

Occupational attainment and career progression in Sweden

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Abstract

In this study, we analyze occupational attainment and career progression over the life course for Swedish men and women, born in 1925-74. We find that careers progress (measured as improvements in occupational prestige) fast during the first ten years in the labour market, and flattens out afterwards (approximately between 30-40 years of age). This is in line with the occupational status maturation hypothesis.

Both class origin and educational attainment affect occupational attainment, but the effects of educational attainment vary more over the career, depending on the educational attainment level in question. Successive cohorts of women gain higher occupational prestige, and continue to gain in occupational prestige longer across their careers. We also find that cohorts that entered the labour market in times of economic downturns and restructuring (the oil crisis years and the early 1990s) had more difficulties in establishing their careers. Returns to education generally increase across cohorts, while class background differences decrease, as has been reported in earlier research.

Introduction

Research on intergenerational mobility is one of the best developed fields in sociology (e.g. Erikson, Goldthorpe 1992; Breen 2004; Breen, Jonsson 2005). There has been clearly less research on intragenerational mobility, or mobility over individual careers. Career progression is of interest not only for individual workers but also from a stratification viewpoint, since the more occupational mobility there is, the better the chances for advancing from initially disadvantageous occupational positions and the more fluid is the class structure (e.g., Esping-Andersen 1993). Furthermore, career mobility also matters for our understanding of intergenerational mobility. Considerable career mobility hinders the possibility of drawing clear-cut conclusions on the amount of intergenerational mobility based on single observations of the occupation of the parent and the child.

The objective of this paper is to describe occupational attainment and career progression patterns over time in Sweden. The Swedish mobility regime is generally placed among the more open ones in terms of intergenerational mobility (Breen, Jonsson 2005; Björklund, Jäntti 2009), and between the two extremes in intragenerational mobility (e.g., DiPrete 2002). Our study contributes to the understanding of social stratification processes over the life course by focusing on three more specific questions of occupational mobility and career progression in Sweden.

Firstly, we want to present a general description of occupational attainment over the life course and across cohorts. Can one detect a stage at which “occupational status maturity”—a general stabilization of the occupational career—has been reached? Secondly, we are interested in assessing the role of educational attainment and class background on occupational attainment over one’s career. Therefore, we ask whether differences in occupational attainment by educational attainment and class background vary at different points of the career (cf. Sorensen 1975; Bukodi, Goldthorpe 2009; Mayer 2009). Thirdly, we

want to know more about cohort changes in career progression and whether class background and educational differences in occupational attainment changes across cohorts, born between 1925 and 1974. Throughout the empirical analyses, we conduct separate analyses for women and men. While we will not focus on gender differences, or changes in gender differences, *per se*, we will nevertheless be able to indicate some gender differences in occupational attainment processes.

We use retrospectively collected occupational history data from the Swedish Level of Living Survey (LNU). Previous research on occupational attainment and career mobility—in Sweden and elsewhere—has commonly used either path-analysis in which family background, educational attainment, and early (typically the first) occupations are used to predict later occupational attainment (Ganzeboom, Treiman & Ultee 1991) or event-history approaches to analyze transitions between jobs or occupations (e.g. Blossfeld 1986; Carroll, Mayer 1986; Grunow, Mayer YYYY). In this study, we approach our questions using growth curve analysis of occupational prestige scores over the life course (see also Carlo Barone, Mario Lucchini, and Antonio Schizzerotto in this edition). This enables a broad overall representation of career progression over the career and an examination of the effects of independent variables at its different stages.

The Swedish context

The Swedish labour market deviates from many others in terms of its early history of female labour market participation, a relatively large public sector, and a compressed wage structure. At the same time, Sweden has an open, export-oriented economy with a large manufacturing sector, which is probably less regulated by the state than what may sometimes be anticipated (see e.g. Korpi, Tählin 2006; Holmlund, Storrie 2002 for descriptions of the Swedish labour market). As is obvious from Figure 1 Sweden had a low level of unemployment from the

1960s, a slight but temporary increase around the oil crisis years, and an unemployment shock in the 1990s. From the mid 1980s the earlier steady growth of the public sector came to an end, and even declined somewhat (Edin, Topel 1997). During the same period, wage differences have increased (le Grand, Szulkin & Tåhlin 2001). Moreover, the industrial output, as seen in Figure 1, together with the unemployment figures, clearly indicate the business cycles over time, with falling output during the oil crisis years and the early 1990s. Overall, the figure indicates some trends in the Swedish labour market which may affect the career opportunities of different cohorts who enter the labour market at different times (Cf. Benner, Bundgaard Vad 2000).

Figure 1 around here

As in many other countries the educational system has expanded over time in Sweden. The educational expansion has meant that successive cohorts have—although not in a completely linear fashion— been increasingly likely to hold upper secondary as well as university degrees.¹ At the same time there has been an occupational upgrading (Oesch 2006). The combined effects of these two trends may affect career opportunities in large, where it has been indicated that the trend of educational expansion exceeded the trend of occupational upgrading resulting in an oversupply of well educated people (Korpi, Tåhlin 2009). The changes in the educational system are however not only quantitative. In the 1960s the Swedish educational system developed from one in which pupils were tracked early to either vocational or academic to one where tracking occurs later and where formal barriers to higher education have been gradually removed. These reforms reduced family of origin effects on educational and income attainment (Meghir, Palme 2005. See also Mayer 2005; DiPrete

¹ For example, Stanfors (2007) claims that due to the quick expansion of higher education in the 1960s and the 1970s those born in the end of the late 1940s have the highest proportion with university education, although this may have changed with the new phase of expansion in the 1990s.

2002). In the 1990s, the former division into two-year vocational secondary and three-year academic tracks was replaced by three-year education in both tracks (for descriptions of the Swedish school system see Erikson, Jonsson 1996 and Halldén 2008). However, some evidence suggest that this reform did not remove barriers to higher education which was one of the purposes of the reform (Hall 2009).

In terms of occupational mobility, contemporary Sweden occupies a medium position between less fluid countries such as Germany, where the connection between educational tracks and occupations are stronger, and more ‘liberal’ ones such as the United States (Mayer 2005; DiPrete 2002; Korpi, Mertens 2003). Hence, such findings fit well-known institutional variation in the tightness of employment protection and the connection between educational tracks and occupations, although causal links are difficult to establish. To present a more detailed picture of what is known about occupational mobility and career progression in Sweden, we here go through previous studies on different aspects of these issues, focusing on those of closest relevance to the questions we presented in the introduction. First, we discuss earlier findings about what is known about the general development of occupational status over the life cycle and the pattern that we refer to as occupational status maturity. Second, we go through earlier research on the impact of educational attainment and class origin over the life cycle. Third, we discuss the possible changes over cohorts in career progression. Fourth, we summarize what findings we expect out of the previous parts.

Occupational status maturity

An obvious reason for expecting a curvilinear relationship between time in the labour market and occupational status is the existence of ceiling effects. Since status scales of occupations have a limited number of positions the chance of an increase probably decreases with every

step up the career ladder. There are also more substantial reasons why people would climb more in their start of careers. Initial matching problems in the start of careers may tend to be resolved with years spent in the labour market and employees who stay with the same employer over time may tend to be promoted in the first part of their career. Both studies examining occupational and income attainment over the life course generally tend to support the hypothesis of occupational maturity around the age of 30 or somewhat higher (Jonsson 2001; Böhlmark, Lindquist 2006; Bihagen, Nermo & Erikson 2010). For example, Jonsson (2001) reported supporting findings in his examination of mean prestige values by age. Similar results were suggested by an analysis of class position of individuals followed over eight years (Breen, Jonsson 2007). Furthermore, the study by Böhlmark and Lindquist (2006) suggested that earnings of Swedish men correspond to their life-time earnings around the 30s, although the pattern was somewhat less stable for women.

The importance of class origin and educational attainment over the life cycle

A persistent finding in the literature on intergenerational mobility is that most effects of class origin on class destinations operate through educational attainment (Breen 2004; Breen, Jonsson 2005; Hout, DiPrete 2006). There are fewer studies on how the role of family background and education operate across careers and the life course. In their study of the effects of family of origin, education, and cognitive ability on occupational attainment across the career among Wisconsin high school graduates, Warren, Sheridan and Hauser (2002) found diminishing effects of education, especially for men, but more stable and persistent effects of ability over the life course. They also reported that social origin effects operate entirely through these two factors. Furthermore, in line with the classic occupational attainment model by Blau and Duncan (1967), one's first job has long-term effects on occupational success, a finding also found from other countries, such as Britain (Bukodi, Dex

2009). Hence, earlier findings suggest that class origin mainly affects the level of educational attainment a person reaches, while education in turn mainly affects the status of the first occupation (cf. Maarten Wolbers, Ruud Luijkx, and Wout Ultee in this edition). The status of the first occupation then has a large impact on the status of successive occupations, which means that the net effect of class and education is small for occupational status later in careers (see also Erola 2009).

We did not find any equally comprehensive analyses of the life-course patterns in occupational attainment for Sweden. However, using the same data as we do, but restricted to the period up to 1991, Jonsson and Erikson (1997) found some persistent effects of class origin on career mobility – those with farm origins gradually tend to become farmers over the life course and those with Service I origin have a tendency to return to their class of origin in a longer time period than those with other class origins. Unlike Warren, Sheridan and Hauser (2002), Jonsson and Erikson did not control for educational attainment. In another study, Bihagen (2007) reported, using panel data, some direct effects (net of education) of class origin for women on downward mobility from the upper service class. Hence, there are some signs of remaining net effects for class origin later in careers in Sweden.

Cohort change

It has been common to suggest that globalization would have a substantial influence on people's working careers. Since the first job appears to be decisive for the successive career such a large societal shift would especially affect cohorts who entered the labour market quite recently. However, given the importance of the first job on later careers and possible long-term "scarring" effects of unemployment (e.g. Gangl 2006), entry to the labour market during times of economic distress may have long-term implications for the cohorts involved. Hence,

more temporary ups and downturns of the economy may lead to different career patterns for different cohorts.

Three book chapters in outputs of the Globalife project focus on effects of globalization on careers (Blossfeld, Bukodi & Kurz 2008, Blossfeld, Hofmeister 2006, Blossfeld, Mills & Bernardi 2006). All three studies are partly based on the same data as we use. Overall, there is no clear evidence for increasing occupational mobility and career instability over time. The occupational mobility of Swedish men did increase in the 1980s, but Korpi and Tåhlin (2006) are cautious in their conclusions due to possible memory bias where people may tend to better remember recent events (see more below). Using the same data as us, Korpi and Stern (2006) report a rather trend-like increase in women's occupational mobility from 1940 to 2000, although the trend was levelling out in later periods. Both studies showed increasing rates of job seniority in 2000 than in the 1970s, suggesting increased job stability. However, these period effects disappeared after controlling for work experience. In an earlier study, Jonsson (2001) shows that until 1991, there were indications of more occupational mobility over time – at least for women. Finally, Halldén and Hällsten (2008) reported in their Globalife study increasing difficulties at the beginning of the career with delayed school-to-work transitions and an increased risk of having a temporary job. Furthermore, their study reported a declining risk of downward mobility over time.

Despite their contributions to understanding cohort change in occupational attainment, these studies do not paint a comprehensive picture of cohort patterns in career mobility. The focus on globalization put emphasis on one large scale change while it is plausible that cohorts are affected differently by recurrent business cycles. Another neglected area of interest appears to be the role of educational attainment and class origin for the career progression of different cohorts, where research seems to be lacking. We could expect a devaluation of educational attainment levels with the increasing proportion of well educated

over time, which may lower both gross and net effects of education across the life course. In line with inter-generational studies, at least concerning Sweden, class origin should matter less for later cohorts (Erikson, Goldthorpe 1992; Jonsson 2004).

Expectations

Our clearest expectation for the analyses concern the general pattern of career progression where we, mainly based on earlier empirical findings, expect to find a pattern of status maturity. Our study will here shed more light on when in the career this maturity happens. Concerning the role of education and class origin for career progress there are both theories and empirical findings that suggest a diminishing role for both over the life cycle. It is more difficult to make strong prediction of cohort change, although we expect those starting their working lives during economic downturns and restructuring to have worse occupational prospects. Summing up, there seems to be much to learn about career progression over the life course in Sweden.

Data, variables, and methods

Data and variables

We use retrospective occupational biography data for a random sample of Swedish inhabitants from the 1991 and 2000 waves of the Swedish Level of Living Survey (LNU) (See Jonsson, Mills 2001, Manzoni et al. YYYY). Respondents reconstructed their occupational careers (occupation in and starting and ending times of each job) starting from their first “real” job, that is, the first job they held that lasted for six months or more. Although such information enabled us to construct very detailed occupational careers, these data are naturally not without caveats, an obvious one being recollection bias. However, a recent study by Manzoni and colleagues (YYYY) reported that memory biases in the LNU—which did exist, especially in reconstructing recollection of complex careers and recalling events dating far back in time—do not generally affect substantive conclusions.

We have separate samples of 2,511 men and 2,426 women born between 1925 and 1974 and who had ever held a job for six months or more. Together with monthly information on occupational status, we have a total of 634,056 men-months and 516,970 women-months. As a measure of occupational attainment we use the Standard International Occupational Prestige Scale (SIOPS), or the Treiman scale of occupational prestige (Treiman 1977; Ganzeboom, Treiman 1996). This scale was developed to provide a cross-nationally comparative measure of the relative prestige or social standing—as assessed by the public—of a variety of occupations.² Among the favourable characteristics of this score is its general stability across time and between countries (Hout, DiPrete 2006, for a review of its history and derivation see Magnusson 2009). This makes it suitable for our purposes as we look at change over time periods.

² We also experimented with using the ISEI score as our dependent variable. The result remained virtually unchanged and the correlation between the two scores in our sample was .9.

For men in our sample, the grand mean of this variable (Table 1) is 40.3 (e.g., police officer, farmer, or locksmith), the standard deviation 11.6, the minimum 6 (e.g., hunters and trappers), and the maximum 78 (e.g., medical doctor or professor). For women, the mean is 38.7 (e.g., customer service clerk or prison guard), standard deviation 12.2, minimum 13 (e.g., garbage collector or street sweeper), and maximum 78.

Our independent variables are parents' social class, educational attainment, work experience, cohort, and the number of children. We compare five ten-year cohorts, born in 1925-34, 1935-44, 1945-54, 1955-64, and 1965-74. These are entered as dummy variables, with the oldest cohort as the reference category. The variable measuring educational attainment differentiates between five categories, namely compulsory education (*folkgrundskola*), which acts as the reference category, vocational secondary education, academic secondary education (*Gymnasium*), lower tertiary (usually two years), and university education (three years and more). Parents' social class is measured using a five-class EGP scale, which differentiates between the higher (EGP I) and lower (EGP II) service classes, higher routine non-manual workers, supervisors, and higher-grade technicians (EGP IIIa and V), the self-employed and farmers (EGP IV), and the working class (EGP IIIb, VI, and VII), which we use as the reference category. This variable was constructed using the "dominance principle" in which the highest class position of the parents determined one's class background (cf. Erikson 1984).

Table 1 around here

We measure (potential) work experience as years since one started her or his occupational career, that is, her or his first "real" job. We specify experience (0 to 25 years) using seven five-year linear splines. In this specification, the parameter estimates tell how an

additional year of work experience affects occupational prestige within each spline, so for example, during the first five years, between the fifth and the tenth year, and so forth. This specification provides a flexible way of analyzing career progression without imposing stronger functional form, such as linearity or curvilinearity, on the relationship between work experience and occupational prestige. This way we can also assess the question of occupational maturity with more flexible assumptions of functional form.

Methods

We use growth curve modelling to analyze career progression (e.g. Halaby 2003; Steele 2008). Although less used in sociological analysis of occupational attainment and mobility, it provides a fruitful approach for analysis of occupational attainment and career progression (cf. Carlo Barone, Mario Lucchini and Antonio Schizzerotto in this edition). In his review of life course research, Mayer (2009) characterized growth curve analysis as lying between “analytic” approaches (which usually uses event-history analysis) and “holistic” ones (which use, for example, sequence analysis). Although not focusing on the specific job shifts that make up an occupational career, growth curve modelling shares with event-history analysis the incorporation of independent variables. And, by providing depictions of career trajectories, our approach has resemblance to analyses of careers through sequence analysis (e.g., Ivano Bison in this issue).

Mathematically, these models are the same as two-level multilevel models (and individual-level panel regressions), in which—in our case—individuals constitute the higher level and monthly observations constitute the lower level. In our case, the basic specification of this model can be written as

$$y_{it} = \beta_0 + \sum_{k=1}^5 \beta_{1k} Exp_{itk} + \beta_2 Cohort_t + \beta_3 Educ_{it} + \beta_4 Classbg_t + \beta_5 Kids_{it} + \mu_i + \varepsilon_{it}$$

(1),

in which *Exp* refers to the five work experience splines, *Cohort* denotes birth cohort, *Educ* education (time varying), *Classbg* class background, *Kids* is the number of children (time varying), μ is a person-specific unobserved factor (random effect), ε the error term, and the β :s are parameters to be estimated. Careers were right-censored at age 50 or at 25 years of (potential) working experience, whichever occurred first. To account for possible sample selection bias (arising from selection into work) we also experimented with using a Heckman-style correction, with age of the youngest child (less than 2 or less than 1 years) as an instrument. However, the parameter estimates remained very much the same which led us to stick to the more simple random effects models. In addition to the β :s, we can estimate the variance of the two error terms, μ and ε . This allows us to decompose the total variance in occupational attainment into variation that can be associated to differences between individuals (between-variation) and variation that is associated to differences over individual careers (within-variation), and also to assess how these components change with the inclusion of independent variables.

In addition to this baseline model, we estimate two models with interaction terms. The first adds interactions between cohort, class background, and education on the one hand, and the work experience splines on the other. This model is used to examine how occupational attainment varies across the career by birth cohort, class background, and educational attainment, respectively. The second model includes interaction terms between birth cohort and class background, and birth cohort and educational attainment, to study

cohort change in the effects of these two predictors of occupational success.³ Due to our limited sample size, we use in these analyses a linear measure of year of birth instead of the categorical birth cohort measure.

We estimate cluster-robust standard errors (cf. Wooldridge 2002: 262-3; Cameron, Trivedi 2009).⁴

Results

Occupational attainment over time

We begin by describing occupational attainment in different cohorts over two time indicators, the life course and historical time. These patterns (Figure 2) refer to respondents aged 15 to 50, and who were working at the month in question. The upper two panels show how average occupational prestige scores develop over the life course and historical time, respectively, among men, and the two panels below present the same information for women.

Figure 2 around here

Figure 2 shows both commonalities and differences between the sexes and across cohorts. Firstly, career progression seems to slow down and, especially in older cohorts, flatten around age 30. This finding appears to be in line with the occupational status maturity hypothesis discussed above. However, there are some main differences across cohorts so that in younger cohorts, career progression continues until age 40 and beyond. Secondly, women have experienced steady “occupational upgrading” where each cohort attains, on average,

³ The models were estimated using the *xtreg* package in Stata 10.

⁴ Recently, there has been increasing discussion on whether one should use (more conservative cluster-robust standard errors instead of the more common robust (Huber-White) one, see for example discussions on *Statalist*. No final answer seems to have been given. We however opted for using the more conservative method, even with the threat of over-estimating the standard errors.

higher-prestige occupations than the previous one. The youngest cohort, born in 1965-74, even ends up having higher occupational attainment at the end of the follow-up (at around age 30-35) than their male peers. These results fit the well-known story of women's increased educational attainment and involvement in the labour market. Nevertheless, the scope of the change may be surprising. Although younger cohorts generally reach occupations of somewhat higher prestige, we do not find a similar monotonous pattern of occupational upgrading for men. For example, the cohort of men born between 1955 and 1964 appear to do somewhat worse than both the cohort born before and after them. We return to these results in the next sections, in which we analyze men's and women's career progression in more detail.

Growth curve analysis of occupational prestige

We continue by analyzing occupational attainment in Sweden with growth curve models of occupational prestige across working careers. Table 2 presents these results from the first three of these models, separately for men and women. The first model is the "empty" model without covariates, which simply decomposes the total variance to variance between individuals and variance over individual careers. The random effects estimates present the estimates of the variance of the random effect coefficient around the constant (between respondents), and the residual variance (within-individual, or variance across individual careers). It is clear that a substantially higher share of overall variance in occupational prestige results from variance across individuals rather than across individual careers. Both for men and for women, this share is approximately three-quarters of overall variance.⁵ In other words, career progression over the life course does not overcome inequality in occupational prestige between individuals in Sweden.

⁵ Calculated with $\rho = \text{constant variance} / (\text{constant variance} + \text{residual variance})$

Table 2 about here

In the next model we introduce our two time variables, cohort (as dummies) and work experience (as splines). The estimates for the work experience splines show a similar pattern to what was already found in Figure 2: an initially faster rate of career progression at the beginning of the career, which then slows down. Men and women gained on average 0.5 to 0.6 points in occupational prestige per year during their first five years of work. Men's occupational prestige continued to improve at an average annual rate of 0.4 points during the next five years, and generally on average between 0.1 to 0.2 points per year for fifteen years thereafter. An average man in our sample would, therefore, have started from a job with a SIOPS score of 35 (e.g. blacksmith or telephone/telegraph installer) and gained 6.6 points, or 0.57 standard deviations, in occupational prestige during 25 years of work (ending up as, for example, a machinery or electronics mechanic).

Women's careers started, on average, from a lower level (32 points; e.g. shop assistant or hairdresser) and after the first ten years, women's careers were flat. After 25 years, our average female worker would have gained 3.9 points, or 0.32 standard deviations, in occupational prestige finding herself working for example as a clerk or a receptionist. These results again point to the relative stability of work careers and the relatively limited chances of overcoming initial inequalities in occupational attainment through career mobility, especially for women.

The cohort estimates show interesting patterns. Particularly, among men, the 1955-64 cohort deviates clearly from a general trend of occupational upgrading and did not reach higher occupational prestige than the oldest cohort, born in 1925-34. For women, there was a steadier increase in occupational positions, as was already shown in Figure 2. For both men

and women, cohort and work experience explain only a small share of the variance between or across individual careers.

In the next model we introduce three new variables, class background, educational attainment, and the number of children. The returns to education are, overall, similar for both sexes, especially regarding returns to both vocational and academic secondary education. Women benefited somewhat more than men from lower tertiary education. Overall, tertiary education—and university education in particular—clearly brought benefits for both men and women. Class background also mattered for men's and women's occupational attainment, net of own educational attainment. While there were no differences between those having working class and entrepreneurial or farming backgrounds, those from higher social classes, and especially the service class (Classes I and II), attained higher occupational prestige. However, it is worth pointing out that occupational prestige differences according to educational attainment are clearly larger than according to class background. Further analyses (not shown) revealed that between 40-50 % of the effect of class background operates through education, while controlling for class background does not change the estimates of educational attainment (not shown). Each additional child has no effect on men's, but a reduction of approximately one SIOPS point in women's occupational prestige.

These three variables together reduce the between-individual variation in occupational attainment by approximately 40 percent, both for women and men. The reduction in within-career variance is negligible for men, and below 10 percent for women. At the same time, the role of work experience is reduced for men, but less for women. The estimates for birth cohort also change. For men, the occupational advantage of the younger cohorts (with the exception of that born in 1955-64) disappeared. In other words, occupational upgrading in these cohorts was due to improved resources, particularly higher levels of education. The same holds for the two youngest cohorts of women. However, women born

between 1935 and 1954 appear advantaged even after controlling for educational levels. The cohort of men born in 1955-64 actually had more difficulties in attaining occupational prestige—even with similar qualifications—than older cohorts. Furthermore, these results likely suggest diminishing returns to educational attainment and class background. We return to these questions later in the analysis.

Cohort differences in career progression

The results in Figure 2 and more clearly in Table 2 suggested some cohort differences in occupational attainment that remained after controlling for education, class background, and the number of children. Most remarkably, Table 2 suggested that men born in 1955-64 attained lower levels of occupational prestige than the preceding cohorts (after controlling for the three mentioned variables). Also, women in the two youngest cohorts did not seem to have attained higher occupational prestige than those in the oldest cohort, and somewhat lower occupational prestige than the immediately preceding ones. However, they do not tell us where in the career these lags come about: for example, do men in the youngest cohorts begin their careers from less prestigious jobs, or do their careers progress at a slower pace?

Table 3 about here

To examine this, we here turn to the estimates of interaction models, which include interaction terms for cohort and work experience, class background and work experience, and educational attainment and work experience. Table 3 shows Wald tests for the joint significance of interactions between these background variables and the work experience splines.

The first two rows show the joint significances of the interactions between cohort and experience. These interactions are significant only at the 10 % level. Closer inspection (not shown) reveals, however, that the career progression of men born in 1955-64 deviated at the 5 % significance level, and of men born in 1945-54 at the 10 % significance level, from the reference cohort (1925-34). The career slope of the youngest cohort of women also differed at the 10 % level.

Given evidence of at least some cohort change, we examine the results more closely. Due to the very large number of interaction effect estimates involved, we plot the predicted values from these interaction models by work experience. Figure 3 shows the predicted career progression paths for the different cohorts. The predicted values refer, more precisely, to childless men and women with compulsory education and from a working class background. For other groups, the curves shift up and down corresponding to the estimates for each group.

Figure 3 about here

For men, the 1955-64 cohort stands out most clearly. Men in this cohort started their working careers in jobs of very similar prestige as men in other cohorts, but they made slower gains during their careers than men in the other cohorts. The gap between the 1955-64 cohort and men born between 1925-54 grows during the first ten years of work, although it seems to narrow somewhat again at 15 years of experience. Men in the 1955-64 cohort began their work lives in the late 1970s and early 1980s. Despite the internationally low unemployment rates around this period, it is nevertheless plausible that the new challenges experienced by Sweden's traditionally strong industrial sector affected the labour market prospects of the cohort entering the labour market during this period (Benner, Bundgaard Vad 2000); Figure 1). Closer analyses, not presented in these figures or tables, showed that the younger half of

the youngest cohort—born in 1970-74—also suffered from lower-than-average occupational attainment. These men started their careers during the 1990s economic crisis. However, the cohort born in the late 1960s did clearly better than those born just before or after. All in all, these results point to the potentially lasting effects of early disadvantage in the labour market.⁶ However, the gaps are not very large in terms of SIOPS points.

Cohort differences in women's career progression are generally smaller. The initially large differences detected in Figure 2 are thus mainly explained by changes in women's educational attainment levels. The improved occupational attainment of the 1935-44 and 1945-54 cohorts is linked to their higher prestige of their first jobs (difference significant at the 5 % level). The two youngest cohorts—and in closer analysis (not shown), especially those women born between 1970 and 1974—start their careers working in slightly lower prestige jobs. Both men and women of the “recession cohort” born in 1970-74 and who entered the labour market during the early 1990s were thus hit by the economic problems of the times. However, unlike women of the earlier cohorts, those in the two youngest ones continue to improve their occupational standing also after the first five years. How far these women proceed during their careers remains to be seen. It is also worth pointing out that the 1955-64 cohort of women did not seem to suffer similar long-term scars of beginning their careers around the late 1970s and early 1980s as did men in the same cohort. A possible explanation is that the public sector continued to expand despite problems in the industrial base of the Swedish economy (Benner, Bundgaard Vad 2000).

The role of education and class background across the occupational career

The above results showed that both educational attainment and class background matter for occupational attainment. The models that these results are based on treat the whole career as a

⁶ Interestingly, the 1955-64 cohort also attained lower levels of education than the previous cohort, especially in post-compulsory education. This cohort of men might, then, also suffer from some unmeasured disadvantage.

single stage, without differentiating between the effects of these factors at its different parts. Clearly, however, it is interesting and important to analyze whether the role of these factors develops over the occupational career.

Figure 4 about here

Table 3 shows that the joint interaction effects between educational attainment and work experience were significant at the 1 % level for men and at the 10 % level for women. Figure 4 plots predicted SIOPS scores by educational attainment levels across working careers. Educational attainment clearly mattered at all career stages. However, career progression patterns varied by educational level, and as a result, educational differences in occupational attainment were of different magnitude at different stages of the career. Consider the occupational attainment of men. Men with only compulsory schooling or vocational secondary schooling started working in relatively low-prestige occupations, and could expect to gain approximately 6 points in 25 years. The next two educational groups, men with academic secondary education and lower tertiary degrees start again from somewhat higher prestige jobs, but make clearly stronger progress, ending up in jobs with 9 SIOPS points higher prestige jobs after 25 years. Finally, university graduates started working in clearly higher prestige jobs (e.g., associate professionals), but made slower career progress, probably due to ceiling effects. Given academic men's later entry to the labour market, the gap between them and other men was the highest at the beginning of their careers, on average around the mid-to-late 20s. Those with academic secondary education or lower tertiary schooling then catch up at older ages, and increase their advantage to those with lower levels of education.

Women's career progression by educational attainment show similar patterns as men's. A clear difference is the higher starting point, but lower rate or progression, of women

with lower tertiary degrees. Women with academic secondary degrees begin their careers from lower prestige jobs, but close the gap somewhat during their first 20 years. Women with only compulsory levels of education start off even lower, but almost close the gap to those with vocational secondary schooling during 20 years of work. Summing up, educational differences in occupational attainment in Sweden vary over the career. However, an answer to the question of how the effects of education vary is not easily answerable, but depends on which educational attainment levels are being compared.

Figure 5 about here

The results in Table 2 showed that class background differentiates occupational attainment much less than educational attainment. But do the effects vary at different points of the career? Table 3 shows that the interactions between class background and work experience are not jointly significant.

Closer inspection of the interactions with the more conservative standard errors separately (not shown) shows that none of them were significant in the case of women. A casual inspection of the career curves by class background also showed that they ran more or less parallel. Class background differences in attained occupational prestige thus remained stable throughout female careers. For men, the interaction between an upper service class (EGP I) background and work experience was significant at the 5 % level. Figure 5—which shows how class background affects men’s career progression—points to generally similar trends across men with different backgrounds. However, the careers of men from the upper service class seem to have continued progressing longer than for other men, thus growing the gap in occupational prestige, although the differences are generally rather small. Overall, class

background differences are not only smaller than those based on educational attainment, but they also remain more stable across the occupational career.

Cohort change in the role of educational attainment and class background

Lastly, we examine cohort differences in the role played by educational attainment and class background in occupational attainment. These are of clear interest in themselves. For these analyses, we replace the cohorts used earlier with a linear specification for year of birth and interact it with educational attainment and class background. We also tested with interactions between the categorical cohort variable and education and class background, but even though these can provide more detailed description of when the change has happened, the linear specification was more efficient given our limited sample size. We do, however, comment on some of the findings from the categorical cohort interactions in the text.

Table 4

Table 4 shows these interaction coefficients. For education, one can find only one statistically significant interaction per sex. The value of vocational education has clearly declined for men, by approximately 1 SIOPS point per decade. A man born in 1935 who received a vocational degree could expect to begin his working life in a skilled working class job (as a welder or precision worker) as compared to a five point lower job (e.g., machine operator) that someone with compulsory education could have. Thirty years later the gap had reduced to two points, with a vocational educated man starting off as a lorry driver or assembler. From the non-linear cohort interactions, we also found some evidence that university degrees were particularly beneficial for men born between 1945 and 1954. For women, we find a strong devaluation of the *Gymnasium* degree, which for cohorts born in the

1920s and 1930s could guarantee a job close in prestige to those held by the few women with a university degree. The prestige returns to this degree decreased by almost 2 points per decade, and for the youngest cohorts, the return compared to those who finished schooling after compulsory schooling had diminished to less than half.⁷

For class background, we find diminishing class background inequalities, in line with previous results (Jonsson 2004; Breen, Jonsson 2005). For men, the only significant interaction is between an upper service class background and birth year, while for women the advantage of those born to the lower service class has declined. The non-linear cohort analysis also pointed to a particularly strong decline from the earliest cohorts to the cohort born in 1945-54, after which less change occurred.

Conclusions

We began this study on occupational attainment across careers in Sweden with an interest in a number of questions. First, we were interested in the development of occupational attainment (in terms of occupational prestige) across the career. One question in this respect concerns occupational maturity, or whether occupational careers stabilize at some point of the life course. Overall, the answer to this question is positive: workers generally make occupational prestige gains in during the first five to ten years of their careers, after which occupational status mobility decreases. For most people, this occurs around 30-40 years of age at latest. This result, together with the result that the lion share of variation in occupational standing is mainly in between individuals and not between the careers of the same individuals, strengthens the assumption that the occupational standing by the age above 30 is a reasonable approximation of a person's class of destination. Hence, inter-generational studies seem to be

⁷ When we estimated the interaction models using the less conservative robust standard errors, the results pointed to more cohort differences that were statistically significant. Using these standard errors would have led us to conclude that there was been more change (and growing gaps) over the cohorts in the returns to education, especially for men.

on safe ground concerning this assumption. However, we also find some heterogeneity in these patterns, where women in the older, but less so in the younger cohorts, reached occupational maturity earlier than men.

Secondly, we were interested in how educational attainment and class origins matter differently across the career. While university graduates begin their careers in higher prestige jobs, and show limited change afterwards, other groups (especially those with lower tertiary or academic secondary education) continue to gain in prestige (and catch up) longer across their careers. This pattern was particularly visible for men. Therefore, the occupational prestige differences between educational groups not only differed across the occupational career, but these differences also depended on the educational groups being compared. Therefore, in the Swedish case it is difficult to make generalizing conclusions regarding change in the effects of education on occupational attainment across the life course (cf. Warren, Sheridan & Hauser 2002). Class background effects also varied across the career, but the effects were clearly smaller than for educational attainment, and remained more stable across the career.

Our third question concerned cohort change: are there general trends in occupational attainment and career progression across cohorts, and have the predictors of occupational attainment changed? In terms of general occupational attainment, the clearest change is visible in the improvement of women's occupational attainment levels. Furthermore, as mentioned above, women in the younger cohorts continue to make occupational gains after the first five years in the labour market, unlike women in the older cohorts. As a result, women in the youngest cohort even enjoyed higher average occupational prestige in their early 30s than men. These changes are mainly driven by women's improved educational attainment levels. These results speak in favour of the idea that cohort replacement will solve some of the gender inequalities in occupational attainment seen in Sweden.

We also found that some cohorts had lower occupational attainment than their predecessors, especially after accounting for educational attainment and class background, although the differences were not particularly large. This seems to be linked to macroeconomic conditions at the beginning of the career—around the oil crises and their aftermaths for men (but not for women), and around the 1990s recession, both for men and for women. The gender differences for the cohort born in 1955-64 who entered the labour market in the late 1970s and early 1980s (difficulties for men, but not for women) seems to have to do with economic restructuring and the varying career prospects in different (male vs female-dominated) sectors (Benner, Bundgaard Vad 2000).

We also report some cohort effects in the effects of class origin and education. In line with inter-generational studies, at least concerning Sweden, class origin matters less for later cohorts (Erikson, Goldthorpe 1992; Jonsson 2004), but only for men (in contrast to Jonsson 2004;). The most visible trend in the effects of education concerns the steady decline the returns to secondary—and academic secondary—schooling in particular. Partly due to this, the gap between those with tertiary degrees and the rest has widened, although for men it seemed to have peaked for the 1945-54 cohort.

Finally, we believe that our study has contributed to a more comprehensive picture of career progression in Sweden and also highlighted a few interesting patterns, e.g. some differences between cohorts. However, much more work remains to be done in order to corroborate these findings and to further investigate causes behind them.

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Tables and Figures

Table 1 Means and percentages of the variables, person-months

	Men	Women
Treiman score (SIOPS)	40.3	38.7
Experience	14.0	13.9
Born 1925-35	19.7	18.6
Born 1935-44	25.7	24.0
Born 1945-54	29.2	30.4
Born 1955-64	17.0	18.7
Born 1965-74	8.5	8.4
Compulsory school	45.8	40.5
Non-academic sec.	29.3	34.0
Gymnasium	9.9	6.9
Lower tertiary	6.8	10.8
University	8.2	7.7
Parental class EGP IIIa, VI, VII	43.1	42.8
Parental class EGP IV	28.8	27.2
Parental class EGP IIIb, VI, VII	10.5	10.7
Parental class EGP II	8.8	10.0
Parental class EGP I	8.8	9.3
Number of children	1.2	1.3

Note: Number of men: 2,511 (634,056 person-months); Number of women: 2,426 (516,970 person-months).

Table 2 Occupational attainment in Sweden, growth curve models (significance levels estimated using cluster-robust standard errors).

	Men			Women		
<i>Experience (splines)</i>						
0-4 yrs		0.59**	0.44**		0.53**	0.43**
5-9 yrs		0.37**	0.27**		0.24**	0.25**
10-14 yrs		0.14**	0.08*		0.06	0.09*
15-19 yrs		0.14**	0.09*		0.04	0.04
20-24 yrs		0.08*	0.06		-0.06	-0.05
<i>Cohort (Ref: 1925-34)</i>						
Born 1935-44		1.40*	0.31		2.95**	1.51**
Born 1945-54		2.18**	-0.24		4.13**	1.56**
Born 1955-64		0.04	-2.19*		4.09**	0.51
Born 1965-74		3.05**	-1.56		4.91**	-0.49
<i>Education (Ref: Compulsory)</i>						
University			15.90**			16.49**
Lower tertiary			8.99**			12.05**
Academic secondary (<i>Gymnasium</i>)			5.53**			5.18**
Vocational secondary			1.80**			2.28**
<i>Class background (Ref: VI, VII, IIIb)</i>						
Parents' class EGP I			5.36**			5.17**
Parents' class EGP II			4.57**			3.04**
Parents' class EGP IIIa or V			2.51**			2.23**
Parents' class EGP IV			-0.51			0.58
<i>Number of children</i>			0.20			-0.84**
<i>Constant</i>	40.25**	34.93**	33.63**	38.33**	32.05**	30.92**
<i>Random effects</i>						
Constant variance	108.57**	109.28**	67.47**	119.13**	116.84**	72.41**
Residual variance	37.67**	34.63**	33.21**	38.62**	37.15**	34.48**
<i>Person-months</i>	539,339	539,339	537,739	436,824	436,824	435,639
<i>N respondents</i>	2,511	2,511	2,500	2,426	2,426	2,416
<i>Log-Likelihood</i>	-1,751,782.8	-1,729,187.1	-1,712,265.8	-1,425,363.6	-1,416,915.9	-1,396,332.5
<i>df</i>	0	9	18	0	9	18
<i>Chi squared</i>		47,190.19	72,477.61		17,222.11	52,348.16

* p<0.05, ** p<0.01

Table 3 Wald tests of joint significance of interactions

		Chi ²	df	<i>p</i>
Experience*Cohort	Men	27.94	19	0.085
	Women	29.45	19	0.079
Experience*education	Men	40.92	20	0.004
	Women	29.45	20	0.079
Experience *class background	Men	22.19	20	0.330
	Women	23.76	20	0.253

Table 4 Interaction terms between birth year and education and birth year and class background

	Men	Women
University * Birth year	0.13	0.03
Lower tertiary * Birth year	-0.00	0.04
Gymnasium * Birth year	-0.10	-0.19*
Vocational * Birth year	-0.09**	-0.03
EGP I * Birth year	-0.16**	-0.06
EGP II * Birth year	-0.07	-0.11*
EGP IIIa & V * Birth year	-0.06	-0.09
EGP IV * Birth year	0.02	0.05

Reference categories: Education: Compulsory; Class background: EGP VI, VII, IIIa

* $p < 0.05$, ** $p < 0.01$

Figure 1 Unemployment in Sweden 1963-2000, 15-64 years (source www.oecd.org downloaded 1.4.2010), respectively annual change in industrial output (source www.scb.se downloaded 1.4.2010)

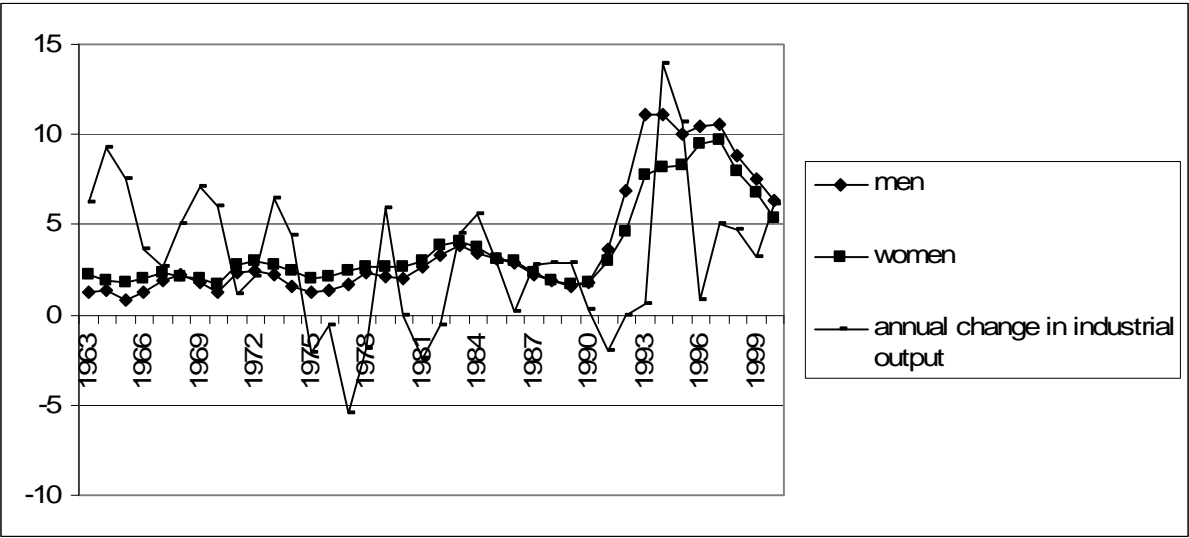


Figure 2 Cohort patterns in occupational prestige (SIOPS score) over the life course and historical time: Swedish working men (upper panel) and women (lower panel), ages 15 to 50.

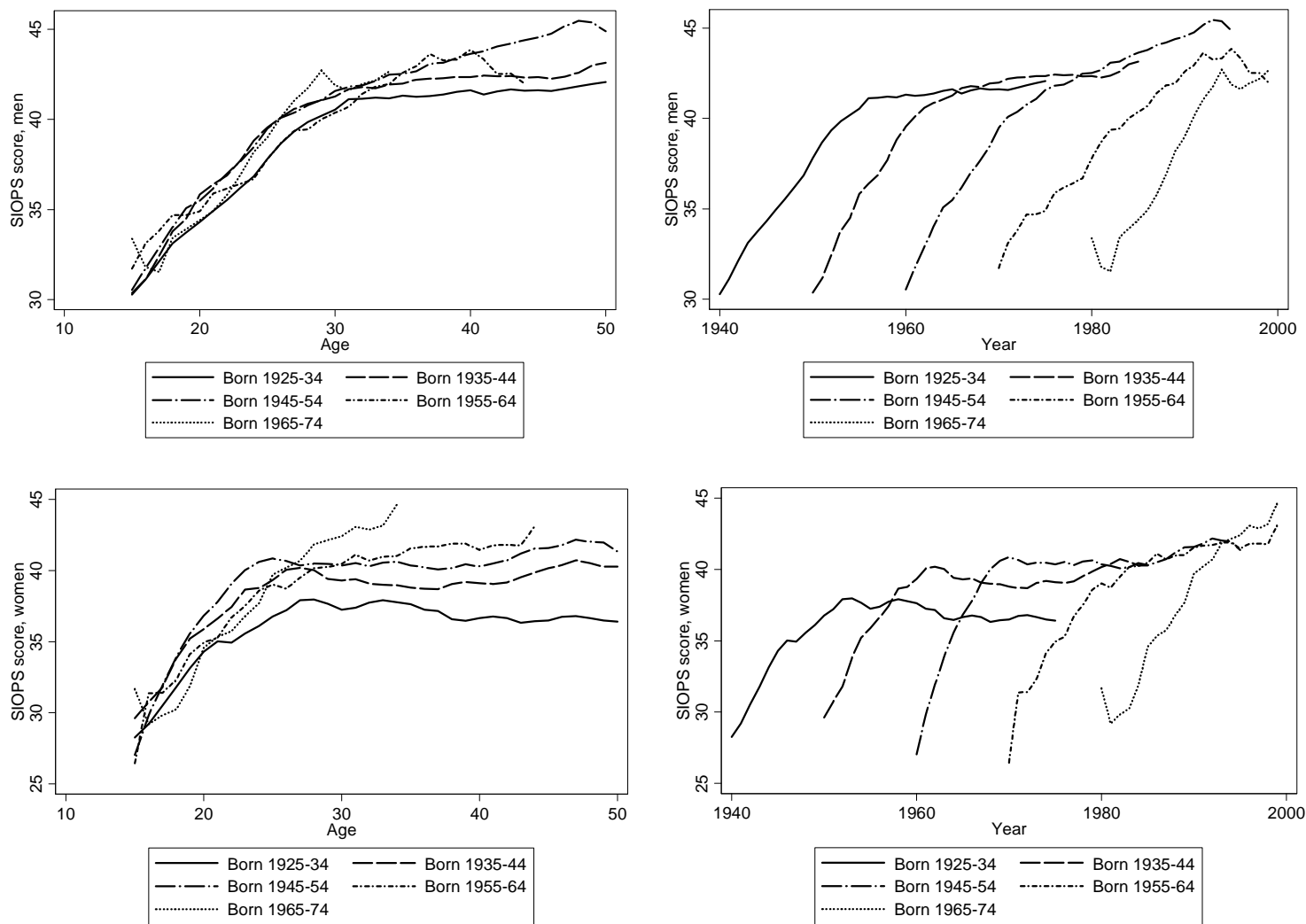


Figure 3 Cohort differences in occupational career progression, predicted SIOPS scores

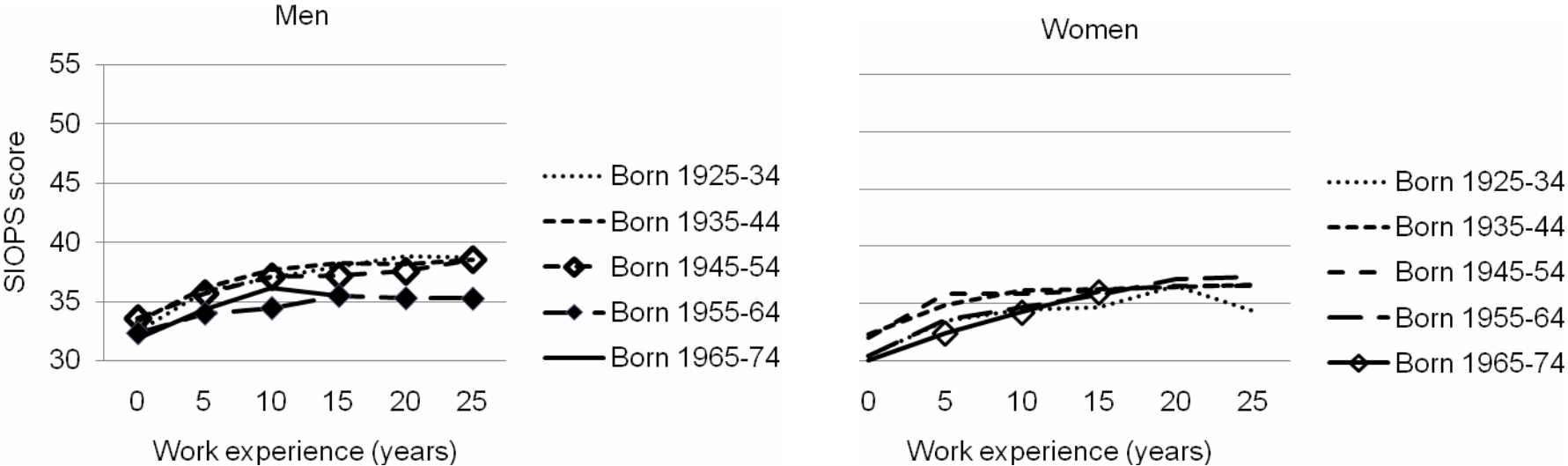


Figure 4 Educational differences in occupational career progression, predicted SIOPS scores.

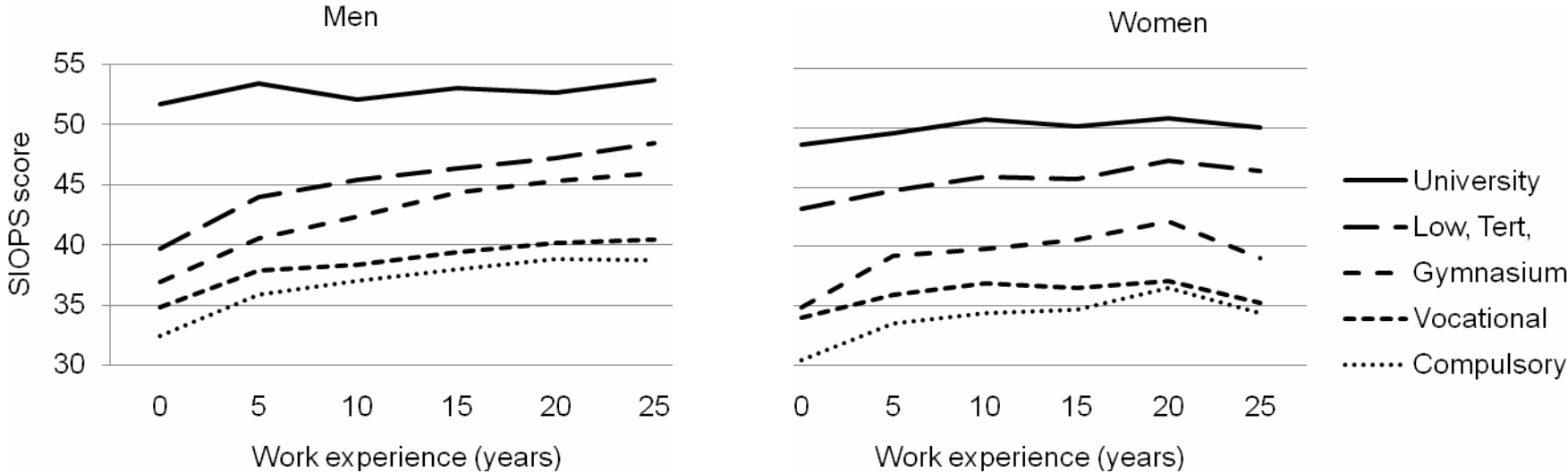


Figure 5 Class background differences in occupational career progression, predicted SIOPS scores.



