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Stability and mobility in occupational career patterns over 36 years in Swiss women and men

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It is an open empirical question whether occupational trajectories are better described as linear or non-linear. We analysed occupational career patterns (OCPs) over a period of 36 years using longitudinal data from a representative sample of men and women of the German-speaking part of Switzerland. The participants were mostly born in 1963; the data collection spans from 1978 until 2015. For 584 persons, information about the occupational development from age 16 to 52 years was available. Each year's activity was categorized using the 'International Standard Classification of Occupations'. We conducted sequence analysis (optimal matching analysis) to find clusters and ANOVAs to compare group differences. The results showed six plausible and differentiated OCPs for both genders which support linear career models. For women, OCPs were generally stable. In contrast, men showed more change and upward mobility in OCPs. These patterns were influenced by indicators collected

from participants when they were age 15, such as the family's socio-economic status, the individual's performance on intelligence measures, and attitudes toward gender equality. Furthermore, we found several consequences of OCPs at age 52 on objective indicators of career success (status, income) and subjective indicators (work perception, life satisfaction, and health status).

Key words:

career patterns, sequence analysis, career success, panel study, gender, Switzerland

Key messages

We studied career development over a period of 36 years (from adolescence to midlife) in Switzerland

Six plausible occupational career patterns supporting a linear model were found for both genders

In women's career patterns, considerable stability can be observed, while men show more upward mobility

Patterns with upward mobility are related to objective and subjective career success

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Data availability:

The authors take responsibility for the integrity of the data and the accuracy of the analysis. Unfortunately, for the moment the data is not available to other researchers.

Conflict of interest statement:

The authors declare that there is no conflict of interest.

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Introduction

Individuals increasingly change jobs and occupations several times during their lifetimes (OECD, 2018; Sheldon, 2005). However, it is an open empirical question as to whether occupational trajectories are better described as linear or non-linear (Inkson, 2015). Traditionally, careers were defined in terms of an individual's relationship to an employing organization (Nagy, Froidevaux, & Hirschi, 2019; Sullivan, 1999; Sullivan & Baruch, 2009). Linear careers occurred within the context of stable organizational structures, with individuals progressing up the firm's hierarchy to obtain greater extrinsic rewards (Levinson, 1986; Super, 1957). These traditional linear career models, popularized during the 1950s and 1960s, were supported by economic and workplace environments characterised by an exchange of worker loyalty for the firm's implicit promise of job security.

Environmental changes, such as increased globalization, rapid technological advancements, increased workforce diversity, and changing family structures have altered traditional organizational structures, employer-employee relationships, and the work context, creating changes in how individuals manage their careers (Sullivan & Baruch, 2009). Consequently, in the 1990s new career concepts emerged, namely protean and boundaryless careers (Arthur, 1994; Hall, 1996, 2004), which emphasized personal responsibility for career management and adaptability to pursue non-linear trajectories in different organizations (Sullivan & Baruch, 2009). Sociologists applied concepts such as de-standardization or fragmentation to non-linear career paths (Beck, 1992; Sennett, 1998).

Even though boundaryless or non-standardized careers are important conceptual innovations that stimulated much research, they are not without criticism (Guest & Rodrigues, 2014; Inkson, 2015). Some authors argue that the career debate and related research are somewhat elitist in their focus on managerial and professional careers, while ignoring other types of careers, including many of those done by women (Guest & Rodrigues, 2014;

Sullivan & Baruch, 2009). Therefore, the cultural context should be incorporated in career studies, such as, age of making a vocational choice, types of welfare regimes, gender norms, and work-home policies (Khapova, Vinkenburg, & Arnold, 2009; Schein, 1984).

Since neither the traditional nor new career concepts adequately describe occupational trajectories in a broad and generalizable way, the quest for an integrative theoretical framework remains (Dany, 2014; Guest & Rodrigues, 2014; Sullivan & Baruch, 2009). One early integrative approach was presented by Super in which he conceptualized people as actively engaging in developing their career over the lifespan while encompassing occupational as well as other life spheres or roles (Super, 1957, 1980, 1984). He defines occupational careers as 'the sequence or combination of occupational positions held during the course of a lifetime' (Super, 1980, p. 286). These sequences can then be analysed and compared in search of occupational career patterns (OCPs) (Savickas, 2002; Super, 1980). However, Super's approach did not specify the cognitive and behavioural processes through which people self-direct their careers (Hirschi et al., 2020, p. 3). Thus, Hirschi and colleagues have presented a theoretical framework that focuses on self-management across lifespan and takes work and nonwork roles into account (Hirschi, Zacher, & Shockley, 2020). The framework considers the influence of contextual and personal factors in career self-management and career behaviour and specifies how these processes lead to career satisfaction and well-being.

On the empirical side, linear and non-linear careers and the boundary crossings in employment relationships are complex phenomena, best understood by examining a wide variety of variables using multi-method, longitudinal research designs. Yet most research on non-traditional, non-linear careers has been focused on single-points in time rather than over longer periods (Sullivan & Baruch, 2009). In addition, often career attitudes rather than actual behaviour are studied (Guest & Rodrigues, 2014).

The overall *objective of the present longitudinal study* is to increase knowledge of occupational career development in one specific cultural context, Switzerland. Switzerland has had a prosperous economy and a stable political system for many decades (OECD, 2018).

Compared to a liberal or social democratic welfare regime, the Swiss socio-political system could be described as a conservative corporatist regime (such as those in Germany or the Netherlands), where rights attached to class and status are often maintained and the state is the principal welfare provider (Khapova et al., 2009). Two thirds of Swiss youths begin an apprenticeship at age 16 or 17, implicating an early career choice. The apprenticeship system is well regulated, is closely connected to the labour market, and offers career opportunities through continued tertiary education (Hoeckel, Field, & Grubb, 2009; SSCRE, 2018). This study concerns a representative cohort of the late 'baby boom generation' (born in 1963) in the context of globalization, the shift from an industrial to a service-based economy, and accelerated technological development (Ghetta, Hirschi, Herrmann, & Rossier, 2018; Sheldon, 2005). The collection of personal and occupational data on longitudinal study participants began just prior to apprenticeship entry (age 15 in 1978), and continued until middle adulthood (age 52 in 2015). The study's first main goal is, therefore, to identify and describe OCPs as they developed over 36 years. We focus on occupational categories, whereas most other studies rely on employment or organizational categories.

Secondly, we expect marked gender differences in career patterns. Compared to other countries, political and legal gender equality was realised rather late in Switzerland (Bundesamt für Statistik, 2017). Today, women have similar rates of employment as men (albeit mostly part-time) and attain higher educational degrees, but traditional gender roles at home and at the workplace prevail (Bundesamt für Statistik, 2017; Ghetta et al., 2018).

Thirdly, we investigate potential antecedents of OCPs or contextual and personal factors, such as family background, personality dimensions, intelligence, and gender role expectations (Hirschi et al., 2020). Finally, this study intends to shed more light on the potential consequences of occupational career development such as career success and life satisfaction.

Occupational Career Patterns (OCPs)

Occupational careers can be grouped into patterns in many different ways, using different criteria (Huang & Sverke, 2007). Within the work role, the dimension of *stability versus mobility*

can be observed with respect to *organization* (same or different, such as in the boundaryless career) and *occupation* (same, similar, or different occupation or occupational field). In addition, mobility has a *direction* of either vertical (moving up or down) or horizontal (lateral or same-level) movement (Huang & Sverke, 2007).

Career patterns were first described on the basis of specific career theories (Holland, 1997; Super, 1984) in US-American (Jepsen & Choudhuri, 2001) and Swiss studies (Schellenberg, Krauss, Hättich, & Häfeli, 2016). Theoretically-based assumptions are, however, limited in their power to explain longer and more complex occupational careers. In recent decades, the field of career research has gained new methodological tools for capturing the dynamics of long-term career research. Using sequence analysis (SA), also known as optimal matching analysis, it is possible to analyse occupational and other sequences (e.g., criminal careers, family phases) over extended periods to identify patterns. In SA, the sequence of positions or states of one individual is compared with that of all other individuals to detect differences. Similar sequences are grouped into patterns (Abbott & Tsay, 2000; Aisenbrey & Fasang, 2010).

Dlouhy and Biemann (2015) reviewed more than 30 articles on OCPs and made methodological recommendations. In most studies, sequences and patterns of different activities or roles (education, employment, unemployment, family) and their extent (e.g., full-time, part-time etc.) were analysed using SA. Especially in the European context, several studies showed a remarkable stability in career trajectories (Ojala, Pyöriä, & Riekhoff, 2020; Stawarz, 2018). In a study of the employment trajectories on men and women from age 15 to 45 born between 1918 and 1963, there was relatively little change throughout birth cohorts compared to that of 14 European countries (Van Winkle & Fasang, 2017). In other studies, OCPs were identified and related to antecedents (predictors) or consequences (outcomes).

Many of these studies derive from the disciplines of sociology and economics. Only a few studies rely on career psychology and investigate *occupational* careers in Super's (1980) sense. One Swedish study used occupational categories based on the ISCO - International Standard Classification of Occupations (International Labour Office, 2012), supplemented

with non-occupational activities (Huang & Sverke, 2007). The authors investigated a sample of women between 16 and 43 years and found four main OCPs (upward, stable, downward, fluctuation), which could be further subdivided into a total of ten patterns (with different ISCO occupational categories).

In this study, we also focus on sequences of occupational positions using the ISCO, which has *vertical* (discrete skill levels) and *horizontal dimensions* (different occupational categories at the same level). The ISCO classification system offers the possibility of distinguishing between stability (staying in the same ISCO category) and mobility, with lateral mobility (i.e., change from one ISCO category to another at the same skill level) or upward/downward mobility (i.e., change from one ISCO category to another at a higher/lower skill level). In the Swiss context, we expect both stability patterns (because of the stable political context and strong economy over many years) and mobility patterns (considering globalization and the shift from an industrial to a service-based economy). It is unclear whether we can expect a pattern of downward mobility or not, because of Switzerland's largely prosperous economy and low unemployment over the last decades.

> *Hypothesis 1: There are several different OCPs based on ISCO categories, some of them characterised by stability and others by either upward or lateral mobility. It is speculative whether we can find a pattern of downward mobility or not.*

Several studies found different OCPs for men and women (Anyadike-Danes & McVicar, 2005, 2010; Biemann, Zacher, & Feldman, 2012; Schoon, Ross, & Martin, 2009). The prevalence of traditional gender roles in many countries results in a division of labour and gender-specific lifestyles. This is specifically the case in Switzerland, where early career choice at the age of 14—15 — in a phase of gender identity formation — reinforces traditional gender role concepts (Basler, Kriesi, & Imdorf, 2020; Häfeli, 1983). Low public funding of institutional childcare and irregular school timetables also contribute to the fact that housework and childcare are to a large degree still 'women's work' (Bundesamt für Statistik, 2017). Mothers mostly work part-time, which leads to a negative impact on their occupational careers, sometimes referred to as a 'motherhood penalty' (Buchmann, Kriesi, Pfeifer, & Sachhi,

2002; Fahlén, 2016; Kahn, García-Manglano, & Bianchi, 2014). In addition to this vertical segregation, horizontal segregation, characterised by men and women working in different occupations and fields, is still prevalent in many Western societies, especially in Switzerland (Charles, 2005; Charles & Bradley, 2009; Leemann & Keck, 2005). Most women are working in the service sector, so, the shift from an industrial- to a service-based economy during the last decades should affect men more than women.

Hypothesis 2: Considering the prevalence of traditional gender roles in Switzerland, OCPs are different for men and women. For men, we expect several patterns of lateral and upward mobility. For women, we expect several patterns of stability and fewer patterns of upward mobility because of interrupted or part-time occupational trajectories.

Predictors of OCPs

The 'whole-life career self-management' framework considers the influence of contextual and personal factors in action regulation, career self-management and career behaviour (Hirschi et al., 2020). These factors can be classified as resources (family support, cognitive abilities, self-esteem etc.), barriers (discrimination, anxiety etc.), and role expectations (cultural roles, nonwork orientations etc.). There is lack of empirical evidence on many predictors to explain the differences among OCPs. Therefore, we rely on findings of the predictors of career success, concerned with the vertical dimension of OCP.

There is one area of research, family background, where influences on OCPs are well-documented. The British Cohort Studies demonstrate how social origin is related to OCPs (Anyadike-Danes & McVicar, 2005, 2010; Ross, Schoon, Martin, & Sacker, 2009). Similar results are found in Swedish (Huang & Sverke, 2007) and Swiss studies on teachers' OCPs (Gubler, Biemann, & Herzog, 2017). Only a few studies reported no relationship between family backgrounds and the OCPs of their children (Jepsen & Choudhuri, 2001).

Surprisingly, the influence of intellectual abilities on OCPs has rarely been addressed. Only in the British Cohort Studies, a relationship between verbal and perceptive abilities (at age five) and upward OCP is found (Schoon et al., 2009). There is additional evidence from studies on career success, however, showing an influence of intelligence measured in

childhood on later, occupational status or salary (Andersson, Lovén, & Bergman, 2014; Cheng & Furnham, 2012; Deary et al., 2005; Schoon, 2010).

Research on career success repeatedly demonstrates the predictive role of the Big Five personality traits, especially conscientiousness, and to a lesser extent extraversion and emotional stability, for objective success indicators, such as status or income (Ng, Eby, Sorensen, & Feldman, 2005; Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007). However, we found no studies that reported the influence of personality dimensions on OCPs.

In view of the large gender differences ascertained in career research, we can also hypothesize that egalitarian attitudes regarding gender roles, especially among women, may positively influence occupational careers (Corrigall & Konrad, 2007).

Hypothesis 3: Partial explanations of OCPs are: a) Parents' high socioeconomic status is related to upward mobility patterns. b) High intelligence and the personality trait conscientiousness are related to upward mobility patterns. c) Egalitarian gender role attitudes are related to upward mobility patterns of women.

Outcomes and Consequences of OCPs

As for professional outcomes, we can distinguish between objective and subjective career success (Ng et al., 2005; Ng & Feldman, 2010, 2014). Indicators of objective career success include income, upward mobility, or status (Kovalenko & Mortelmans, 2014). In Swedish and Swiss studies, higher income and occupational status were related to an upward mobility pattern compared to other patterns (Huang, El-Khouri, Johansson, Lindroth, & Sverke, 2007; Schellenberg et al., 2016).

Subjective career success is usually defined as work/career satisfaction or work motivation. The self-management framework with a lifespan perspective proposes that career and nonwork goal attainment predict well-being in terms of career satisfaction, work-life balance, and psychological well-being (Hirschi et al. 2020). A study in 13 European countries found higher satisfaction in 'traditional' (long period in a single organization) and 'transitional' (many transitions) OCPs compared to men with an unemployment OCPs and women with an interrupted career pattern (Kovalenko & Mortelmans, 2014). In a Swedish study, Huang and

Sverke (2007) found ‘entrepreneurs’ and ‘professionals’ showed higher intrinsic work satisfaction and a more positive perception of their work (e.g., more autonomy) than women with ‘low level’ OCPs. In a Swiss study, similar differences regarding work perception were observed (Schellenberg et al., 2016).

Research demonstrates the effect of working conditions on one’s health. Swedish women in low-qualified jobs showed more problematic values on some scales (e.g., higher mental distress) than women with an upward career pattern (Huang et al., 2007; Johansson, Huang, & Lindfors, 2007). Multiple studies have reported how adverse working conditions contribute to health problems and increase the risk of a disability pension (Ravesteijn, van Kippersluis, & van Doorslaer, 2013; Stattin & Järvholm, 2005).

Whether OCPs affect life satisfaction (or general well-being) remains unclear. In a Swedish study, only small differences were found (Johansson et al., 2007). In a study across three countries (Estonia, Finland, Great Britain), influences of professional career and different family forms on life satisfaction were shown (Schoon, Hansson, & Salmela-Aro, 2005).

Hypothesis 4: We suppose that OCPs are related to different outcomes in the professional sphere: a) Upward mobility OCPs are related to objective career success, such as high occupational status and income. b) Upward mobility OCPs are related to subjective career success (positive work perception). c) Negative working conditions in different OCPs are related to a low health status. d) We do not expect a relation between OCPs and general life satisfaction.

Method

Database and Study Participants

We used the Zurich Longitudinal Study database ‘From School to Middle Adulthood’ (ZLSE). This database covers the age span from 15 to 52 years in eleven waves of data collection, and encompasses various areas of occupational and personal development (Hättich, Krauss, Häfeli, & Schellenberg, 2017; Schallberger & Spiess Huldi, 2001; Schmaeh, Häfeli, Schellenberg, & Hättich, 2015). The first data wave was collected in 1978 with the aim of representing ninth grade students (in their last mandatory school year) in the German-speaking

part of Switzerland. Ninth grade classes were selected at random from regions with differing labour markets; 92 classes with a total of 1706 students participated. The students took tests and answered questionnaires that focused on vocational choices during one full school-day. Educational and occupational as well as personal development was surveyed in subsequent waves (more frequently until age 22, then again at 36, 49 and 52).

The eleventh and most recent postal survey took place in 2015. All participants from the previous wave in 2012 were contacted. In addition, all those who had participated in 1982 at age 18 (B5) were contacted (n=1284). This was the earliest data collection from which complete addresses were available; unfortunately, a substantial part of the addresses from the first wave B1 turned out to be incomplete. Given a response rate of 72% (of the surviving participants with addresses), we obtained information from 807 individuals; a complete occupational history was available for 584 participants. Participants responding to the 2015 survey (with complete occupational history) were representative of the sample from the first wave in 1978 (a cohort born in 1963) with respect to various socio-demographic variables such as gender, region and socio-economic background. A significant difference (binomial test: $p<.001$), however, was apparent regarding the school type of class (ISCED 2) completed by the age of 15 (basic vs. advanced requirement profile) (Bundesamt für Statistik, 1993): A class with advanced requirements was completed by 53.5% of the sample from 2015 vs. 46.7% of the original sample. Hence, there was a slight overrepresentation of better educated groups at age 52.

The average participant age at the time of the last survey was 52.2 years (SD=0.5, age range 51.1 to 54.6 years). Of the 584 participants, 304 (52.1%) were female. Regarding parental socioeconomic background (at age 15, see below for formation of the variable), 22.5% came from the lower class, 22.3% from the lower middle class, 19.8% from the middle class, 25.4% from the upper middle class, and 10.0% from the upper class.

Instruments

Occupational history. To study career patterns, participants' occupational activities between the ages of 16 and 52 were surveyed in as much detail as possible. The trajectories

were collected retrospectively at different waves in the form of a lifeline, or for shorter periods in the form of a table. The participants wrote down occupational or other important activities (e.g., education, family, unemployment) on a timeline indicating the beginning and the end of the activity (Hättich et al., 2017). For 584 persons, complete monthly information about their occupational development was available. The working activities for each period were coded using the International Standard Classification of Occupations, ISCO-08 (International Labour Office, 2012). The four-digit-coded occupations were grouped into nine major ISCO categories: (1) managers; (2) professionals; (3) technicians and associate professionals; (4) clerical support workers; (5) service and sales workers; (6) skilled agricultural, forestry, and fishery workers; (7) craft and related trade workers; (8) plant and machine operators and assemblers; and (9) elementary occupations. The ISCO categories differ in their skill levels based on the educational levels (i.e., very high level: categories 1—2; high: category 3; medium: categories 4—8; low: category 9); subsequently, changes in skill levels can be interpreted as upward or downward mobility. The nine ISCO categories were supplemented with four additional categories: (10) family (parental leave, housework), (11) unemployment or sickness, (12) education (full-time school, apprenticeship), and (13) other activities (travelling, military service, voluntary work etc.).

The following variables (predictors and outcomes of OCPs) are outlined with some statistics in Table 1, and in detail below.

TABLE 1 HERE

Parental socioeconomic status. The status at the age of 15 was operationalized through a five-stage indicator, combining the highest educational level and the occupational position of the father (or single mother). The categories ranged from 1 = lower class to 5 = upper class.

Intelligence. At the age of 15, verbal intelligence, logical thinking, and figural intelligence were measured with widely used intelligence tests of that period – *Intelligenz-Struktur-Test (IST-70; Intelligence Structure Test)* and *Berufseignungstest (BET; Vocational Aptitudes*

Test) (Amthauer, 1970; Schmale & Schmidtke, 1967). For each subtest z-scores were calculated and then added to a total score.

Personality trait. To assess 'conscientiousness' and other Big Five personality traits at the age of 15, participants completed a short version of 155 adjectives of the Adjective Check List (ACL) (Gendre & Ogay, 1973; Gough & Heilbrun, 1980). The conscientiousness scale consisted of 11 items (e.g., realistic, conscientious, responsible, diligent).

Gender role attitudes. This instrument covered different attitudes at the age of 15 regarding men's and women's traditional and non-traditional roles in society, especially in the occupational sphere (Häfeli, 1983). The measure consisted of 20 items (e.g., 'A girl should be encouraged to choose a technical occupation') to be rated with a 5-point Likert scale (1 = I strongly disagree to 5 = I strongly agree); a higher score indicated a more egalitarian attitude toward gender roles.

Occupational status at 52 (ISEI08). The ISCO-08-based occupational activities at age 52 were transformed into occupational status using the International Socio-Economic Index of Occupational Status (ISEI08) ranging from 11 (farmer) to 89 (judge) (Ganzeboom & Treiman, 1996).

Income. The gross yearly salary indicated at the age of 52 was adjusted according to 100% work activity.

Perception of work. At the age of 52, a modified version of the *Job Diagnostic Survey* (Hackman & Oldham, 1975) was used to measure perceptions of work motivation and satisfaction. It consists of four subscales (with a total of 12 items): skill variety, autonomy, task identity, potential to learn (e.g., 'My job is very challenging'). The response format ranged from 1 = never to 5 = always.

Satisfaction with life. This dimension was surveyed with the *Satisfaction with Life Scale* (Diener, Emmons, Larsen, & Griffin, 1985; Schumacher, 2003). It contains five items (e.g., 'The conditions of my life are excellent') rated on a 7-point Likert scale (from 1 = strongly disagree to 7 = strongly agree).

Self-reported health status. Based on the *Swiss Health Survey 2012* (Bundesamt für Statistik, 2013) we asked respondents at the age of 52: 'How is your health in general?' The 5-point response-format ranged from 'very good' (5) to 'very bad' (1).

Analyses

For analyses, we considered the activities at 6-month intervals between the ages of 16 to 52, resulting in sequences of 73 in length. The search for OCPs was done using the traditional SA method, i.e., cluster analysis based on optimal matching (OM) distances (Abbott & Tsay, 2000). The OM distance between two sequences is defined as the cost of transforming one sequence into the other by means of insertion, deletion, or substitution. In our study, we assigned a cost of 1 to *indel* (insert or delete) and a cost of 2 to substitution operations. Other cost setting procedures such as estimating the costs from the inverse of the observed state frequencies (Studer & Ritschard, 2016) produced very similar results. The analyses were done using the TraMineR (Gabadinho, Ritschard, Müller, & Studer, 2011) and WeightedCluster (Studer, 2013) R packages.

Separate analyses were calculated for men and women. For women, a six-cluster solution (ASW = 0.36), and for men an eight-cluster solution (ASW = 0.43) was optimal. However, to better compare men and women, a six-cluster solution for men was chosen which was also very reasonable (ASW = 0.37). To compare the differences in covariate values between the six clusters, ANOVAs (univariate F-Tests) were computed, followed by post-hoc comparisons to further analyse significant group differences.

Results

OCPs of Women and Men

We set out to detect which OCPs could be found in our longitudinal data (hypothesis 1) and whether there are differences between women and men (hypothesis 2). Figures 1 and 2 show the aggregate chronograms for women and men, respectively, depicting the trajectories of professional and other life activities over 36 years for all participants. The x-axis represents age, starting at 16 and ending at 52. For each half-year, the percentage of individuals

working in a particular activity can be read from the y-axis. The six clusters found for women (Figure 1) and men (Figure 2) each represent plausible OCPs.

Women's OCPs. Four of the six OCPs for women (Figure 1) are characterised by considerable continuity in one of the main ISCO categories (represented by one specific colour), even though in all of these 'stable' patterns, a shorter or longer family phase is observed (purple colour). This family phase is dominant in one OCP and therefore named 'family pattern'. Additionally, one trajectory clearly shows upward mobility.

FIGURE 1 HERE

Upwardly mobile (managers). This heterogeneous and relatively small group of women (7%) started their trajectory with an apprenticeship mostly in an associate profession. Two thirds continued their education, mostly at the tertiary level and often part-time. Starting at the age of 30-35, these women increasingly assumed leadership positions in the health, administrative, or service/sales sectors.

In four patterns, the ISCO category remained essentially the same over the 36-year period. However, these categories differed in their level of professional skill: One was at the very high level (professionals), one at the high level (associate professionals), and two were at the medium level (clerical support, and sales/services).

Stable I (professionals). This group, comprised of 14% of participating women, had the highest educational level: teachers or social workers as well as some university graduates. These women showed much continuity in their employment, with only brief interruptions in their professional careers. Some continued their education and specialized in various fields.

Stable II (associate professionals). This OCP was by far the most prevalent trajectory (33% of participating women). Most started their career in a demanding associate profession (e.g. commercial employee or in the health sector) and stayed there. About one fourth, however, entered a less demanding apprenticeship, but later moved into a more demanding occupation.

Stable III (services and sales). This group, constituting 20% of all women, included many retail employees, as well as hairdressers, waitresses, child care workers, and other sales and service occupations. The phase of staying at home with children was very pronounced in this group, yet less than in the family pattern.

Stable IV (clerical support). This small group of women (7%) mostly apprenticed and worked as office clerks, or clerks with the post office or railway company.

***Family*.** One in five women was described as a traditional homemaker because she interrupted her occupational activity for an extended period (an average span of 14.2 years). Before and after the family phase, this group was employed in a wide range of occupations. Many women returned to their previous occupation after the family phase, but not all of them succeeded (see the growing number in the categories 'elementary occupations' and 'unemployment or sickness').

Men's OCPs. While the predominant patterns for women were stable, the predominant OCPs for men were characterised by change. Three patterns displayed upward mobility, which means a change of the ISCO category in skill level from medium to high/very high or from high to very high. One pattern indicated horizontal (or lateral) change, i.e., a change of occupational category at the same skill level. Only two of the six patterns showed considerable continuity (see Figure 2).

FIGURE 2 HERE

Upwardly mobile I (managers). More than one fourth (28%) of the male sample showed this pattern. Obviously, leadership positions are not obtained at the beginning of a career. Almost all men in this managers group started with an apprenticeship, many in a demanding occupation such as commercial employee, or mechanic. Almost three quarters continued their education between the ages of 20 and 30 years at the tertiary level (some part-time). This continued education led to various managerial positions.

Upwardly mobile II (professionals). In contrast to the rather homogeneous female professional group, the male professional group (20%) was more heterogeneous and included engineers, architects, IT professionals, medical doctors, and teachers. Only 20%

moved directly from gymnasium (upper secondary education in Switzerland) to university. The others often started with a demanding apprenticeship. Subsequently, most studied at a university of applied sciences and afterwards worked as experts in their profession or in managerial positions.

Upwardly mobile III (associate professionals). The second largest group of participating men (23%) started their careers in crafts, trades, or technical occupations. Half of them continued with a second training, often at the tertiary level (e.g., technician) or in a second apprenticeship. About one quarter already entered a demanding apprenticeship as associate professionals or technicians.

Horizontally mobile (drivers). In this small OCP (6% of participating men), there were train, truck, tram, and bus drivers (falling within the ISCO category 'Plant/machine operators'). Because the minimum age for driving is 18, these occupations required an apprenticeship in another occupation first. This OCP also included some men with longer work sequences in agriculture or service industries.

Stable I (clerical support). This small group (6% of participating men) mostly apprenticed as office clerks, postal clerks, railway company personnel, or in logistics. At the age of 52, many still worked in their original occupations, some as supervisors. A few men in this OCP changed their occupation, were sick, or were unemployed.

Stable II (crafts and related trades). The category 'crafts and related trades' was by far the most popular for men early in their careers. However, as shown in Figure 2, most left their original occupation and specialized, obtained additional qualifications, and moved up; only 17% of participating men stayed in this category (about one third of the original group). In this pattern, the majority continued to work in their occupation, although some changed to sales or agriculture, and others took on supervisory roles.

Predictors of OCPs

To address hypothesis 3, we considered whether there were indicators from adolescence that could predict and differentiate the patterns. Family background, operationalized as parental socioeconomic status at age 15, distinguished some OCPs among men but not among

women. Specifically, the group of upwardly mobile professional men showed a higher socio-economic background than most other groups (see Table 2).

TABLE 2 HERE

Intelligence may be another predictor for upward mobility patterns. This was true for one pattern; for both men and women, performance on intelligence tests was significantly higher in the pattern of professionals as compared to most other groups with lower skill levels. Furthermore, personality traits, such as conscientiousness, could be influential. However, only small differences were found among the OCPs in the female sample (significant overall differences), but no post-hoc group comparison reached statistical significance (see Table 2).

Finally, we expected gender role attitudes in adolescence to predict different career patterns of women. Indeed, the stable career patterns of female professionals and of associate professionals showed more egalitarian gender role attitudes in adolescence than the stable sales/services pattern. Interestingly, similar differences were also found among men.

Consequences of OCPs

In a second step (hypothesis 4) we examined possible relations between OCPs and different objective and subjective indicators from professional and private spheres at age 52 (see Table 3). Results showed considerable differences between OCPs for both genders for objective indicators of career success, such as occupational status and income. The upwardly mobile men and stable women OCPs of professionals and managers as well as associate professionals, had higher occupational status than other groups. Unsurprisingly, this was also true for income (standardized to 100% work activity) in that managers, professionals, and, to a lesser extent, associate professionals, had higher incomes than most other groups. The salary of the highest group (upwardly mobile managers) was almost twice that of the lowest income group. Since many women were working part-time (79% vs. 14% of men), we did the same analysis but included the additional variable part-/full-time work; the results were nearly identical.

A similar pattern to status and salary was found when looking at the perception of work. The groups of managers and professionals reported a more positive perception of work than other OCPs (stable clerical support and family pattern for women; horizontally mobile drivers and stable clerical support OCP for men). For men, the stable OCP of crafts and trades was also related with a positive perception of work.

TABLE 3 HERE

When examining other life spheres, such as general life satisfaction and self-reported health status, no differences between the OCPs were found – with one exception. The male group with a stable crafts and related trades' pattern was significantly less satisfied with their life than the upwardly mobile group of managers. This could be related to the extent of health problems, as men in the stable crafts and related trade group reported lower health status than upwardly mobile men in the group of managers. Almost 50% of the men in the stable OCP crafts and related trades suffered from long-term illnesses or disabilities (compared to 21% in managerial positions and 22% of clerical workers). When asked to specify, respondents mostly mentioned disorders of the musculoskeletal system, such as rheumatism, arthritis, or osteoporosis.

Discussion

Do our longitudinal data support traditional views of linear career development, such as Super's life span model, or modern, more dynamic non-linear careers views? In the context of the stable Swiss political system, a strong economy and still largely traditional gender roles, the answer to this question seems ambiguous. For about half of the sample (especially women), stability and linearity were confirmed because these groups worked in the same or similar occupations for more than 30 years. These results are consistent with patterns of stability found in other European contexts (Ojala et al., 2020; Van Winkle & Fasang, 2017). Super (1957, 1984) called this career process establishing and maintaining one's occupation and position. For the other half (especially men), we found change and mobility in that this group changed their occupation or occupational group at least once during their career (see also Sheldon, 2005). However, many of these changes were not arbitrary but followed a

logical, continuous career path in the direction of specialization or upward mobility in the same field, thus supporting a linear model (Guest & Rodrigues, 2014). We observed this establishment by first settling into an occupation and then, around age 25 to 35, advancing in the same field (Super, 1957, 1984).In our sample this was often enhanced by additional education and training. This is especially the case for crafts and other trade workers who have had to adapt to technological and economic changes during the last decades. Apparently, the *dual apprenticeship system* in Switzerland with a well-developed, permeable continuing education system and its close relationship to the labour market prepared young people well for life-long careers.

Thus, *hypothesis 1*, which suggested several plausible OCPs would be discovered, was supported. These OCPs were new in that they showed both vertical and horizontal dimensions; they were more differentiated than patterns based only on type of activities (e.g., employment, unemployment, family, education) used in most studies (Dlouhy & Biemann, 2015). The patterns were usually dominated by one of the ISCO main categories (stable patterns) or by the change from one category to another at a higher skill level (upwardly mobile patterns); these enhanced patterns are similar to the ones in a Swedish study (Huang & Sverke, 2007). In contrast to other studies, no patterns of 'downward mobility' or 'unemployment' were found, perhaps because of the prosperous economy and low unemployment rates in Switzerland (4% in the 40—54 years group) in recent decades (OECD, 2018). Additionally, in our sample, at the age of 52 only 2.7% were not in the labour market due to unemployment or illness; and less than 2% were employed in elementary occupations (at a low skill level). These few cases did not form a separate pattern, but were distributed across different OCPs.

Hypothesis 2 concerning gender differences was also confirmed. The Swiss education system with early vocational choices contributed to distinct gender differences— such as service occupations for females and crafts and technical occupations for males— which persisted in later career phases (Bundesamt für Statistik, 2017; Ghetta et al., 2018). These results were consistent with those from other studies (Anyadike-Danes & McVicar, 2005, 2010;

Schoon et al., 2009; Widmer & Ritschard, 2009). That is, the OCPs of many women were characterised by the challenge of finding balance between family and occupation, which often resulted in part-time employment and renouncing leadership positions. As per the conception of life-space, most women were committed to the two roles of paid worker and homemaker (Hirschi et al., 2020; Super, 1980). Similar to the results of other studies (Buchmann et al., 2002; Schoon et al., 2009), only a minority of all women were clearly family- or career-oriented. In contrast, the trajectories of men were dominated by the role of paid worker which meant 100% employment and, for more than two thirds, upward mobility. Thus, in the Swiss context, we find an even larger degree of horizontal and vertical gender segregation than in many other countries (Bundesamt für Statistik, 2017; Charles, 2005; Charles & Bradley, 2009).

When *different OCPs* were compared to test *hypothesis 3* (i.e., predictors from adolescence) and *hypothesis 4* (i.e., consequences at age 52) we found that the upwardly mobile patterns or the ones with high skill levels (professionals, associate professionals) showed more favourable conditions in adolescence and better outcomes in midlife than stable patterns or patterns requiring lower skill levels. This is consistent with previous research on OCPs (Dlouhy & Biemann, 2015) and career success (Ng et al., 2005). The results can also be interpreted in terms of career self-management framework (Hirschi et al., 2020). Contextual and personal factors influence career action regulation and career behaviour (such as OCPs). Furthermore, outcomes, such as career and life satisfaction, depend on goal attainment. Professionals started with favourable family backgrounds and high cognitive abilities, which they converted first into school success and then into objective and subjective career success (e.g., Schoon et al., 2009; Ross et al., 2009). Together with the upwardly mobile managers, professionals had the highest status and income, and positive perceptions of their work at age 52.

However, there was an exception: A bit surprisingly, none of the measured antecedents from adolescence significantly differentiated the upwardly mobile group of managers

from other groups. It seems that only after some work experience did the managers develop professional ambitions and seized educational opportunities to advance professionally.

Also, for the personality trait of conscientiousness, there were no OCPs differences in the male sample, and for women, there were only small group differences. Hence, we could only partially replicate results from previous research on career success (Ng et al., 2005; Roberts et al., 2007). There might be methodological explanations for this, since we measured this personality trait at quite a young age (15), when personality traits are still developing (Borghuis et al., 2017); and we used an instrument (Adjective Check List) that solely focused on orderliness and not also on industriousness as in many other instruments (Gough & Heilbrun, 1980; Roberts, Lejuez, Krueger, Richards, & Hill, 2014).

In contrast to positive outcomes for some occupational patterns, the stable OCP of crafts and related trade workers was characterised by low salaries, low status, low life satisfaction, and low health status. The heavy and fatiguing physical labour over decades in many of these occupations could explain such health problems (Ervasti et al., 2019; Seidler, Bolm-Audorff, Abolmaali, & Elsner, 2008). At the same time, these physically demanding jobs seemed to be a source of pride and satisfaction, as the men with this pattern described their work very positively. This positive work perception seemingly helped them to stay in their occupations despite health problems and comparatively low salaries (Hirschi et al., 2020).

For women, fewer differences between OCPs were found, although two groups with extended family phases were notable. That is, the groups with the family pattern and the stable pattern of services and sales showed considerably worse working conditions with low status, low income, and less motivating work than most other groups. Even when taking into account their lower performance on intelligence measures at the start of their occupational career, there was a ‘motherhood penalty’ (Kahn et al., 2014; Kovalenko & Mortelmans, 2014). However, in other life spheres, such as general life satisfaction or subjective health status, no differences were detected. Based on the self-management framework, this could be explained by low expectations for work domain and highly valued nonwork roles (Hirschi et al., 2020).

Overall, clear outcome differences between OCPs were found in the professional sphere but not in other life spheres. Study participants seemed to adjust well to different life conditions and situations and generally reported a high level of overall life satisfaction. Apparently, for many people nonwork roles (family, leisure) are highly valued and sources of gratification (Hirschi et al., 2020). Thus, the principle of agency in life course research is confirmed, which underscores the active role of the individual in shaping his or her own life (Elder, 1998; Hirschi et al., 2020; Levy & Bühlmann, 2016; Schoon, 2007).

In general, our results coincide with research on career success and career mobility that usually considers single-points in time (Kalleberg & Mouw, 2018; Ng et al., 2005). But our longitudinal data with occupational trajectories based on ISCO with an added horizontal dimension gave more differentiated results than previous research. Hence, we found different OCPs for women and men. Additionally, we discovered an interesting combination of positive and negative work aspects in the 'crafts and related trades' pattern. Our results from a specific Swiss context also contribute to the diverse views on careers and underline the necessity of including the cultural and socio-economic context in career studies research (Khapova et al., 2009).

Study Limitations and Implications for Future Research

Several factors may limit the generalizability of our study results. First, the survey contained a specific cohort (born in 1963) in Switzerland. To complement these results, comparisons with younger cohorts are needed (McMunn et al., 2015). A second limitation concerns sample attrition and sample size. Although the sample of those aged 52 was comparable on most sociodemographic variables to the sample of those aged 15, there was a slight overrepresentation of better-educated individuals in the former sample. And, although the sample size was substantial (n=584), some of the OCPs groups were small, leading to low statistical power when smaller groups were compared. Third, career pattern categorization was carried out with the ISCO-08 classification using only the main occupational group, as did Huang and Sverke's study (2007). These categories can be overly broad and obscure differences within each category. However, closer inspection, using ISCO subcategories at the second,

third, and even fourth level, showed consistency at this level (e.g., consistently architects or electrical mechanics). Fourth, by focusing on clusters, we ignored discrepancies within the clusters. Our analysis implicitly assumed that all members of a cluster followed the same OCP, despite within-group variation. Finally, based on existing OCPs research, an exploratory approach was chosen, in which several predictors and consequences were related to OCPs. In a next step, univariate analyses should be complemented with multivariate analyses, which could provide further insights. Additionally, some of the propositions in the career self-management framework could be tested by including other dimensions that are closer to self-regulation (Hirschi et al., 2020).

Practical Implications

Several implications for different fields can be derived from our results. First, the *dual apprenticeship system* in Switzerland, with its flexibility and close connection to the labour market, prepares young people well for life-long careers. *Continuing education* and life-long learning appear to assist personnel in adapting to inevitable changes in the work place. Thus, continuing education should be promoted during the apprenticeship years in vocational schools and later by employers financially and through organizational provisions. Our data clearly show that high professional positions can be attained by starting as an apprentice and then pursuing further training (compared to an early academic track).

Also, *career counselling* plays a significant role in helping individuals both choose an appropriate occupation at an early age and make necessary adjustments at different career stages. For women and men, this counselling should encompass a life-space perspective (Super, 1980) to consider different roles, particularly those of worker and parent.

A special focus is necessary on groups with *health problems* developed from long-term physical or psychological stress. In our study, heavy and fatiguing labour over decades showed negative outcomes for the group of craft and related trade workers. This could possibly be prevented by reducing workloads or substituting work with other, less physically demanding tasks.

Finally, to combat the *shortage of skilled workers* in Switzerland and abroad, improved possibilities for combining family with a professional career are needed through subsidized childcare and the inclusion of men in family work. This could reduce the loss of qualifications women experience due to prolonged absence from the work force and facilitate their re-entry into skilled jobs. This would likely require continuing education before or during the family phase. Also, the low proportion of women in leadership positions could be increased by offering additional opportunities (e.g. part-time jobs, job-sharing) and mentoring programs.

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Table 1. Description of quantitative variables (predictors, age 15 and outcomes, age 52) by gender

Variable	Source	N of items	Cronbach's α	Women			Men		
				Sample size	Mean	Standard deviation	Sample size	Mean	Standard deviation
Parental SES, 15 y.	Häfeli 1983	2	-	288	2.75	1.30	263	2.82	1.34
Intelligence, 15 y. (sum of 3 subtests)	Amthauer 1970, Schmale and Schmidtke 1967	Verbal: 60 Logical: 20 Figural: 40	Verbal: .83 Logical: .89 Figural: .79	299	0.25	2.08	272	0.78	2.47
Conscientiousness, 15 y.	Gendre and Ogay 1973, Gough and Heilbrun 1980	11	.68	303	-.24	1.92	278	0.34	2.01
Gender role attitudes, 15 y.	Häfeli 1983	20	.84	293	3.58	0.50	269	3.23	0.45
ISEI-Status, 52 y.	Ganzeboom and Treiman 1996	1	-	278	48.90	18.75	268	55.81	18.13
Income (CHF), 52 y. (adjusted to 100%)	Bundesamt für Statistik 2013	1	-	224	77'407	30'587	235	118'976	71'300
Work perception, 52 y.	Hackman and Oldham 1975	12	.78	275	3.82	0.49	252	3.84	0.51
Life satisfaction, 52 y.	Diener et al. 1985	5	.88	284	4.51	0.97	256	4.33	0.98
Health status, 52 y.	Bundesamt für Statistik 2013	1	-	286	4.17	0.67	255	4.03	0.75

Table 2. Differences between Occupational Career Patterns by gender for selected predictors at age 15 (means, univariate F-Tests and post-hoc comparisons)

WOMEN	**Upward mobility managers (1)**	**Stable I professionals (2)**	**Stable II assoc. prof. (3)**	**Stable III services/ sales (4)**	**Stable IV clerical support (5)**	**Family (6)**	**ANOVA F**	**ANOVA η^2**	**Post-hoc comparison (groups 1-6)**
Parental SES	2.82	3.25	2.78	2.56	2.43	2.61	1.87	.032	
Intelligence	0.78	1.45	0.42	-.41	-.05	-.26	5.45***	.085	2 >4,6
Conscientiousness	-.56	0.12	-.10	-.43	-1.29	-.26	2.33*	.036	ns
Gender role attitudes	3.76	3.75	3.67	3.39	3.65	3.46	4.80***	.075	2,3>4
MEN	**Upward mobility I managers (1)**	**Upward mobility II professionals (2)**	**Upward mobility III ass. prof. (3)**	**Horizontal mobility drivers (4)**	**Stable I clerical support (5)**	**Stable II crafts + trades (6)**			
Parental SES	2.91	3.55	2.63	2.59	2.00	2.42	6.00***	.105	2>3,5,6
Intelligence	0.88	1.88	1.08	-.32	-.35	-.17	5.58***	.095	2>4,5,6
Conscientiousness	0.40	0.44	0.28	0.21	0.95	-.05	0.78	.013	
Gender role attitudes	3.23	3.42	3.16	3.01	3.22	3.20	3.18**	.056	2>3,4

Notes: Post-Hoc-Test (equal variances: Bonferroni post-hoc Tests, unequal variances: Dunnett-T3) .*p < .05, ** < .01, *** < .001

Table 3. Differences between Occupational Career Patterns by gender for selected outcomes at age 52 (means, univariate F-Tests and post-hoc comparisons)

WOMEN	**Upward mobility managers (1)**	**Stable I professionals (2)**	**Stable II assoc. prof. (3)**	**Stable III services/ sales (4)**	**Stable IV clerical support (5)**	**Family (6)**	**ANOVA F**	**ANOVA η^2**	**Post-hoc comparison (groups 1-6)**
ISEI-Status	59.42	69.10	56.98	32.70	46.76	33.83	58.13***	.517	1,2,3>4,5,6; 2>3; 5>4,6
Income (CHF) (adjusted to 100%)	103'409	98'030	82'056	56'940	76'007	59'341	16.08***	.269	1>3,4,5,6; 2,3>4,6
Work perception	4.06	4.07	3.83	3.74	3.57	3.67	5.85***	.097	1>5,6; 2>4,5,6
Life satisfaction	4.78	4.52	4.52	4.54	4.29	4.43	0.61	.011	
Health status	4.09	4.29	4.15	4.04	4.33	4.21	0.99	.017	
MEN	**Upward mobility I managers (1)**	**Upward mobility II professionals (2)**	**Upward mobility III ass. prof. (3)**	**Horizontal mobility drivers (4)**	**Stable I clerical support (5)**	**Stable II crafts + trades (6)**			
ISEI-Status	64.38	71.65	55.13	34.63	45.46	34.93	63.69***	.549	1,2>3,4,5,6; 2>1; 3>4,6
Income (CHF) (adjusted to 100%)	156'404	137'896	106'245	79'930	85'603	82'755	9.54***	.172	1>3,4,5,6; 2>4,5,6; 3>4,6
Work perception	3.96	3.92	3.83	3.41	3.45	3.89	6.05***	.109	1,2,6>4,5; 3>4
Life satisfaction	4.58	4.33	4.40	4.30	3.96	4.00	2.42*	.049	1>6
Health status	4.24	4.12	3.98	4.22	3.88	3.64	4.30**	.080	1>6

Notes: Post-Hoc-Test (equal variances: Bonferroni post-hoc Tests, unequal variances: Dunnett-T3) .*p < .05, ** < .01, *** < .001

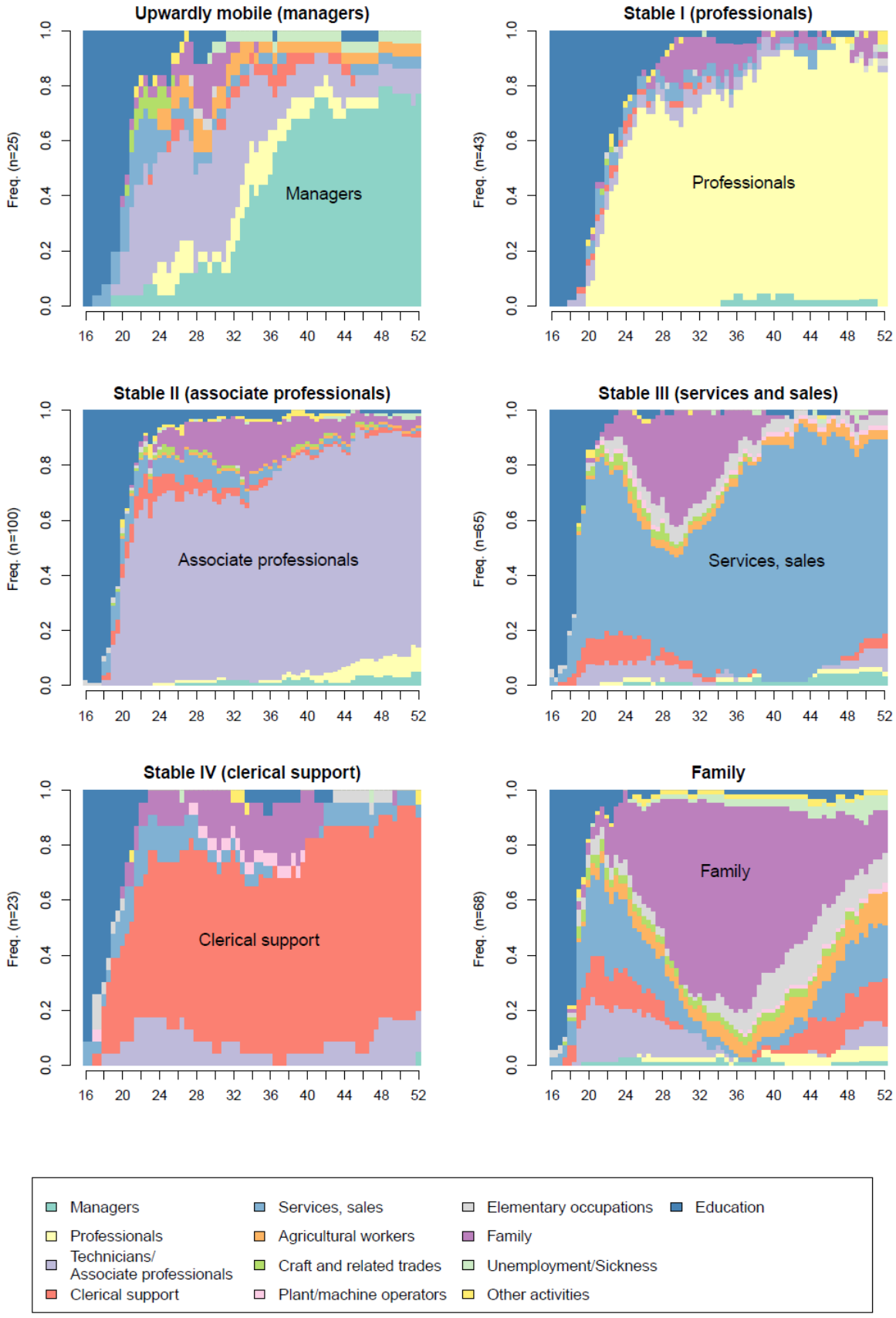

Figure 1. Occupational Career Patterns of women (horizontal line: ages 16-52 years, vertical line: frequency)

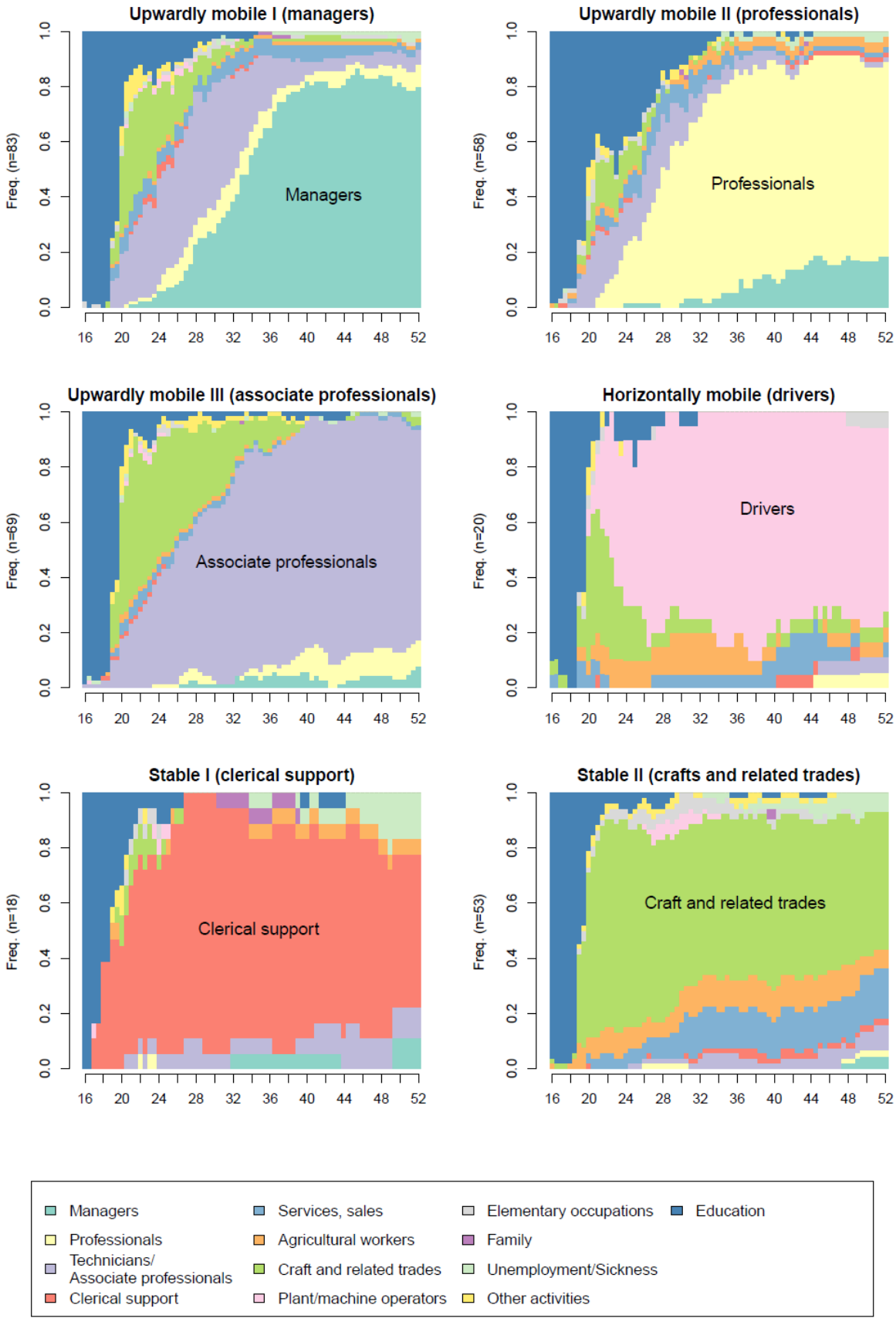

Figure 2. Occupational Career Patterns of men (horizontal line: ages 16-52 years, vertical line: frequency)