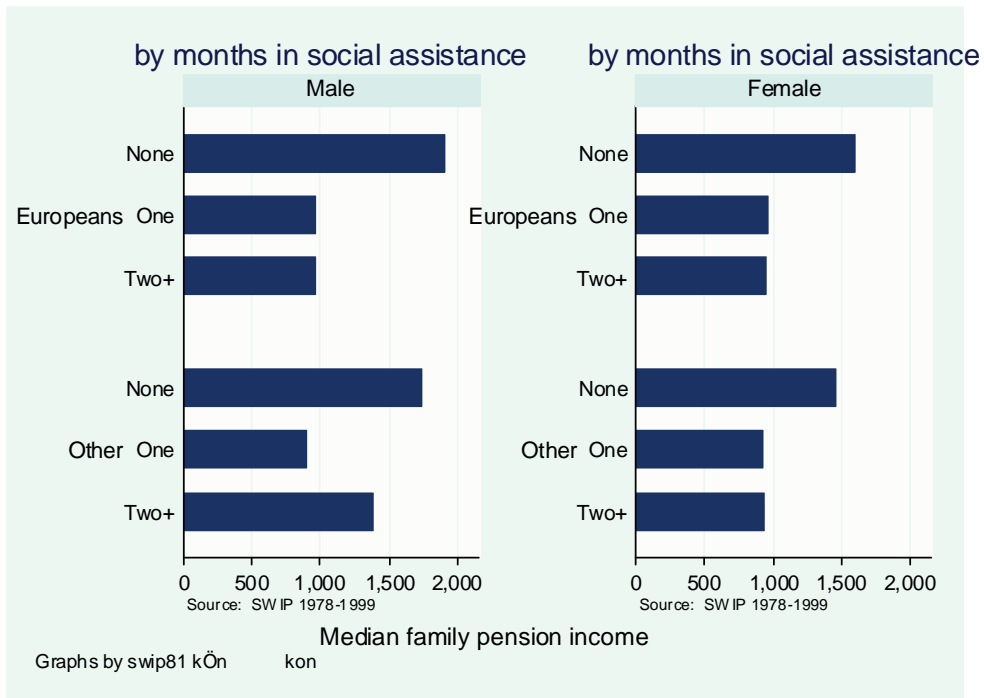
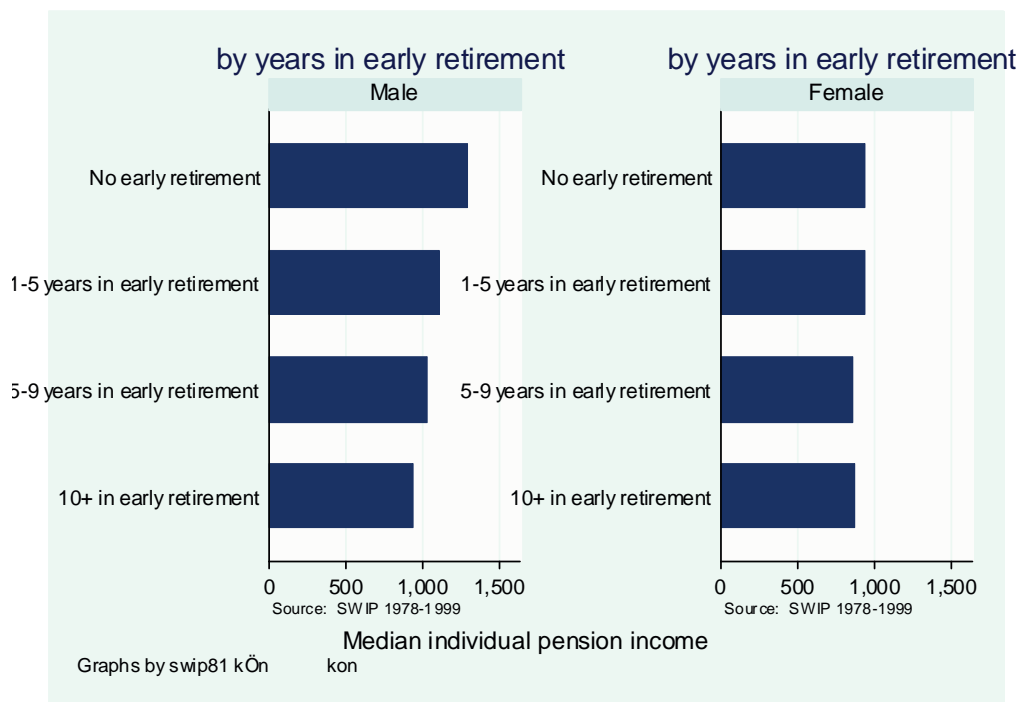


Figure A.3: Early retirement and incomes in old age for foreign-born pensioners

a. Individual income



b. Family income

