Gender inequalities in occupational prestige across the working life:

An analysis of the careers of West Germans and Swedes born from the 1920s to the 1970s

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Abstract: Using retrospective occupational biography data from West Germany and Sweden we analyze gender inequalities in occupational prestige over the working career in three birth cohorts (1920s to early 1940s, mid-1940s to early-1960s, and mid-1960s to late 1970s). We ask whether gender inequalities are generated at labour market entry, whether career progression and parenthood weaken or strengthen such gender inequalities, and how they differ across cohorts in the two countries. With data from the German Life History Study and the Swedish Level of Living Surveys, we used growth curve analysis to model career developments in occupational prestige. We find less change in occupational prestige across careers in Germany than in Sweden. In both countries a clear female disadvantage in occupational prestige in the oldest cohort has turned into a female advantage in the youngest cohort. This is only partially explained by changes in educational attainment levels. We also report a substantial motherhood penalty in careers in both countries, which has shifted to a fatherhood premium in Sweden over time.

Gender differences in career progression in West Germany and Sweden

Introduction

The increase in women's economic activity is to be regarded among the major social changes of the last decades. For example, whereas about 60 % of Swedish women and 45 % of (West) German women, respectively, were active in the labour market in 1970, this share had increased to 80 % and 70 % in the respective countries in 2010 (OECD 2015). These trends reflect major changes in gender roles, which took place at different times and at a different pace in two countries characterized by different historical experiences as well as different welfare regimes (Esping-Andersen 1999). In this study, we aim at contributing to the research agenda on long term trends in gender inequalities and how they differ across countries and cohorts.

This study compares men' and women's occupational career trajectories in West Germany and Sweden over birth cohorts born from the 1920s to the 1970s. Our interest lies in comparing how gender inequalities in occupational prestige develop across careers, and the factors which modify these inequalities. Specifically, we pose the following research questions. First, we are interested in how occupational gender inequalities develop across careers, from labour market entry onwards. Second, we ask whether gender inequalities in educational attainment account for inequalities in occupational careers. Our third question concerns the effects of parenthood on career trajectories: to what extent does becoming a parent affect career paths of German and Swedish men and women? An interest in comparative and cohort differences in these patterns is a transversal question, which cuts through the three research questions outlined above.

To answer these questions, we analyze West German and Swedish women's and men's careers using growth-curve analysis (GCA). Rather than focusing on snapshot measures of inequality—such as gender inequalities in current earnings or in occupational position—analysis of careers deals with permanence and change in the inequalities over the life course (cf. Mayer 2009). In this respect, career analysis offers a more appropriate perspective of labour market stratification (Esping-Andersen 1993; Kerckhoff 1993; Gangl 2005). GCA is well-suited for such analysis, as it provides both an account of the pattern of occupational stratification across the life course, as well as of the importance of the three components which determine this pattern, namely the inequalities at labor market entry, the rate of career progress, and the length of career progress. In contrast to more commonly used event-history analysis, GCA provides a holistic perspective on life course stratification rather than an

analysis of individual transitions to certain positions up and or down the occupational ladder. In contrast to another holistically oriented life course research method, namely sequence analysis, GCA enables a regression-based analysis of occupational histories (Härkönen & Bihagen 2011; Bihagen & Härkönen 2014; Manzoni, Härkönen & Mayer 2014). These features make GCA an attractive tool for answering our research questions, and for life course research on stratification processes more generally.

We use data from the German Life History Study (GLHS) and the Swedish Level of Living Surveys (LNU). We analyze occupational histories of 7,951 West Germans and 5,023 Swedes born in three cohorts, namely from around the 1920s to the early 1940s, the late 1940s to the early 1960s, and from the early 1960s to the 1970s. Our dependent variable is occupational prestige, measured using the Treiman occupational prestige scale (SIOPS) (Treiman 1975), which is better suited for analyses of gender differences than many other socioeconomic indices (Warren et al. 1998) and as a numerical variable, is suited for GCA. Before proceeding to a description of the data, the method, and the results, we provide an overview of analysis of occupational careers, theories and research in gender inequalities in the labour market, and of the features of the two countries, West Germany and Sweden.

Background

Occupational careers are usually conceptualized in the research literature as successions of occupational positions over the life course (Spilerman 1975; Schulz & Maas 2012; Manzoni, Härkönen & Mayer 2014), which are affected both by individual efforts and resources and by structural opportunities and constraints (Sørensen 1975; Kerckhoff 1993). Together, these factors produce inequalities in occupational histories, which depend on inequalities at career entry, the rate of progression (or demotion) over time, and the length of career progression. The latter two speak about the permanence of occupational inequalities and, together, these three processes determine where in the occupational structure one is at different points of the career (Manzoni, Härkönen & Mayer 2014).

A classic question in research on occupational careers concerns the effects of the position in the first job on later occupational attainment (Blau & Duncan 1967; Kerckhoff 1993; Warren, Sheridan & Hauser 2002). Numerous studies have reported that a successful career entry, in terms of a high position at the first job, fuels later occupational success (ibid.). The extent to which the occupational position at labour market entry predicts later attainment depends, however, on whether one is able to improve one's position through career advancement. If career progression is limited, workers are "locked" into their entry positions,

which then strongly determine the subsequent career. If, on the other hand, labour market and occupational structures allow workers to change positions, initial inequalities may either decrease or increase, depending on whether those at initially (dis)advantaged positions are able to make further advancements (or see their situations deteriorate).

Occupational mobility is mostly concentrated at early career stages (Rosenfeld 1992). Job-worker mismatches are more common at this stage than later (Sørensen 1975; 1977) and internal labour markets (Sørensen 2000) promote investment in younger workers, from whom companies can reap returns for a longer period (Becker 1964). Furthermore, work experience has concave effects on labour market outcomes (Mincer 1974). All in all, occupational careers tend to stabilize at later career stages as workers reach "occupational maturity", which the intergenerational mobility literature holds to take place in the 30s. When this happens more precisely varies, however, by country, gender, social background, and educational attainment (Härkönen & Bihagen 2011; Manzoni, Härkönen & Mayer 2014). The length of the career progression period and the rate of this progression determine how far one ends from the position at labour market entry.

Gender differences in careers

Traditionally, the differences in men's and women's life courses shape their economic activity and occupational success by affecting the life course stages at which one is economically active, the kinds of jobs one holds, the human capital investments one makes, as well as the expectations employers have of male and female workers. The intertwined life course stages, and especially family formation, have commonly been regarded as major life course stages, which affect men's and women's careers. Additionally, the patterns that male and female careers follow, and consequently the extent of gender inequalities in occupational attainment across working careers are affected by the educational system and occupational structure of each society.

Gender differences in human capital and its accumulation over the career has been among the most popular explanations for gender inequalities in the labour market. Traditional gender role expectations, in which men were expected to be breadwinners and women to work less after marriage and parenthood (Lewis 2001; Evertsson & Nermo 2004), encouraged men more than women to invest in education. This was, indeed, still the typical pattern around fifty years ago when men's educational attainment levels exceeded those of women. Gender differences in educational attainment have changed thereafter. Swedish women born in the 1940s and 1950s had reached educational parity with men, and today, young Swedish women

have clearly higher educational attainment than their male counterparts. German women's educational attainment levels have also caught up with those of men, although the development has been slower than in Sweden. German women born around the 1950s still attained less education than men of the same cohort, but the educational gender gap had closed for cohorts born in the late 1970s (Barro & Lee 2010). These developments suggest that the closing—and in Sweden, reversal—of the gender gap in educational attainment has led to a closing, and possibly even reversal, of the gender gap in occupational careers. Indeed, previous research has shown that women's occupational careers have become increasingly similar to those of men (e.g., Bihagen & Härkönen 2014).

German and Swedish educational and occupational systems have some important differences, which affect occupational career patterns in these countries (Author & Author 2011; Manzoni, Härkönen & Mayer 2014) and which can also shape gender inequalities in careers. The German educational system is well-known for being highly standardized and highly differentiated and which, accompanied by apprenticeships, gives qualifications for specific occupations (Allmendinger 1989; Hannan, Raffe & Smyth 1997; Soskice 1999). This occupational specificity supports a smooth transition from school to work, and reduces both the likelihood of occupational mismatches and the importance of work experience (König & Müller 1986; Allmendinger 1989; Müller & Gangl 2003; Brzinsky-Fay 2007). At the same time, occupational mobility is limited by strong occupational boundaries and by the relatively rigid hiring and firing rules of German labour law (Blossfeld 1986; König & Müller 1986; Mayer & Carroll 1987; Mayer & Hillmert 2003; DiPrete et al. 1997; Hillmert 2011). These features highlight the importance of successful labour market entry as a determinant of future occupational success (Blossfeld 1986; Mayer & Carroll 1987; Mayer & Hillmert 2003; DiPrete et al. 1997; Grunow & Mayer 2007; Manzoni, Härkönen & Mayer 2014). They also suggest that in Germany gender differences are likely to become cemented at early career stages.

Unlike the German educational system, the core features of which have remained relatively unchanged during the last century (Blossfeld 1993), the Swedish educational system went through a number of reforms from the 1960s onwards. Until then, the Swedish educational system shared many features with the German one, being highly differentiated with early tracking of students. In the reforms of 1960s, tracking to vocational and academic streams was postponed to later ages (compulsory school reform), and barriers to higher education were lowered. 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)). After these reforms, the educational system in Sweden has been characterized as being weakly differentiated but highly standardized (Hannan, Raffe & Smyth 1997), although further changes to the educational system from the 1990s onwards have probably reduced its standardization as well. Compared to Germany, the weaker links between education and the labour market, the lower occupational boundaries, and the stronger promotion of "lifelong learning" (e.g., Hällsten 2011) increase the likelihood of occupational mobility. Empirical findings have also confirmed the higher levels of career mobility in Sweden than in Germany (DiPrete et al. 1997; Härkönen & Bihagen 2011; Manzoni, Härkönen & Mayer 2014). Consequently, it is more likely that career mobility shapes gender differences in occupational attainment in Sweden than in Germany, and that one's position at the first job plays a weaker role in the former than in the latter.

Family formation remains a key process which differentiates men's and women's labour supply and occupational success (Budig & Hodges 2010; Evertsson & Duvander 2011; Evertsson & Grunow 2012; Miller 2011). Family formation generally hinders women's labour market success. Time out from the labour market due to childrearing slows the accumulation of human capital through work experience, and can contribute to the depreciation of previously accumulated human capital (Mincer & Polachek 1974, also Evertsson & Grunow 2012). Long periods out from the labour market, or anticipation thereof, can additionally affect employers' evaluations of the current and future performance of male and female workers, leading to statistical discrimination of the latter (Phelps 1972; Correll, Benard & Paik 2007). This can lead to gender inequalities both at labour market entry and in lower chances that women progress in their careers (e.g., Bygren & Gähler 2012).

Previous research has shown that long career interruptions destabilize German women's careers, leading to a higher likelihood of any occupational mobility, whereas in Sweden long stays out of employment hinder upward mobility (Aisenbrey, Evertsson & Grunow 2009). However, as family-related career interruptions are becoming shorter (Blossfeld & Drobnič 2001), the negative career effects of motherhood can be expected to decrease. Decreasing effects of motherhood—and female disadvantages in careers more generally—can likewise be expected due to developments toward more gender-neutral norms and attitudes (Brewster & Padavic 2000; Treas & Tai 2011), changing attitudes would further promote a trend towards gender equality in careers and reduce gender differences in, and in particular, gendered effects of parenthood on occupational success.

Whereas motherhood can generally be expected to have negative career consequences, fatherhood can have the contrasting effects. The increasing financial needs due to family formation increase the incentives for working and career development (Mayer & Carroll 1987; Petersen, Penner & Høgsnes 2011), which can primarily boost men's labour supply if their partners scale back on work (Becker 1981). The "fatherhood premium" can be strengthened if employers hold more positive opinions of fathers than of childless men (Correll, Benard & Paik 2007). Many previous findings indicate that men enjoy career premia due to parenthood (e.g., Bygren & Gähler 2012), and that with decreasing motherhood penalties, the importance of these fatherhood premia on gender inequality has increased over time (Petersen, Penner & Høgsnes 2014). Put together, we can expect parenthood to lead to increasing gender career inequalities, whether due to motherhood penalties and/or fatherhood premium.

The extent to which parenthood affects labour market activity and occupational success is contingent on family policy. The Swedish and German family policies have generally been contrasted with one another and German family policies have been regarded as an archetypical example of a conservative family policy regime, which promotes male breadwinner arrangements, whereas Sweden is usually used as the main example of a social democratic family policy regime, which aims at promoting gender equality (e.g., Esping-Andersen 1999). The Swedish system combines long and generous parental leave policies with accessible and high-quality childcare, with the aim of promoting mothers' employment attachment. The German system, on the other hand, was traditionally more geared to promote the male breadwinner family and offered limited publicly sponsored childcare. A generous parental social insurance system and a public child care system, as in Sweden, may on the one hand foster combining working life and motherhood. On the other hand, a generous social insurance system makes it easier to be away from work, and to the extent that women take the main responsibility for the family, it could decrease work experience and also affect the risk assessments of employers leading to more statistical discrimination (see Evertsson and Grunow 2012 for an overview). Hence a system that promotes female labour market participation may at the same time lead to substantial gender differences in human capital and in the labour force. It is also possible that a system where the combination of working life and family life is more difficult to achieve leads to a situation where many women delay entry into parenthood (or even avoid being parents) (Neyer & Andersson 2008; Krapf 2014).

However, these arrangements have developed over historical time. Both countries could largely be described as having male breadwinner systems in the 1960s where mothers

typically stayed out of the labour market when the children were small. This began to change quickly in Sweden from the 1970s onwards, when the core features of its family policy regime were instituted and developed, but at a slower pace in (West-) Germany (OECD 2015). In Germany this development has gone hand in hand with a reformed parental insurance coming closer to the parental insurance in Sweden more recently (Ostner 2010; Krapf 2014). Hence, with the risk of over-simplifying the same trends towards a dual breadwinner society can be seen in both countries, with a sharp increase of female labour market participation in Sweden up to the late 1980s and with the same trend on-going in Germany. This later development in Germany goes hand in hand with a rapid increase in part time work among German women (Rosenfeld, Trappe, & Gornick 2004; OECD 2015). Hence, it may be more correct to describe the trend in Germany as a trend towards a 1.5 breadwinner system rather than towards a dual breadwinner system. In Sweden we instead see a decline in part-time work from the 1980s (OECD 2015).

Based on the above discussion we can formulate hypotheses of gender inequalities in careers in the two countries, as well as how parenthood affects women's and men's careers, and how these differences have developed over time. First, regarding the career stage at which gender inequalities are cemented, we expect less career mobility in Germany, which translates into more stable gender inequalities across the career than in Sweden (Hypothesis 1). Second, career patterns in Sweden can also be affected by Swedes' tendency to enter the labour market after secondary education for a period before continuing to further education, and previous research from Sweden shows that gender differences in occupational prestige were small at labour market entry (Bihagen & Härkönen 2014; Halldén & Härkönen, forthcoming). Based on this previous research, as well as the trend towards educational expansion particularly among women, we can also expect that gender inequalities at labour market entry have diminished over time (Hypothesis 2). Third, for the same reason we expect that educational attainment will explain less of women's disadvantage over the cohorts; rather, it can even be that women's increasingly higher educational attainment levels hide gender inequalities in occupational careers (Hypothesis 3). Fourth, we expect that parenthood increases gender inequality in occupational careers, through a motherhood penalty and/or a fatherhood premium (Hypothesis 4). We expect this to manifest in divergence in career progression after parenthood. Fifth, we also expect that this negative effect of motherhood has become smaller in later cohorts (Hypothesis 5). We are more agnostic about country differences in the effects of parenthood. The Swedish family policy regime should, on the one hand, promote gender equality in careers. On the other hand, it can have opposite effects, and the more rigid German

occupational structure can dampen the occupational career effects of parenthood for employed women.

Analysis

Data and variables

We use retrospective occupational history data from two data sources, namely the German Life History Study (GLHS) for West Germany and the Swedish Level of Living Survey (LNU) for Sweden. The two data sources are remarkably comparable with regard to some key features, notably the collection of occupational and educational histories.

GLHS consists of a series of retrospective cohort studies based on nationally representative samples of eight birth cohorts born between 1919 and 1971 in West Germany. We use data collected in different surveys between 1981 and 2005 using standardized face-to-face or computer assisted telephone interviews, with an overall response rate around 60% (Mayer 2008). We observe the life courses of 7,951 men and women from the cohorts born in 1919-1921 (data collected 1985-87), 1929-31, 1939-41, 1949-51 (collected 1981-83), 1954-56, 1959-61 (collected 1988-89), 1964 (collected 1997), and 1971 (collected 1997, and re-interviewed in 2005). They contributed 1,256,842 person-months into the analysis. We collapsed these into three cohorts, namely those born 1919-41, 1949-61, and 1964 and 1971. The quality of the data was ensured by laborious data cleaning and checks for the accuracy of the retrospective data.

LNU is a panel survey collected in 1968, 1974, 1981, 1991, 2000, and 2010. For this study, we use the retrospectively collected occupational biographies collected in 1991, 2000, and 2010. The cohorts we chose for the analysis were born from 1925 to 1980 and altogether include occupational biographies from 2,545 men and 2,487 women, who contributed a total of 1,329,755 person-months. We likewise collapsed these into three cohorts, the oldest being born from 1925 to 1944, then 1945-61, whereas the youngest was born between 1962 and 1980.

We measure occupational attainment using the Treiman occupational prestige scale (SIOPS) (Treiman 1975), which is an internationally standardized measure of the "desirability" (Goldthorpe & Hope 1972) of occupations. The remarkable stability of occupations' prestige over time and acrosscountries (Hout & DiPrete 2006) makse it a particularly suitable measure for our purposes. Furthermore, prestige scores have been argued to be better measures of women's occupational attainment than socioeconomic indexes (Warren, Sheridan & Hauser 1997). Our occupational biographies include SIOPS scores for

each job beginning from the first "real" one (the first job which lasted for at least six consecutive months). The scores range from 14 (e.g., sweepers and garbage collectors) to 78 (e.g., university professors and medical doctors) in West Germany and from 6 (hunters and trappers) to 78 in Sweden. We measure work experience as the number of years (months / 12) one has been employed since the first "real" job. These are right censored at 25, 15, and 15 years for the oldest, middle, and youngest German cohorts, and at 25, 20, and 15 years for the oldest, middle, and youngest Swedish cohorts, respectively. Right censoring also occurred when the respondents turned 50 years. These censorings were done to disregard the longest and increasingly selective work careers from the analysis. In order to capture the pattern of career development over time in a flexible way, we entered work experience into the regression models (see below) using 5-year linear splines. The splines carry the benefits of allowing for analysis of stages of career development without posing a predefined functional form on the career, while using a reasonable number of degrees of freedom. Additionally, splines allow for continuous changes over time. Effects are allowed to gradually develop within each of the categories indicating months since labour market entry, by estimating different linear slopes for each range, avoiding inappropriate jumps generated by a simple dummy variable model (Marsh & Cormier 2002).

Educational attainment was a time-varying measure, which takes into account the specifics of the educational system in each country. Educational attainment in Germany was measured using information on schooling and vocational training or higher education. The basic structures of the (West) German educational systems have remained intact over the time period covered in our study (Blossfeld 1993). Our measure consists of 5 categories: Lower secondary level (*Hauptschule*) or less, separately with and without training (reference group), middle or higher level secondary (*Realschule* or *Gymnasium*), without and with training, and tertiary (university or *Fachhochschule*). With this classification, we wish to capture essential features of the German educational system, which combines general schooling (with three tracks, into which pupils are generally selected after just four years of primary school) with work-oriented training or tertiary education. Educational attainment in Sweden was likewise measured using 5 categories: compulsory education (*folk-/grundskola*), vocationally oriented secondary education (2-3 years in addition to compulsory education), academic secondary education (*Gymnasium*), lower tertiary education, and university degree. The Swedish educational system has witnessed more changes after WWII than the German one (Eriksson & Jonsson 1996; Halldén 2008), but this educational classification can be regarded as comparable across the cohorts we consider (Bihagen & Härkönen, forthcoming).

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Parents' social class was, for both countries, measured using the dominance principle, according to which the highest class position of the parents determines one's class background (Erikson 1984). It 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 lower grade non-manual workers and the working class (EGP IIIb, VI, and VII). The EGP schema is not strictly hierarchical, but is nevertheless often used to distinguish higher and lower class positions among employees.

We measure the experience of parenthood in two ways. First, we measure the number of children, which is a time-varying variable. Second, we measure the time since one entered parenthood; using linear splines with knots at 3, 6, and 10 years we capture the possible differences in having children at various ages. Although positively correlated, the fact that our cohorts entered parenthood usually after gaining work experience meant that we did not experience problems with multicollinearity in the analyses (see Table 1 for descriptive statistics).

Table 1

Method

Our principal method is growth curve analysis - GCA (e.g., Halaby 2003; Steele 2008), which has recently gained recognition as a method for analyzing the occupational attainment across the life course (Härkönen & Bihagen 2011; Barone, Lucchini and Schizzerrotto 2011; Schulz and Maas 2012; Manzoni, Härkönen & Mayer 2014; Schulz, Maas & van Leeuwen 2015). For the purposes of the analysis, the data were re-organized to person-month format, which resulted in an unbalanced panel data structure. These data can be analyzed using familiar panel regression methods. Here, we use random effects (RE) panel regression models, which enable estimating coefficients for time-constant variables (most importantly, gender) as well as the time-varying coefficients. Growth curve models can be distinguished from other panel regression models by their explicit attention on the time variables, and in our case, the interactions between the time variables and the covariates, which tell us about differences in career progression by these covariates. A growth curve model can be written as

$$y_{it} = \alpha + \sum_{k=1}^{5} \beta_{1k} Exp_{itk} + \beta_2 Gender_i + \beta_3 X_{it} + \sum_{l=1}^{4} \beta_4 Sincekid_{itl} + \mu_i + \varepsilon_{it} \quad (1),$$

which includes a constant, a person-specific (time-invariant) unobserved factor μ (random effect) and a time-varying error term ε, a dummy for gender, additional independent variables (*X*), and two sets of splines. The first series of splines (work experience, *Exp*) captures the basic time pattern of career progression across the working life by informing about how occupational prestige changes by an additional year in employment. The second series of splines (time since entry into parenthood, *Sincekid*) measures career progression since having the first child by providing an estimate of how occupational prestige changes with an additional year of parenthood. Introducing interactions between gender and the splines captures gender differences in the effects of work experience (i.e., gender differences in career progression) and of the time since entering parenthood (i.e., gender differences in how parenthood affects career development).

Our first growth curve regressions describe the gender differences in career progression by including interaction terms between gender and the work experience splines, and serve as baseline estimates for the upcoming analyses. The second regression model controls for class background, educational attainment, the number of children, and its interaction with gender. The third regression includes, additionally an interaction between gender and the time since the birth of the first child. The purpose of this model is to analyze whether mothers and fathers career trajectories are differently affected by a birth of the child, and whether these can explain any gender differences in overall career progression patterns. To compare the results across the three birth cohorts, the models were estimated separately for each of them. Cluster-robust standard errors were estimated in each model, which estimate conservative standard errors (Cameron & Trivedi 2009).

Results

Figure 1 describes average occupational prestige scores across the career by calendar year for the three cohorts in West Germany and in Sweden.

Figure 1

Several findings are apparent. First, one can detect major occupational upgrading, especially in Germany. Average men of the youngest cohort ended up holding occupations of a complete 10 SIOPS points higher prestige than those in the oldest cohort, and for women this difference is even bigger. In Sweden occupational upgrading is less remarkable, but even there women especially improved their occupational positions over time. The second notable feature of the

figure, and of more direct interest for our study, is the closing of the gender gap in occupational careers. In the oldest cohort in both of the countries, gender differences in occupational prestige seemed to grow across the career. In the middle cohort, women still lagged behind in Sweden, but women's occupational attainment was at the same level as men's in Germany. Finally, in the youngest cohort, German women, surprisingly, attain higher prestige occupations than German men. A similar, although weaker, pattern can be found in Sweden. Even though this figure gives a descriptive account of changes in occupational prestige in our cohorts over time, it is not directly informative of the career progression of individual workers, because the figures refer to average prestige levels within the cohort at each year. To gain a better insight into gender differences in occupational careers at the individual level, we turn to GCA.

Tables 2 & 3

Tables 2 and 3 presents the results from the random-effects growth curve regression analyses for Germany and for Sweden, respectively. The results are shown separately for each birth cohort. Models 1 present the model without any control variables. The estimate "Female" shows the gender difference in occupational prestige at labour market entry. The estimates for the five work experience splines tell how much men's occupational prestige improves, on average, with each additional year of work experience. The interactions between gender and the work experience splines, on the other hand, tell how gender modifies the effect of work experience. In other words, they tell how much slower (or faster) women on average progress in their occupational careers compared to men. To foster interpretation of the results, the predicted occupational prestige scores at different career stages were plotted and shown in Figure 2.

Figure 2

Starting with the results for Germany, we can see that an average German man in the oldest cohort began his working life in an occupation with a Treiman prestige score of 37. Such occupations include carpenters, transport clerks, and fortune-tellers. He could expect to make gradual progress in his career for the first 20 years, with most progress during the first five years, and end up in an occupation 4 SIOPS points higher $(37+5*0.39+5*0.19+5*0.12+5*0.1)$, such as a farm supervisor, etcher, or printing-machine

operator (Ganzeboom & Treiman 1996). An average German woman, on the other hand, would begin her career as a bank cashier, bookmaker, or embalmer (SIOPS score 34). Her career would progress more slowly, except between 15-19 years of work experience. After 20 years, she would progress by 3 SIOPS points, and could have expected to become a transport clerk, housekeeper, or petroleum plant operator.

The average members of the younger cohorts began their working lives in more prestigious occupations, and this entry-level occupational upgrading was particularly visible for women. In both the 1949-61 and the 1964 & 1971 cohorts, the average German male entry occupations included electronics and machinery mechanics (SIOPS 42). The average German female entry occupations in the 1949-61 cohort included stereotypers and coding clerks (SIOPS 41), and insurance representatives, customs inspectors and sergeants in the 1964 & 1971 cohort (SIOPS 44). In other words, women held average entry positions of higher prestige in the youngest cohort than men did.

Occupational progression was slower in the middle cohort, with average men and women improving their occupational prestige by only 2 points. The weaker occupational progression in the middle cohort can be thus located specifically to men born 1959-61, whose careers often overlapped with the weak post oil crisis labour markets of the 1980s (Manzoni, Härkönen & Mayer 2014). Men in the youngest cohort, on the other hand, would again experience occupational progression ending up in an occupation with an, on average, 4 SIOPS points more prestige. Women in this cohort, on the other hand, would experience 2 prestige points worth of occupational progression. Men's faster occupational progression in the youngest cohort led to a closing of the initial (reversed) gender gap in occupational prestige, as seen at labour market entry.

As expected, and already noted in earlier research (Manzoni, Härkönen & Mayer 2014), career progression was faster in Sweden, in all cohorts. Men from the oldest cohort experienced, on average, 20 years of occupational progression and could progress from being a firefighter, telephone installer, or blacksmith (SIOPS 35) to a printing machine operator or stereotype (SIOPS 41). Women in this cohort saw somewhat less career progress, from a dairy product maker or beverage taster (SIOPS 34) to a receptionist or information clerk (SIOPS 38). In the middle cohort, women's careers had become more alike men's, both in terms of the position at labour market entry and the rate and the pattern of career progression. Men, and especially women, in the youngest cohort saw the most advancement in their occupational careers. The average woman would progress by almost 10 SIOPS points during 15 years, and the average man would advance by almost 8 SIOPS points. After 15 years of

work experience, Swedish women would find themselves in more prestigious occupations than their male counterparts (e.g., production clerk (SIOPS 44) vs bicycle repairman (SIOPS 43)). Thus, both countries witnessed a reversal in gender inequalities in occupational careers, when measured by occupational prestige levels.

The second models control for educational attainment, class background, as well as the number of children and its interaction with gender. These controls explain a part of the gender difference at labour market entry in the oldest and the youngest German cohorts, and the entire gap in the middle cohort. In the oldest cohort, all the interactions between gender and the work experience splines become smaller, which means that these variables also account for some of the gender differences in career progression in this cohort. These covariates likewise account for a part of the gender difference in career progression during the first five years in the youngest cohort. In the two oldest German cohorts, neither the main nor the interaction effect of the number of children is significant, suggesting neither a motherhood penalty nor a fatherhood premium in occupational attainment. In the youngest cohort, the main effect is surprisingly negative and significant and the interaction term is not significant—pointing to both a motherhood and fatherhood penalty in occupational attainment.

In Sweden, inclusion of the control variables explains some of the female disadvantage at labour market entry and in career progression rates in the oldest cohort. In the youngest one, the control variables hide some of the female disadvantage at labour market entry, as well as career progression after five years. In the two oldest cohorts, the number of children has a positive (but not significant) effect on male occupational attainment, but the negative interaction coefficient with gender points to a motherhood penalty in these cohorts. In the youngest cohort, the fatherhood premium (as shown by the main effect of the number of children) becomes visible and significant. The interaction term is negative, and of the same size as the main effect coefficient, but remains not significant. This suggests that there is a fatherhood premium, but no motherhood penalty in the youngest cohort in Sweden.

The third model include interactions between gender and time since entry into parenthood. Whereas the interactions between gender and the number of children showed how additional children affect occupational prestige for men and women, on average across the years covered, the third models are estimated to give an indication of how entry into parenthood affects men's and women's career development, from a dynamic perspective. The main effects for time since becoming a parent show the effects of family formation for men, whereas the interactions show how these effects differ for women. To enhance the

interpretation of these findings, we again plotted predicted values based on the model, and present them in Figures 3 (West Germany) and Figure 4 (Sweden). The upper panels for each country present the results for the oldest cohort, whereas the lower panels feature the youngest cohort. Each figure presents a hypothetical case of entry into parenthood after five years of work experience. All other covariates are held at the reference value.

Figures 3 & 4

The figures show that for the most part, parenthood does not have any strong effects on career progression. In the oldest cohorts, entry into parenthood led to a slight motherhood penalty in Germany. Career progression of childless men and women was similar (although women started from lower prestige occupations), but parenthood led to a gender divergence in careers. In the youngest cohort, both mothers and fathers experienced initial disadvantages in their career development. Fathers, however, managed to catch up with childless men (and childless women), but mothers' careers continued relatively flat. As a result, an initial female advantage at labour market entry turns into mothers' disadvantage as compared to fathers, and childless men and women. In Sweden, men enjoyed a weak (but not significant) fatherhood premium in the occupational development, whereas women faced a likewise weak motherhood penalty. In the youngest cohort, fatherhood brought a somewhat clearer initial career boost, whereas the motherhood penalty became apparent only some years (and probably some more children) after the entry into parenthood. The predicted careers of childless men and women converge to similar occupational attainment levels after 15 years. As a result, parenthood has, surprisingly, a stronger effect on the gender inequality in occupational careers in this cohort than in the oldest cohort, even though the overall gender inequalities in the youngest cohort are smaller.

Conclusions and discussion

In this study, we have analyzed gender inequalities in West German and Swedish occupational careers using retrospectively collected occupational biography data. Analysis of occupational careers provides a longitudinal perspective to occupational stratification by focusing on permanence and change in occupational positions, rather than on snapshot accounts of inequalities in occupational standing at specific time points or life course stages. In our analysis, we were specifically interested in how gender inequalities in occupational attainment develop over the working life and how they are affected by educational attainment

and particularly, by family formation. To this end, growth curve analysis was used to shed light on the factors shaping the development of occupational prestige from labour market entry to later career stages. Three broad birth cohort groupings were compared in each country, namely those born from the 1920s to the early 1940s, then from the later 1940s to the early 1960s, and then on to the 1970s.

Our first research question concerned the shape of gender inequality in occupational prestige over the career; we asked whether gender inequalities are cemented already at labour market entry, or they are shaped by differential rates of career progression The results showed that for the most part, gender inequalities in occupational prestige are more stable over the career in West Germany than in Sweden. The youngest cohort was the prime exception to this pattern. Results confirmed a higher degree of stability in life course gender inequalities in West Germany than in the Sweden, as expected (Hypothesis 1) based on previous research on occupational mobility in the two countries. Research has shown less career mobility in West Germany than in Sweden; as a result, inequalities in the West German labour market appear at labour market entry and remain more stable thereafter (Manzoni, Härkönen & Mayer 2014). The somewhat less rigid occupational structure in Sweden allows for more career development, but also more possibilities for either growing or decreasing inequalities across the life course (Härkönen & Bihagen 2011). In line with previous research our analysis showed that Swedes experienced more career progression (in terms of occupational prestige) than what Germans did; that opened up the possibility for growing gender inequalities across the career, as was the case in the youngest Swedish cohort. This does not mean that career progression played no role in shaping gender inequalities in Germany: in the youngest cohort, men's stronger career growth closed the occupational prestige gap, which was in women's favour at labour market entry.

Second, we were interested in whether gender inequalities in educational attainment could account for any gender inequalities in occupational attainment over the career. Educational expansion has been particularly notable among women. In Sweden, women reached educational parity already in the cohorts born in the 1940s and 1950s, and are today clearly better educated than Swedish men. In Germany, women have reached educational parity in the younger cohorts. Thus, we expected that whereas education could explain a part of women's lower occupational attainment across careers in the older cohorts, this would have changed towards the younger cohorts. Moreover, in the younger cohorts, controlling for educational attainment can even reveal otherwise hidden gender inequalities in occupational attainment (Hypothesis 3), especially at labour market entry (Hypothesis 2). Our results

showed that educational attainment explained less of the gender inequalities in labour market entry and in career progression than one may have expected, but that controlling for education did reveal a female disadvantage at labour market entry and career progression among Swedes in the youngest cohort; in other words, women at similar educational levels were disadvantaged but their higher educational attainment resulted in no difference at the aggregate level. In Germany, women in the youngest cohort held more prestigious entry jobs than men even after controlling for education.

Third, we were interested in the gendered effects of parenthood and its role in shaping gender inequalities in careers. Parenthood and the following work-family conflict, as well as discrimination by employers, has in numerous studies been shown to have negative effects on women's careers. Men, on the other hand, may benefit from parenthood and some studies have argued that such fatherhood premia have become more important than motherhood penalties for gender inequality (Petersen, Penner & Høgsnes 2014). Our findings showed that in West Germany, mothers did not experience much career growth, whereas women who remained childless saw their careers progress more. Parenthood effects on fathers were more temporary and marginal. In Sweden, on the other hand, motherhood penalties were smaller, but fatherhood premia were more visible (although still relatively limited in size). Ten years after entry into parenthood, the effects of parenthood on men's and women's careers, as well as overall gender inequalities in occupational attainment, were more visible in the youngest compared to the oldest cohort. This surprising effect should nevertheless be seen in the light of much smaller gender inequalities overall: in the oldest cohort, all women were restricted to more limited careers, regardless of parenthood.

Overall, our findings speak to the degree to which occupational inequalities can change over the career and how life course events, such as entry into parenthood, can shape occupational careers. The higher degree of career stability in Germany is in line with other occupational mobility research, which that the strict occupational boundaries and the high occupational specificity of German educational degrees limit the extent of occupational moves. Overall, this rigidity limits how much career developments can shape labour market inequalities, which tend to remain relatively stable after labour market entry. Although gender inequalities in occupational attainment do not remain altogether fixed throughout careers in Germany (and can be affected by parenthood, for example), the relative stability in occupational status nevertheless means that much of the inequalities also remain stable and that labour market entry plays an important role in determining these. An implication of this is

that historical change in gender inequalities will be dominated by cohort replacement of old, less equal cohort by new, more equal ones (Manzoni, Härkönen & Mayer 2014).

Most research on gender inequalities in the labour market has reported female disadvantages. By contrast, we found female advantages in the youngest cohort, when measured by the occupational prestige of the jobs held. Occupational prestige is itself an important measure of occupational success, as it captures the more social rewards one can reap from working life (Goldthorpe & Hope 1972; Treiman 1975). It is also a practical measure for our purposes, given that it can be used for retrospectively collected occupational data and because of the stability of occupational prestige scores over time and cross-nationally (Hout & DiPrete 2006). It has, furthermore, been argued to be a more appropriate measure in analysis of occupational stratification by gender than other commonly used indices, such as occupational status (Warren, Sheridan & Hauser 1998). Our findings do not, however, directly translate into gender inequalities in other labour market rewards, such as wages and earnings (Magnusson 2010). This would require a separate analysis with different data, but could likewise be done using the methods we employed here. In addition to a female disadvantage, one would expect more variation in earnings than in occupational standing over the life course. This would also translate into stronger effects of life course events, such as parenthood, which in our analysis were generally rather limited in size. Finally, we should point out that here we focus our analysis on those who are employed. Our previous analysis from Germany and Sweden (Manzoni, Härkönen & Mayer 2014; Härkönen & Bihagen 2011) suggest that selection into employment is unlikely to drive our conclusions.

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Figure 1. Occupational prestige score over time in three birth cohorts, West Germany and Sweden.
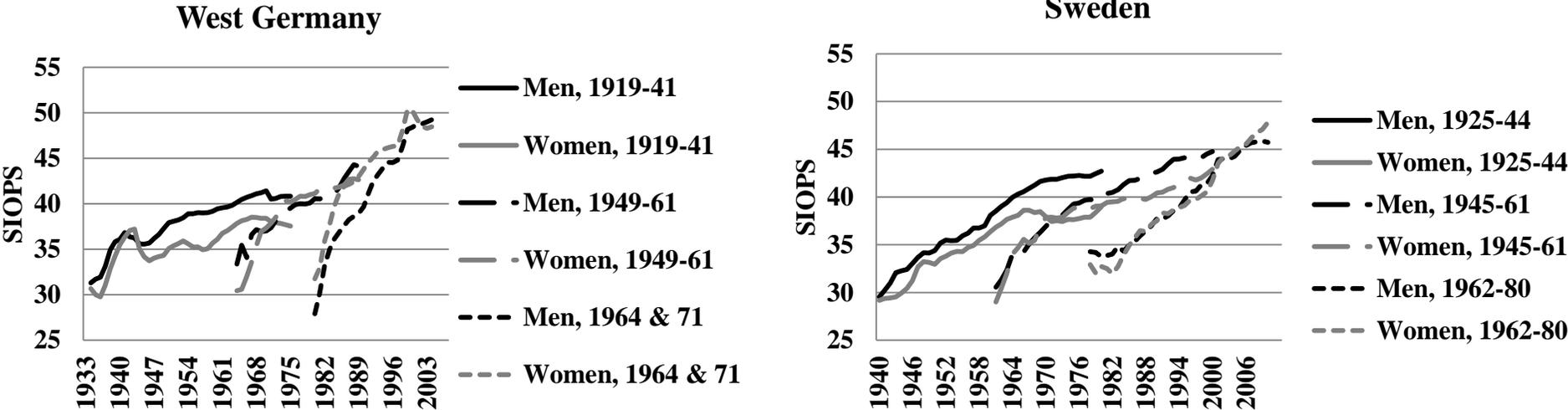
Figure 2. Career development in West Germany and Sweden, predicted SIOPS scores.

West Germany

Men, 1925-44
Women, 1925-44
Men, 1945-61
Women, 1945-61
Men, 1962-80
Women, 1962-80

Sweden

Men, 1925-44
Women, 1925-44
Men, 1945-61
Women, 1945-61
Men, 1962-80
Women, 1962-80
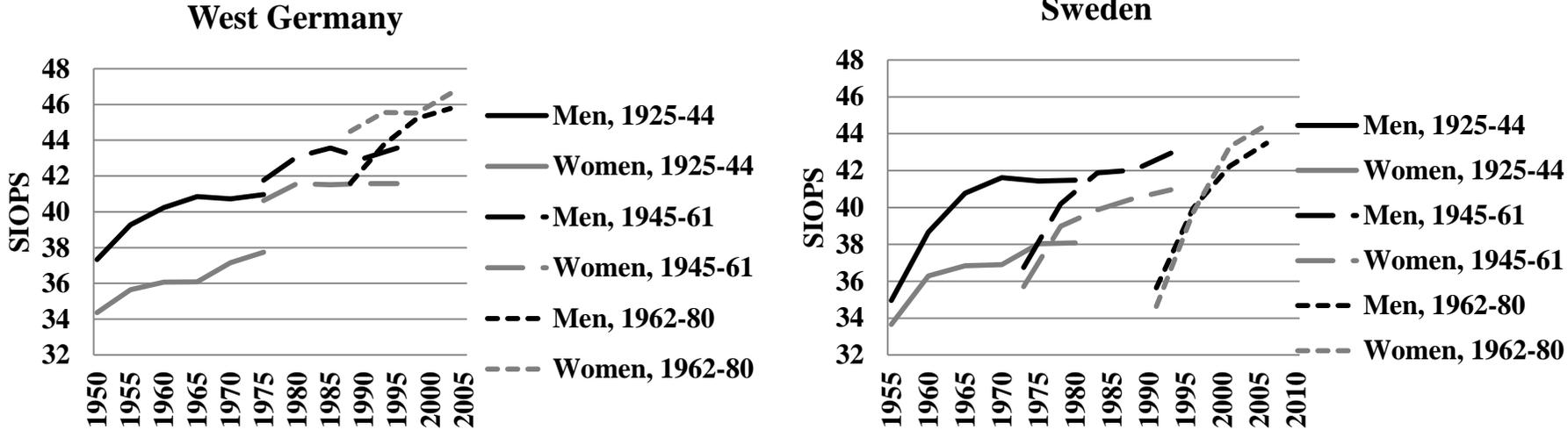
Figure 3. Parenthood and career development in West German cohorts 1919-41 and 1964 & 1971, predicted SIOPS scores. The dashed vertical line represents the time of chilbirth.
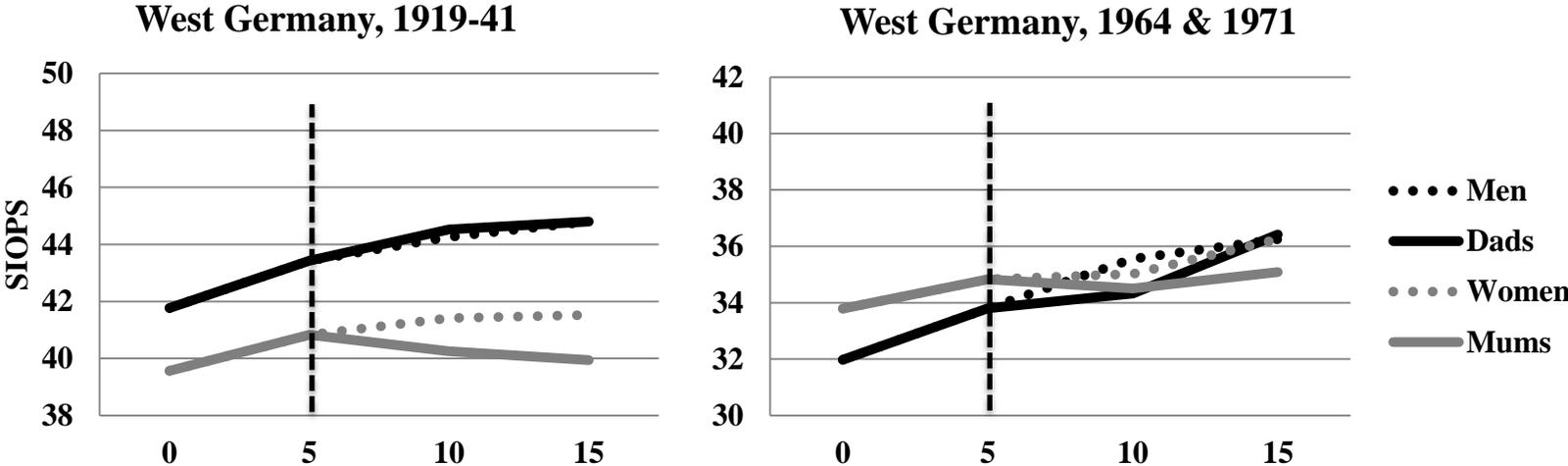
Figure 4. Parenthood and career development in Swedish cohorts 1925-44 and 1962-80, predicted SIOPS. The dashed vertical line represents the time of chilbirth.
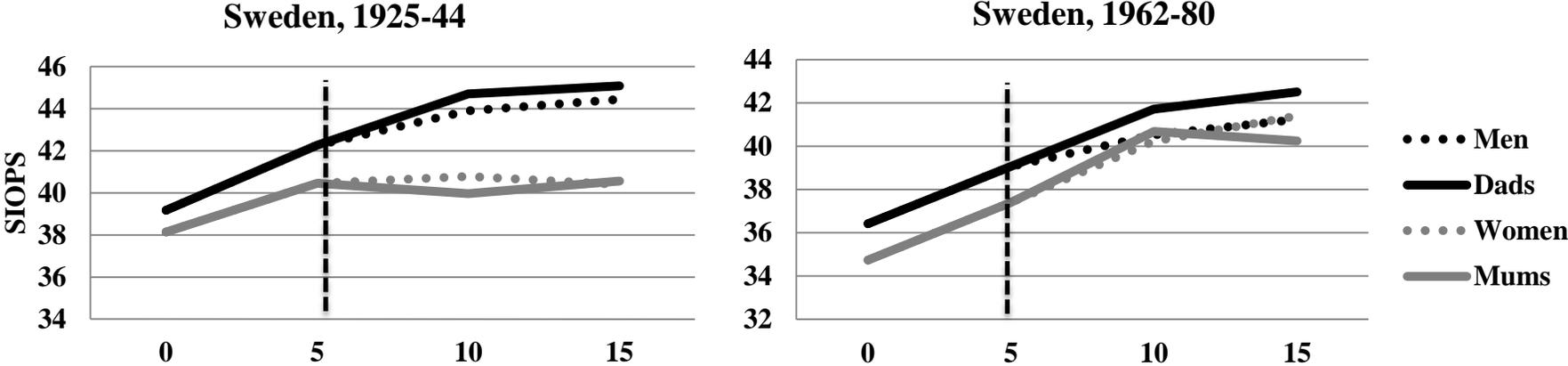
Table 1. Descriptive statistics of the samples, means (standard deviations) or percentages. Person-months.

	West Germany		Sweden
SIOPS	40.0 (12.6)		40.7 (12.6)
Work experience (years)	8.1 (6.5)		10.5 (6.4)
Time since entry into parenthood (years)	4.2 (6.9)		1.6 (3.9)
N children	0.8 (1.2)		0.8 (1.2)
Female	44.8 %		46.2 %
Cohort			
1919-41	53.0 %	1925-44	41.2 %
1949-61	21.0 %	1945-64	45.4 %
1964-71	25.9 %	1965-79	13.4 %
Education			
Lower second w/o training	21.9 %	Compulsory	38.2 %
Lower second w training	38.7 %	Vocational second.	32.3 %
Middle/high second w/o training	3.3 %	Gymnasium	9.6 %
Middle/high second w training	29.2 %	Short post-second.	10.5 %
Tertiary	6.9 %	University	9.5 %
Class background			
EGP I	4.6 %		10.3 %
EGP II	5.6 %		10.1 %
EGP IIIa & V	15.1 %		10.9 %
EGP IV	16.8 %		26.8 %
EGP IIIb, VI, VII	51.9 %		41.9 %
N (person months)	1,256,842		1,598,087
N (persons)	7,951		5,438

Table 2. Growth curve analysis of occupational prestige over the career in three West German cohorts.

	1919-41			1945-61			1964 & 1971		
Woman	-2.978***	-2.206***	-2.207***	-1.131**	-0.453	-0.461	2.899***	1.819***	1.816***
Work experience									
0-4	0.386***	0.331***	0.331***	0.263***	0.201***	0.198***	0.431***	0.367***	0.365***
5-9	0.193***	0.169***	0.166***	0.098**	0.118**	0.117**	0.294***	0.346***	0.352***
10-14	0.123***	0.107***	0.109**	-0.115	-0.106	-0.101	0.113	0.164	0.139
15-19	0.097***	0.088***	0.074						
20-25	0.049	0.041	0.008						
Woman*work exp.									
0-4	-0.130*	-0.085	-0.078	-0.074	-0.009	0.003	-0.217**	-0.145*	-0.157*
5-9	-0.107	-0.079	-0.049	-0.110	-0.092	-0.060	-0.302***	-0.308***	-0.313***
10-14	-0.120*	-0.105	-0.086	0.127	0.143	0.184	0.107	0.046	0.108
15-19	0.116*	0.127**	0.145**						
20-25	0.067	0.0735	0.102						
Low second. w/o training		0	0		0	0		0	0
Low second. w training		2.707***	2.706***		4.998***	4.979***		7.300***	7.263***
Mid/High second. w/o training		5.448	5.475		0.556	0.401		14.41***	14.30***
Mid/High second. w training		4.298	4.265		7.643***	7.608***		16.81***	16.75***
Tertiary		15.14***	15.06***		15.91***	15.88***		25.97***	25.86***
Upper service parents		0	0		0	0		0	0
Lower service parents		-2.473**	-2.487**		-1.376	-1.400		-1.334	-1.363
High routine non-manual		-5.892***	-5.917***		-2.958**	-3.002**		-3.030***	-3.060***
Farmer/self-employed		-7.139***	-7.184***		-2.996**	-3.036**		-5.246***	-5.269***
Working class parents		-8.991***	-9.040***		-5.359***	-5.392***		-5.196***	-5.244***
N children		0.093			-0.126			-0.400*	
Woman*N children		-0.254			-0.378			-0.151	
Years after entry to parenthood									
0-2			0.058			-0.0903			-0.197
3-5			0.049			0.120			-0.320**
6-9			-0.079			-0.215*			0.430*
10+			0.058			0.247			-0.246
Woman*years since parenthood									
0-2			0.024			-0.103			0.257
3-5			-0.427***			-0.283			-0.0299

6-9			0.068			-0.00271			-0.504
10+			-0.033			-0.327			-0.135
Constant	37.34***	41.72***	41.77***	41.76***	38.94***	39.00***	41.59***	31.90***	31.97***
Person-months	604,670	604,670	604,670	255,739	255,739	255,739	278,881	278,881	278,881
Individuals	2,735	2,735	2,735	2,550	2,550	2,550	2,666	2,666	2,666

Note: *** p<0.001, ** p<0.01, * p<0.05

Table 3. Growth curve analysis of occupational prestige over the career in three Swedish cohorts.

	1925-44			1945-61			1962-1980		
Woman	-1.306**	-0.981*	-1.028*	-1.042*	-0.674	-0.697	-1.016	-1.702***	-1.686**
Work experience									
0-4	0.740***	0.626***	0.620***	0.687***	0.469***	0.471***	0.863***	0.527***	0.530***
5-9	0.423***	0.335***	0.325***	0.337***	0.206***	0.185***	0.456***	0.291***	0.290***
10-14	0.168***	0.115**	0.109*	0.033	-0.019	-0.061	0.248***	0.112	0.143*
15-19	0.133**	0.086	0.089	0.217***	0.150***	0.111	0.554***	0.446***	0.573***
20-25	0.009	-0.018	-0.011						
Woman*work exp.									
0-4	-0.214*	-0.167	-0.157	-0.031	-0.028	-0.044	0.153	0.025	0.004
5-9	-0.313***	-0.257***	-0.260***	-0.159*	-0.134	-0.140	0.260**	0.270**	0.276**
10-14	-0.156*	-0.157*	-0.187**	0.091	0.114	0.124	-0.0118	0.037	0.090
15-19	0.096	0.105	0.081	-0.125	-0.106	-0.054	-0.589**	-0.470*	-0.506
20-25	-0.001	-0.002	-0.010						
Compulsory		0	0		0	0		0	0
Vocational secondary		2.943***	2.917***		1.845***	1.884***		1.219*	1.184*
Gymnasium		6.824***	6.773***		6.190***	6.211***		4.739***	4.715***
Short post-secondary		9.499***	9.405***		11.82***	11.86***		11.60***	11.53***
University		13.84***	13.82***		18.04***	18.06***		17.67***	17.65***
Upper service parents		0	0		0	0		0	0
Lower service parents		-2.211*	-2.192*		-0.353	-0.326		-1.871***	-1.880***
High routine non-manual		-2.983**	-2.911**		-1.779**	-1.750**		-2.378***	-2.398***
Farmer/self-employed		-6.858***	-6.820***		-3.146***	-3.106***		-4.142***	-4.162***
Working class parents		-7.230***	-7.182***		-3.691***	-3.654***		-4.567***	-4.595***
N children		0.255			0.253			0.594**	
Woman*N children		-0.711*			-0.610**			-0.602	
Years after entry to parenthood									
0-2			0.229			-0.052			0.442***
3-5			0.056			0.269**			-0.065
6-9			-0.053			0.130			0.036
10+			-0.018			0.014			-0.534*
Woman*years since parenthood									

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
0-2			-0.572**			-0.033			-0.218
3-5			0.047			-0.304*			-0.046
6-9			0.274			-0.021			-0.408*
10+			0.006			-0.087			0.581
Constant	34.96***	39.19***	39.17***	36.75***	36.17***	36.11***	35.65***	36.36***	36.42***
Person-months	430,315	393,525	393,525	407,770	386,160	386,160	244,583	237,237	237,237
Individuals	1,671	1,555	1,555	1,917	1,860	1,860	1,846	1,600	1,600

Note: *** p<0.001, ** p<0.01, * p<0.05