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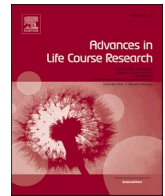
Employment trajectories until midlife associate with early social role investments and current work-related well-being

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ABSTRACT

Applying social investment theory (SIT), we examined whether employment trajectories until midlife, with differential investments in education and employment, are associated with social investments during early life and with work-related well-being in midlife, with a special reference to potential differences between self-employment and paid work. In the Northern Finland Birth Cohort 1966 (n = 6496; 2963 men, 3533 women), life-history calendars from age 16–45 were used to determine the respondents' yearly employment statuses (student, full-time employee, part-time employee, self-employed, unemployed, on parental leave, on sabbatical leave or otherwise not working). Latent class analysis was used to identify the employment trajectories. The associations of these trajectories with indicators of social investments in early life (mother's attitude to financial self-reliance, father's socioeconomic status, own success at school) and work-related well-being at age 46 (job satisfaction, life satisfaction, absence of retirement thoughts, work engagement, work favoring attitude and perceived job control) were studied using regression models and analyses of variance, adjusting for life situation at age 46. We identified five employment trajectories for both genders: 1) traditional full-time, 2) highly educated, 3) self-employed, 4) delayed full-time and 5) floundering employees. In early life, a mother emphasizing self-reliance in earning one's living was associated with both highly educated and self-employed trajectories. A white-collar father and own success at school preceded a highly educated trajectory. A farmer family background preceded self-employed trajectory. At age 46, highly educated and self-employed trajectories were associated with highest well-being at work, while those floundering perceived their work most negatively. Men in the delayed full-time employment trajectory reported better well-being at age 46 than those constantly floundering. Overall, the macroeconomic employment rates were unevenly reflected in the five trajectories. Our findings support SIT by showing that the employment trajectories most favorable for work-related well-being in midlife are long rooted in social investments during early life and characterized by further social investments in employment, such as higher education and self-employment.

1. Introduction

1.1. Theoretical approach

The social investment theory (SIT) aims to explain the internal processes through which demands and resources in one's social context get internalized into one's own psychological resources through committing to social roles. These roles in turn have psychological consequences (e.g., Lehnart et al., 2010; Lodi-Smith & Roberts, 2007; Roberts & Wood, 2006). The positive psychological manifestations of

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any social investment come with the introjection of the role into one's identity and the level of cognitive and emotional commitment made to the role. This process of introjection is largely unintentional in early phases of life and only later it becomes more intentional. During the life course, also social de-investment processes can happen: investing less in a role may reduce role-related psychological gains (Lodi-Smith & Roberts, 2007). Moreover, SIT proposes that certain individuals are drawn to invest in certain roles more readily than others due to differing values and motives in early life surroundings, internalized during primary socialization (e.g. Whitbeck, 1999). People enter social roles with sets of expectations of how to act, stemming from their experiences in observing how significant others, such as parents, act in corresponding roles (Caspi & Roberts, 1999). Likewise, other individuals in any person's social circle hold a set of expectations of how the person should act and will consequently either reward or punish the person along the extent of accordance with the expectations (Cialdini & Trost, 1998). This gradually leads to the internalization of any role via classical conditioning (Pavlov, 1927). Since Erikson (1950), normative developmental changes have been reported to evolve through commitment to age-graded social roles. Importantly, Erikson suggested that success in an earlier social role will enhance success in later social roles. Also from the standpoint of SIT, lifelong accumulation of social investments in age-graded social roles is plausible, suggesting that introjection of roles favoring education and employment during childhood would be reflected in further investing in such roles during the later career development.

In occupational psychology, research on social investments on employment role has so far centered on psychological processes at the workplace level. Specifically, the aspects of investing in one's current work and workplace and on being committed to one's organization (e.g. Lodi-Smith & Roberts, 2007) have been shown to be related to positive psychological consequences such as higher job involvement (Hudson & Roberts, 2016) and active organizational citizenship behavior (e.g. LePine et al., 2002).

The aforementioned assumptions on the favorable effects on well-being of higher investments in one's employment role during the life course merit however consideration also on a larger population level. With the rising need for supporting sustainable employment and lengthening work careers in aging societies (European Agency for Safety and Health at Work, 2013), longitudinal research regarding social investments in work roles, their antecedents and the resulting levels of well-being after such investments is acutely called for. Importantly, research focusing not only on adversities but also on the development of positive values and well-being related to work is much needed. Assuming that the perceptions of work are longitudinally processed throughout the career, the patterning of work-related well-being should be understood already in midlife to be able to support working during the later phases of career.

1.2. Empirical background

Empirical studies on employment trajectories (population-level clustering of individuals' longitudinal developmental histories of social roles related to employment) have been conducted based on transition phases, such as transitions from school to work (Dubow et al., 2006; Kokko et al., 2008), from work to retirement or transitions in family roles (e.g. Jokela et al., 2010; Moen, 1996; Mein et al., 2003; Moon et al., 2012). Recently, study designs with large numbers of measurement points with decade-long trajectory patterns have begun to emerge, also with international and intergenerational comparisons.

The Finnish Jyväskylä Longitudinal Study of Personality and Social Development (JYLS) from 1968 (N = 369) explored trajectories based on transitions into the roles in parenthood, education and employment up to age 42, and identified vocationally, academically and family-oriented trajectories (Räikkönen et al., 2011; Räikkönen, 2012). Krahn, Chai, Fang, Galambos, and Johnson (2018) studied retrospectively a cohort of

405 Canadians born in 1967 up to age 43 and identified five distinct transition profiles – norm-setters, quick adults, uncertain adults, adult students, and delayed adults – with different amounts and timing of post-secondary educational investment playing an important profile-shaping role. In the Northern Swedish Cohort (NoSCo, N = 1, 005), employment trajectories from age 30–42 were explored, discerning the following six tracks: high (permanent employment), medium (temporary employment), poor (out of work), strengthening (from temporary to permanent employment), weakening (from permanent to temporary employment), and delayed (entry into permanent employment at a relatively high age) labor market attachment (Virtanen et al., 2001).

Gender differences in the composition of work and family -related trajectories have been found, part-time employment or career breaks being more common among women (McMunn et al., 2015; Widmer & Ritschard, 2009). When becoming parents, women tend to reduce their working hours more often than men (Connolly & Gregory, 2008). This, in turn, can threaten their possibilities for full-time work later on. Importantly, the gendered backgrounds of the employment patterns as well as the patterning itself may be changing. This is exemplified in two British Cohorts of different age providing evidence for growing between-person diversity in employment patterns for both men and women as well as for general convergence of men's and women's patterns (McMunn et al., 2015). Similarly, in the German Socio-Economic Panel (SOEP) study, a cohort of female baby boomers (born in 1956–1965) was compared with two older cohorts (1936–1945 and 1946–1955) across changes in employment patterns with results indicating an increase in the proportion of discontinuous careers and a decrease in continuous full-time employment and housewife biographies in the younger cohort (Simonson, Gordo, & Titova, 2012). Yet, using two European and U.S. representative panel studies of individuals aged 50–69 years, Worts, Corna, sacker, McMunn, and McDonough (2016) found that women prevailed in groups with weaker attachment to the labor market as compared to men.

An important gap in the existing literature remains, since to the best of our knowledge, the rising phenomenon of self-employment has not yet been highlighted in the current spectrum of employment trajectories. The rise of self-employment has nevertheless been observed in EU countries since the 1970s, and the increasing flexibilization of labor market since the 1990's has further intensified this development (European Union, 2012). Self-employed individuals form a heterogeneous group of workers who pursue economic activity on their own account, with or without employees. The self-employed earn their income through selling their services or products. By nature, self-employment entails more personal commitment to work, as compared to paid employment. The potential financial gains can be high but so are the risks, too, and self-employment is generally associated with lower levels of social security protection.

Regarding early predictors of employment trajectories, there is empirical evidence on the influence of non-occupational factors preceding the career, such as family social background, teenage career aspirations and educational performance (e.g. Ashby & Schoon, 2010). Those from more privileged backgrounds have been found to have more educational opportunities, greater access to financial resources, role models, occupational knowledge, and informal networks that all support their later career success (e.g. Schoon et al., 2007). For example, in the present cohort, mother's early positive attitude towards economic self-reliance has been found to affect her child's occupational development up to age 31 in addition to and beyond the economic resources available to the family (Ek et al., 2005).

The aforementioned studies have addressed the outcomes of childhood social factors mainly up to early adulthood. As an exception to this has been the Wisconsin Longitudinal Study (Herd et al., 2014; WLS, a random sample of 10,317 men and women who graduated from Wisconsin high schools in 1957 followed up to late adulthood), where little evidence was found for childhood poverty to last beyond entry into later

adulthood (Hauser & Sweeney, 1997). Similarly, in the German Socio-Economic Panel data, the family structure during childhood did not have long-term impact on earnings or risk of unemployment (Francesconi et al., 2005). Recently, however, an European study in 14 countries targeted late employment trajectories between ages 50–70, suggesting that they are part of larger trajectories of cumulative disadvantage throughout the life course, linked with early life disadvantage, operationalized as low occupational skills of the family breadwinner (Hoven et al., 2017).

Regarding outcomes of longitudinal employment trajectories, studies focusing on health are emerging, whereas consequences on psychological well-being are less known. Instead, the negative psychological consequences of a precarious career in general are well documented. Also in the present birth cohort, exposure to unstable early work career was related to psychological ill-being at age 31 (Ek et al., 2014). In contrast, other studies have found when permanent employees and employees in fixed-term jobs have been compared under conditions with increaseduncertainty, that permanent employees have reported more negative job attitudes and poorer level of well-being (De Cuyper et al., 2009; Mauno et al., 2005).

Regarding self-employment, cross-sectional evidence from over 20 European countries, USA and Canada shows that job satisfaction is perceived higher among self-employed individuals than among wage-earners. Two main reasons for this have been suggested to be entrepreneurs perceiving work as more interesting as well as having larger autonomy over work, as compared to paid workers (Benz & Frey, 2008; Schneck, 2014). Moreover, retirement ages depend on previous types of labor market involvement, with self-employed retiring later than employed workers (Hoven et al., 2017), which could be indicative of high commitment to work among the self-employed.

In sum, research on the possible beneficial psychological effects of longitudinal employment trajectories up to midlife is lacking. While no golden standard for measuring work-related well-being exists, inspired by SIT, we applied the following validated measures. We hypothetized, that across different employment trajectories, we would find differences at age 46 in job satisfaction, overall life satisfaction, absence of retirement thoughts (Siegrist et al., 2006), job engagement (Schaufeli, Salanova, Gonzalez-Roma, & Bakker, 2002), work favoring attitude (Kahn & Wiener, 1967) and perceived job control (Karasek et al., 1981).

1.3. The Finnish context: Regulations, cultural norms and macroeconomic trends regarding education and employment among the study population

The social roles that people psychologically invest in are connected to culture-specific societal expectations at any given age, and to societal circumstances at each timepoint.

The current study captured employment during the years from 1982 to 2011, characterized by considerable economic fluctuation in Finland. The 1980s, when the cohort members were still largely studying, were a period of steady economic growth. In the early 1990s, when the cohort members were entering the labour market, the country was hit by a major economic recession with a deep and rapid fall in employment rate (Official Statistics of Finland (OSF), 2018a). During the recession in the early 1990s, the cohort members' entry to the labour market was difficult, and they were much more likely to be in unstable employment or unemployed than the older generations at the same stage of life (e.g. Ek et al., 2005).

Another important factor influencing the patterning of employment careers in this cohort has been the rapid migration from rural to urban areas during the follow-up and the radical decline in farming industry (Ek & Raatikka, 2004). The number of active farms declined from nearly 60,000 in the 1960s to about 10,000 in 2000, with continuing development toward fewer but larger farms so that the amount of farmers in 2011 was less than one-tenth of the corresponding figure in the 1960's. (Häkkilä, 2002).

In general, the variance in employment is a continuum of variance in

the preceding period in education. Therefore, attaining a long education can be seen as a long-term investment in one's career. In Finland, all adolescents attend comprehensive basic education until they are 15–16 years old, after which they continue to either high school or vocational education, and over 90 % of students complete one of these (Statistics Finland, 2010). Since all education is publicly funded and tuition is free, the possibility of accessing also higher university-level education is open to all. Unfortunately, as competition to enter certain fields of secondary and tertiary education is fierce, 'gap years' leading to extended educational periods are common (Official Statistics of Finland (OSF), 2018b). Later in adulthood, vocational studies enabling transitions to new occupations, can be supported by Adult education allowance (Adult Education Fund, Finland, 2018).

A further distinctive feature of Finnish society is the relatively equal engagement of men and women in full-time employment, which is supported by the availability of longish subsidized maternity and paternity leaves and the municipal provision of reasonably priced day-care services for children under school age (Lehto & Sutela, 2008). Gender distribution still greatly varies across occupations, both horizontally and vertically. In Finland, as in most other Western countries, fixed-term contracts are concentrated in public service sectors such as education and health care with a predominance of female workers (Saloniemi & Salminen, 2010).

Currently, the employees can start their age-based retirement within a range from 63 to 68 years, with higher pension earnings for those delaying their retirement. Before age 63, full-time pension can be granted based on disability caused by poor health (Finnish Centre for Pensions, 2017). The new legislation will further postpone the earliest statutory age-based retirement to age 65, implying that any thoughts of early retirement can be considered very pre-term among the members of this birth cohort born in 1966, still with nearly two decades of working age ahead.

1.4. The aims and the hypotheses of the present study

Applying the ideas of SIT into the domain of work and employment, we hypothesized that more intense and long-term social investments in employment-related roles, as an employee or entrepreneur or as a student preparing for later employment, could result in more positive perceptions of work and enhanced well-being. This positive development could even be anteceded in the childhood family by work favoring values and investments producing positive primary socialization to employment. Therefore, considering education and employment as social investments, we utilized the Northern Finland Birth Cohort 1966 (NFBC1966) and examined the development of population-level employment trajectories from adolescence to midlife with differing patterns of such investments. We were particularly interested in distinguishing paid employment from self-employment, which may require even higher commitment and investment to work. We then aimed for evaluating the resulting employment trajectories considering pre-employment social investments during early life, as well as in relation to work-related well-being at the end of the follow-up in midlife.

To summarize, the aforementioned aims with associated hypotheses were set:

1 We aimed to identify the different employment trajectories from age 16 until age 45 based on yearly obtained statuses as student, full-time employee, part-time employee, self-employed, unemployed, on parental leave, or on sabbatical leave or otherwise not working.

   We expected to find three to five employment trajectories traditionally found in earlier studies: a trajectory characterized by short training before work, a stable career following higher education, and various floundering and/or family-oriented careers including phases of unemployment or parental leave (Räikkönen, 2012; Virtanen et al., 2001). As a new approach, we were specifically interested to see how the rising phenomenon of self-employment (European

Union OSHA, 2013) would fit in the formation of employment trajectories and thus examine if we could identify a previously largely disregarded trajectory characterized by self-employment.

We also expected to find gender differences in the patterning of these trajectories, with women, more typically than men, following a family-oriented employment trajectory including parental leaves and part-time employment (Simonson, Gordo, & Titova, 2012).

2 As indicators of pre-employment social investments during early life potentially preceding later employment trajectories, we examined whether the participant's belonging to an employment trajectory would be associated with his/her mother's early attitude toward economic self-reliance in 1966 (the cohort members being 0–1 years of age), the father's occupation-based socioeconomic status (SES) in 1980 (the cohort members being at age 14) and the participant's own investment and success in school, operationalized by grade point average (GPA) at age 16. We used mother's attitude to describe prenatal maternal attitudinal resources and demands concerning future employment role investments and fathers' SES in youth as an indicator of social expectations for future employment roles (Caspi & Roberts, 1999; Cialdini & Trost, 1998). We used school performance as a proxy for academic goal orientation, since there is evidence that commitment to learning goals may predict school performance, reflected in GPA (Steinmayr et al., 2011).

Considering childhood values and conditions and own success in school in terms of social investment, we expected individuals inthe anticipated highly-educated employment trajectory to have had mothers with an attitude favoring investment in economical self-reliance, fathers with higher SES, and own success at school (Ek et al., 2005; Schoon et al., 2007).

3 At the end of the follow-up at age 46, one year after the trajectories between ages 16–45, we measured work-related well-being, with no single golden standard on indicators available, by using a set of established measures such as job satisfaction, overall life satisfaction, absence of retirement thoughts, work engagement, a work favoring attitude as well as perceived job control.

In line with SIT, we assumed that work-related well-being in midlife would differ according to the preceding 30-year long trajectories, indicating different levels of investments in age graded social roles in education and employment. We expected that those in the high education or traditional full-time employment trajectories would report higher levels of positive perceptions of work and life, as measured with the general and work-related wellbeing, while those on a floundering trajectory would show lower levels of general and work-related well-being (Räikkönen et al., 2011; Salmela-Aro et al., 2012). With no previous longitudinal evidence on consequences of self-employment on psychological well-being available, based on cross-sectional and indirect evidence (Benz & Frey, 2008; Schneck, 2014; Hoven, 2017) as well as SIT as our theoretical framework, we hypothesized that those on a possible self-employed trajectory would show a high level of well-being.

2. Methods

2.1. Study setting and participants

The NFBC1966 study, originally designed to study the socio-economic roots of childhood health on a population level, started in the two northern-most provinces of Finland in the year 1965, recruiting all pregnant women (n = 12 068) whose expected date fell in the year 1966. Altogether 12 058 children (6 169 boys and 5 889 girls) were live born into the cohort, this number accounting for 96 per cent of all births in the region in 1966 (Isohanni et al., 2001; Rantakallio, 1988, https://www.oulu.fi/nfbc/). In the present study, survey data collected at the ages of 0, 1, 14, and 46 years are used. The data supplemented by nationally collected registers on schooling (Statistics Finland) and employment (Finnish Center for Pensions) are also used.

The latest 46-year follow-up took place in 2012–2014, targeting the 10,321 cohort members (86 % of those born to this cohort) who were alive and living in Finland and had known addresses. These cohort members were sent questionnaires to be answered either electronically or on paper, and 6,858 (66 % of target population) answered to the questionnaire on work, economy and resources. In the final analyses the sample size was 6 496 (2 963 men, 3 533 women). All participants were asked to respond to the questions on present and past educational and occupational statuses. However, those unemployed, retired or otherwise currently not working were accordingly not inquired about their perceptions of current work. The response rates are therefore essentially lower in these specific items.

Previous sample attrition analyses between 1966 and 1988 revealed that dropouts were more often men (Isohanni et al., 1998; Rantakallio, 1988). At the age 31, it was found that subjects with psychiatric disorders participated less often than those without such disorders (Haapea, 2010). With regard to the national statistics on urban/rural place of residence, this population was representative of the young general population in Finland (Ek et al., 2008).

Analyses are based on the data of individuals who gave their informed written consent to allow their data to be used for scientific purposes. The Ethics Committee of the Northern Ostrobothnia Hospital District has approved the research, conducted according to the Declaration of Helsinki.

2.2. Measures

2.2.1. Yearly employment-related roles

The *Life History Calendar* (LHC, Caspi et al., 1996) was modified according to the context of working life to cover all possible employment-related roles in each year from 1982 to 2011 (age 16–45) as a part of the 46-year follow-up study of the NFBC1966. Participants were asked to mark for each year whether they had occupied one or more of the following roles: 1) student, 2) full-time employed, 3) part-time employed, 4) self-employed, 5) unemployed, 6) on parental leave, 7) on sabbatical leave or otherwise not working.

Register data from the Finnish Center for Pensions on days in paid employment were used to evaluate the reliability of the LHC survey responses on yearly employment statuses, by comparing all yearly registered individual days of employment with the yearly self-reports of full-time employment in the LHC. The figures closely corresponded with each other, indicating good reliability of the self-reported information in the LHC. The high reliability and validity of the LCH are further supported by the fact that the yearly LHC reports of having the role status as unemployed closely followed the national-level unemployment trends, with increased unemployment rates during the early 1990s and from 2008 onwards.

2.2.2. Descriptives of life situation at age 46

Current work situation at age 46 included the following alternatives, one or more of which were possible: 1) permanent full time, 2) temporary full time, 3) permanent part time, 4) temporary part time, 5) self-employed full time, 6) self-employed part time, 7) student, full time, 8) student, part time, 9) unemployed, less than 6 months, 10) unemployed, 6 months to 1 year, 11) unemployed, over 1 year, 12) supported working/studying, 13) laid off or reduced working hours, 14) on parental leave, 15) retired, 16) homemaker or 17) other. The highest attained education was classified as 1) none, 2) short course, 3) vocational education, 4) polytechnic, 5) university of applied sciences, and 6) university. Annual household income in euros was classified into four groups as suggested by Statistics Finland income categories in 2012: 1) <20,000€ (very low income), 2) 20,000–50,000 € (low income), 3) 50,001–80,000 € (high income) and 4) >80,000€ (very high income). Marital status was recorded into five categories: 1) single, 2) cohabiting, 3) married or registered, 4) divorced or separated, and 5) widowed. Number of people living in the household was recoded into the following

categories: 1) one, 2) two, 3) three, and 4) four or more. When used for adjustments in statistical models, we dichotomized current work situation into any type of full-time work versus other categories, and marital status into marital or cohabiting versus other categories. Annual household income was used as a continuous variable.

2.2.3. Indicators of social role investments in early life

We used three indicators of social role investments in early life. As an attitudinal indicator of family values regarding social role investments, we used the mother's attitude towards economic self-reliance, assessed in 1966 when the cohort members were either born or about to be born, by asking her to select from the following three mutually exclusive items the one that most closely corresponded to her view: (a) one should make continuous efforts to improve one's own economic situation, (b) one should adapt to the conditions one lives in, and (c) public authorities should help people more than they do today (Rantakallio, 1969).

The family's socio-economic status in 1980 at age 14 was classified on the basis of the father's occupation (Rantakallio, 1969), at that time the father being usually the breadwinner in the family, reflecting also the skill level needed in various occupations similarly to the classification of the International Standard Classification of Occupations (ISCO) that was developed by the International Labor Office (Hoven et al., 2017). Social classes I and II comprised occupations requiring the highest education and skill level at the time, e.g., dentists, engineers, teachers, priests, managers. Social class III consisted of skilled workers, e.g., clerks. Social class IV comprised unskilled workers, e.g., manual workers. Those with no occupation or unknown occupation were included in social class IV. We combined classes I-II to white collar, classes III-IV to blue collar groups. Farmers formed a class of their own.

An individual cohort member's school performance was used as a proxy of his/her own social role investments: Grade point averages (GPA, potential range 4–10) for all school subjects when exiting compulsory education at age 16 were obtained from the national registers (Isohanni et al., 2000). Mean GPA (SD, range) was 7.5 (0.8, 4.3–9.7) for men and 8.1 (0.8, 4.5–9.8) for women.

2.2.4. Indicators of work-related well-being at age 46

The measures of work-related well-being were obtained one year after the end point of the trajectories.

As a work-specific measure of well-being, *job satisfaction* was measured by one item inquiring whether respondents were satisfied with their current job or not, on a scale from 1 = not at all satisfied to 5 = extremely satisfied. The mean values with standard deviations (SD) were used.

Taken that work is one of the central life domains at age 46, also *general life satisfaction* was measured here, by asking the respondents how satisfied they were with their life in general, on a scale from 1 = not at all satisfied to 5 = very satisfied (Aromaa et al., 1989). The mean values with standard deviations (SD) were used.

To measure an aspect of an individual's commitment to an employment role, *retirement thoughts* were assessed by the following item: 'Have you considered, for health or other reason, applying for retirement before the retirement age?". The four response alternatives were: 1) No, 2) Yes, sometimes, 3) Yes, often, and 4) I have already applied for retirement. Alternatives 2 and 3 were combined into a single category "Yes". The mean scores (SD) were calculated. Absence of thoughts or application for retirement was considered a measure of well-being at work.

One of the central concepts of positive occupational psychology, indicating work-related well-being, *work engagement* was measured using by Utrecht Work Engagement Scale (UWES; Schaufeli, Salanova, Gonzalez-Roma & Bakker, 2002). We used the mean score of nine items measured on a 7-point Likert-scale (e.g., "I feel bursting with energy when I am working") asking how often the item could be endorsed by the participant (ranging from 1= *never* to 7=*everyday*). The scale's internal reliability was $\hat{\alpha} = 0.94$.

Reflecting personal attitude and commitment towards one's work-related social role, *work favoring attitude* was measured using the scale introduced by Kahn and Wiener (1967). Of the original six items, five represent positive work-favoring attitudes (e.g., "Work, for me, is a calling, or a way to exercise and master gratifying skills, or a means to provide income") and one item represents a negative attitude ("Work is a necessary evil one has to do to make a living"). In this study, the negative item was excluded and the remaining 5-item scale was used indicating the magnitude of a positive work-favoring attitude. Responses were given on a 5-point scale, from 1= agree totally to 5=disagree totally. Mean (SD) values were used. The overall alpha of internal reliability for the 5-item scale was $\hat{\alpha} = .82$.

Reflecting the important aspect of perceived autonomy known to affect work-related well-being, *perceived job control* (Karasek et al., 1981) was measured, comprising of seven items (e.g., "My job allows me to make a lot of decisions on my own"). Responses were given on a Likert-scale ranging from 1 = strongly disagree to 5 = strongly agree. The means (SD) were used. The scale's internal reliability was $\hat{\alpha}=0.87$.

2.3. Statistical analysis

Latent class analysis (LCA) was conducted to identify employment trajectories for combined role statuses from age 16–45, using Mplus version 7.1. (Muthén & Muthén, 1998). Seven roles (student, full-time employed, part-time employed, self-employed, unemployed, on parental leave, and on sabbatical leave or otherwise not working) were used to identify these trajectories. All analyses were performed separately for men and women, as gendered trajectories were expected (e.g. Simonson et al., 2011, McDonough 2017). Yearly measurements of the seven role statuses for each year between 1982 and 2011 yielded a total of 210 dichotomous observed variables. No missing values were present in the data. In the Latent Class Analysis (LCA), the probability of occupying a specific status varies between zero and one. The estimation method was Full Information Maximum Likelihood, and the link between latent categorical and observed dichotomous variables was logit.

To define the number of latent classes we applied the adjusted Bayesian information criteria (aBIC) and Lo-Mendell-Rubin Likelihood Ratio Test (LMR-LRT) (Nylund et al., 2007; Tolvanen, 2007) as well as average latent class posterior probabilities (AvePP) and entropy values that evaluate the discrimination between the latent classes. The AvePPs were calculated for the individuals with the highest posterior probability of membership in certain latent classes (Nagin, 2005). A value over 0.90 of the average value in the classes in which individuals show the highest posterior probability describes a clear class solution. Entropy was calculated using the average latent class probabilities, with value between zero and one, a higher value indicating a higher discriminant solution. To decide the number of latent classes, the clarity of the classes and the generalizability of the solution in light of the descriptives of the classes need to be considered, in addition to the statistical criteria.

The descriptive statistics were produced by calculating frequencies and percentages of categorical variables as well as mean values with standard deviations of continuous variables. The relationships between the employment trajectories and the early life social investments were analyzed with Chi-square tests and Analyses of Variance (ANOVA).

We then used GLM to study whether each of the early life factors (mother's attitude at age 0−1, father's SES at age 14 and GPA at age 16) would be associated with later work-related well-being at age 46, beyond the trajectories and life situation at the follow-up. At first, we ran the models unadjusted, then mutually adjusted for all early life variables, then further adjusted for employment trajectories between ages 16–45, and lastly, additionally adjusted for marital status and employment status (dichotomized) and household income (continuous variable) at age 46.

Finally, to study how work-related well-being outcomes in midlife would be associated with the preceding 30-year long employment trajectories, we used ANOVA of the well-being variables according to the

latent classes. We determined the mean values of the well-being variables and their bootstrapped 95 % confidence intervals by using 1000 bootstrapped samples, the bootstrapping method not assuming normal distribution. Pairwise comparisons of the trajectories are enabled: if the bootstrapped 95 % confidence intervals do not overlap, the mean values of the two classes differ statistically significantly. We first studied these associations unadjusted, then adjusting for early life factors and finally also for life situation at the follow-up, using the variables introduced above.

3. Results

3.1. Identification of employment trajectories

To identify employment trajectories, as shown in Table 1, at first, LMR-LRT pointed to a five-class solution for men and a three-class model for women. Adjusted BIC continued to decrease for both women and men from a one- to six-class solution. For men, the AvePPs for the classes with the highest posterior probability in the five-class solution were 0.974, 0.982, .991, 0.981, and 0.998. Considering all these, the five-class solution was selected as optimal for men. Although the LMR-LRT was suggestive of a three-class solution for women, the adjusted BIC values indicated that a five-class solution fitted better to the data than the three-class solution and also the discrimination between the five latent classes remained high. For women, the AvePPs for the classes with the highest posterior probability were 0.982, .991, and .995 for the three-class solution and 0.985, .993, .960, 0.963, and 0.962 for the five-class solution. Summing up all statistical measures and the screening of the descriptives at age 46 concerning education and work (Table 2), a five-class solution was found to best fit to the data for both genders, with meaningful profiles for the identified trajectories, with characteristics slightly differing by gender. The five-class solutions for both men and women were also appropriate in terms of high (over 0.95) entropy values (Table 1).

The yearly probabilities for each role status variable in each employment trajectory were calculated, together with the total estimated probability (%) of membership for each trajectory (latent class), as shown in Fig. 1. We named the five employment trajectories as follows: 1) traditional full-time employees (men N = 907, 31 %, women N = 827, 23 %), 2) highly educated employees (men N = 722, 24 %; women N = 940, 27 %), 3) self-employed (men N = 396, 13 %; women N = 318, 9%), 4) delayed full-time employees (men = 590, 20 %; women N = 683, 19 %) and 5) those floundering (men N = 348, 12 %; women N = 765, 22 %).

As depicted in Fig. 1, the employment trajectories of the traditional full-time employees were characterized by short studies before

Table 1
Fit indices for the selection of the number of latent classes in yearly employment statuses in the Northern Finland Birth Cohort 1966.

Number of classes	Log-likelihood	aBIC	p-value of LMR test	Entropy
Men				
1	−164313.870	329624.842		
2	−139610.553	281220.127	<.001	.987
3	−129929.664	262660.267	<.001	.983
4	−123527.766	251058,390	<.001	.976
5	*−120166.941*	*245338.657*	*<.001*	*.974*
6	−117302.510	240611.714	.831	.975
Women				
1	−230034.258	461116.924		
2	−211168.630	424439.066	<.001	.969
3	−204220.947	411597.101	<.001	.977
4	−199720.949	403650.503	.765	.954
5	*−196132.336*	*397526.677*	*.833*	*.953*
6	−193523.178	393361.761	.772	.953

commencing in full-time employment in both genders. As shown in Table 3, 80 % of the men and women on traditional full-time employee trajectories reported being in permanent full-time work and having an intermediate-level household income at the age of 46. Men were more likely than women to only have undergone a vocational education (64 %), and women were more likely to have completed a somewhat higher (32 % vocational, 44 % polytechnic) level of education.

Individuals in highly educated trajectories, in turn, had first remained in education for approximately 10 years (1982−92, 16–26 years) before shifting to full-time employment (Fig. 1). The men and women in the highly educated trajectory often had a university/applied university degree (51 % of men, 58 % of women; >80 % at least polytechnic in both genders) and reported the highest household income (49 % of men and 40 % of women in households earning more than 80,000 €/year). In addition, around nine out of ten were in full-time permanent employment (Table 3).

Those on the self-employed trajectory had spent a few years in post-compulsory education, followed by a few years in full-time employment, before becoming self-employed in early adulthood (Fig. 1). Of the men in the self-employed trajectory, 65 % were self-employed and 31 % were permanent full-time employees at age 46. Among women, the corresponding figures were 49 % and 28 %. Fig. 1 shows a slight declining trend in self-employment towards returning to the role of an employee after turning over forty years of age. Of the self-employed men, 24 % were in the highest category of yearly household income and only 5 % in the lowest category at age 46, while the corresponding figures for the self-employed women were 21 % and 14 %, respectively (Table 3) The wide range in income categories among the self-employed reflects the heterogeneity of individuals within this class, ranging from entrepreneurs working alone to owners and employers of big firms.

The delayed full-time employment trajectories were initially characterized by part-time work and unemployment among both genders and additionally by parental leaves among women before entering full-time employment not earlier than in the participants' late thirties. Of those in the delayed full-time employee trajectories, 73 % of men and 75 % of women were permanently full-time employed and had intermediate-level annual household income at age 46. With some educational activity present during the years before full-time employment, they were slightly higher educated than the traditional employees as they had often completed either a vocational or a polytechnic education (around 60 % of both genders).

In the floundering trajectories, full-time employment had remained rare from the 1990s' recession onwards, and conversely, part-time work and unemployment had been common. In terms of investments in education, the characteristics of the floundering employees clearly differed by gender. Floundering men were less educated than women: 22 % of the men and 10 % of the women had no vocational education or short courses only. In contrast, 12 % of the floundering men had a university/applied university degree, as compared to 27 % of the floundering women. At age 46, after a floundering career, only 24 % of men and 28 % of women were in permanent full-time employment. Moreover, part-time contracts mainly appeared on the floundering trajectories. Unemployment at age 46 was most commonly reported among floundering men, 29 % of whom were unemployed, 13 % even long-term for over a year. For the floundering women, the corresponding unemployment figures were 11 % and 4%, respectively. Of the floundering women, as many as 8% were students at age 46, as compared to 3% of the floundering men. Notably, 18 % of floundering men and 9 % of women had already retired on health grounds by age 46. Floundering individuals tended to have a low annual household income, below 20,000€ for one-third of the men and one-fourth of women. Interestingly, 14 % of floundering women compared to 6 % of men reported an annual household income above 80,000€.

Overall, the employment patterns reflected the economic cycles during the study period (Fig. 1 and Official Statistics of Finland (OSF), 2018a). The yearly statuses of being unemployed or in part-time work

Table 2

Descriptives of the categorical (N,%) and continuous (means, SD) variables used in the analyses from early life to midlife.

		Men		Women	
		N = 2963		N = 3533	
		N /Means	% /SD	N /Means	% /SD
Early life					
Mother's attitude on	One's own effort	1931	65.2	2331	66.0
social aid in 1966	One should adapt	349	11.8	468	13.2
(N = 6496)	State should help	186	6.3	283	8.0
	Data missing	497	16.8	451	12.8
Father's SES (14 y)	White collar	958	32.3	1111	31.4
(N = 6496)	Blue collar	1170	39.5	1530	43.3
	Farmer	303	10.2	427	12.1
	Data missing	532	18.0	465	13.2
Grade point average (GPA)	Potential range 4−10	7.48	.81	8.05	.77
at age 16. (N = 6496)	Data missing	551		447	
Employment trajectories between ages 16 to 45					
(N = 6511)	Traditional employees	907	31	827	23
	Highly educated employees	722	24	940	27
	Self-employed	395	13	318	9
	Delayed full-time employees	590	20	699	19
	Floundering employees	348	12	765	22
Life situation at age 46					
Professional education	None	133	4.7	94	2.8
(N = 6496)	Short course	161	5.4	101	3.0
	Vocational education	1166	5.7	827	24.7
	Polytechnic	703	41.2	1253	37.4
	University of applied science	224	24.9	367	10.9
	University	439	15.5	710	21.2
	Data missing	137		181	
Marital status	Single	376	12.7	362	10.4
(N = 6496)	Cohabiting	547	18.5	594	17.1
	Married/registered	1708	59.2	2092	60.2
	Divorced/separated	248	9.1	403	11.5
	Widowed	5	0.2	22	0.6
	Data missing	79		60	
Household size	One	206	9.5	274	10.4
(N = 6496)	Two	476	22	726	27.5
	Three	697	32.2	803	30.5
	Four or more	784	36.8	834	31.6
	Data missing	800		896	
Household income/year	<20,000€	204	7.4	292	9.3
(N = 6496)	20,000 to 50,000€	920	33.3	1167	37.3
	50,001 to 80,000€	958	34.7	955	30.6
	>80,000€	679	24.6	711	22.8
	Data missing	202		408	
		Men		Women	
		N /Means	% /SD	N /Means	% /SD
Life situation at age 46					
Current work situation	Permanent, full time	2042	N/A	2286	N/A
(note: more than one status	Temporary, full time	109	"	291	"
is possible, %N/A)	Permanent, part time	48	"	197	"
	Temporary, part time	32	"	89	"
	Self-employed, full time	377	"	229	"
	Self-employed, part time	85	"	77	"
	Student, full time	29	"	93	"
	Student, part time	46	"	135	"
	Unemployed, < 6 months	79	"	74	"
	Unemployed, 6−12 months	45	"	43	"
	Unemployed, > 1 year	86	"	55	"
	Supported work/studying	20	"	35	"
	Laid off/ reduced hours	23	"	7	"
	On parental leave	3	"	34	"
	Retired	80	"	91	"
	Homemaker	15	"	49	"
	Other	89	"	159	"
Work-related well-being	Job satisfaction (1−5)	3.77	.84	3.79	.85
outcomes at age 46	Data missing	456		411	
(N = 6469)					

Table 2 (*continued*)

	Men		Women	
	N /Means	% /SD	N /Means	% /SD
Life satisfaction (1−5)	3.96	.83	4.03	.79
Data missing	71		83	
Retirement thoughts (1−3)	1.68	.78	1.59	.75
Data missing	38		27	
Work engagement (1−6)	4.43	1.24	4.70	1.14
Data missing	451		400	
Work favoring attitude (1−5)	3.31	.74	3.43	.72
Data missing	17		18	
Job control (1−5)	3.67	.58	3.50	.57
Data missing	439		396	

were strongly concentrated to the floundering and delayed trajectories, during the early 1990s' recession to some extent also to the highly educated trajectory. Taking parental leave was more common among women than among men in all trajectories, but especially so in the delayed and floundering trajectories. Regarding timing, the taking of parental leaves appeared to start peaking earlier in the 1990s among women in traditional, self-employed and delayed employee trajectories. Instead, women in highly educated and floundering trajectories more often started taking their parental leaves from later 1990s onwards, in their thirties.

No statistically significant differences were found between the trajectories regarding marital status at age 46 (Table 2). In terms of household size at age 46, living alone was most likely for traditional employees (40 % in men, 56 % in women), while living in larger households with four or more people was most common among self-employed men (13 %) and floundering men (12 %) and floundering women (17 %) at age 46.

3.2. Early life social role investments in relation to employment trajectories and well-being in midlife

The men and women in the highly educated employment trajectories were slightly more likely to have had mothers who emphasized the individual's self-reliance in achieving a higher standard of living, and white-collar fathers (Table 4). A mother's receptive attitude to financial aid in the participants' early childhood was rare across the data, but slightly more likely among floundering men and among women in traditional full-time and delayed employee trajectories. In terms of father's SES, those on the self-employed trajectory came more likely from farming families (23 % of self-employed men, 18 % of women) than individuals in any other trajectories. A blue-collar background was prevalent among traditional full-time employees of both genders and among floundering men. For the floundering women, a white-collar background was more common (30 %) than for the floundering men (20 %). In terms of own success at school, both men and women on the highly educated trajectory had attained significantly higher GPA (8.0 for men; 8.5 for women) than those on the other trajectories.

Table 5 shows the associations along GLM models of early life factors with aspects of well-being at age 46. When all early life factors, 30-year-long employment trajectories and current life situation at age 46 were taken into account, mother's attitude was associated with work engagement among women. Father's SES at 14 was associated with perceived job control among both genders. Furthermore, higher GPA at age 16 predicted less retirement thoughts and higher job control in both genders at age 46.

3.3. Well-being at work at age 46 in association with employment trajectories

As shown in Table 6a and b, job satisfaction was highest on the self-employed trajectories in both genders and on the highly educated

trajectory in men, and lowest among floundering employees in both genders in the unadjusted models. However, after further adjustments for early life factors and current life situation, these differences between the trajectories were no longer significant.

Among men, life satisfaction was highest among the highly educated trajectory and lowest in the floundering trajectory, as compared to any other trajectory, even when early factors and current situation were considered. Among women, a similar patterning was found regarding life satisfaction in the unadjusted model, but no longer after adjustments. Having thoughts about retirement at age 46 was least common in the highly educated trajectory and most common in the floundering trajectory among both genders, even in the adjusted models.

Work engagement at age 46 did not clearly vary in relation to the employment trajectories in either gender in the adjusted models. Instead, the work favoring attitude was significantly highest on the self-employed trajectory in both genders, even after adjustments. Also regarding job control, both men and women in the self-employed category scored highest, even when early life factors and current life situation were taken into account. As compared to other trajectories, job control was perceived lowest among men in the floundering trajectory, among women no difference emerged between the other trajectories.

4. Discussion

4.1. Five employment trajectories with novel patterning reflecting changing working life

In this large general population study, capturing the first half of the life course, we identified five employment trajectories for both men and women, with gender differences in social role investments and with uneven reflections of macroeconomic trends. Notably, we identified a previously overlooked self-employed trajectory with distinct features. We named the five employment trajectories as 1) traditional full-time employees, 2) highly educated employees, 3) self-employed, 4) delayed full-time employees and 5) those floundering. As the main finding, the highly educated and self-employed trajectories preceding the highest work-related well-being in midlife are characterized by higher investments in education and employment throughout the career, but also long rooted in social investments during early life, a result well in line with SIT.

As a new insight to this field of research, we found distinctive self-employed trajectories of considerable size (13 % of men and 9 % of women in our sample) and with particular features, depicted already in very early life by mothers' emphasis on self-reliance in economic activity and by often having a background in farming families. At age 46, even with lower educational investments, the self-employed trajectory with high investments in employment was characterized by highest work-related well-being.

In addition, we found another interesting trajectory regarding both changing macroeconomic circumstances and life course as well as positive psychological outcomes in midlife, which we named as delayed
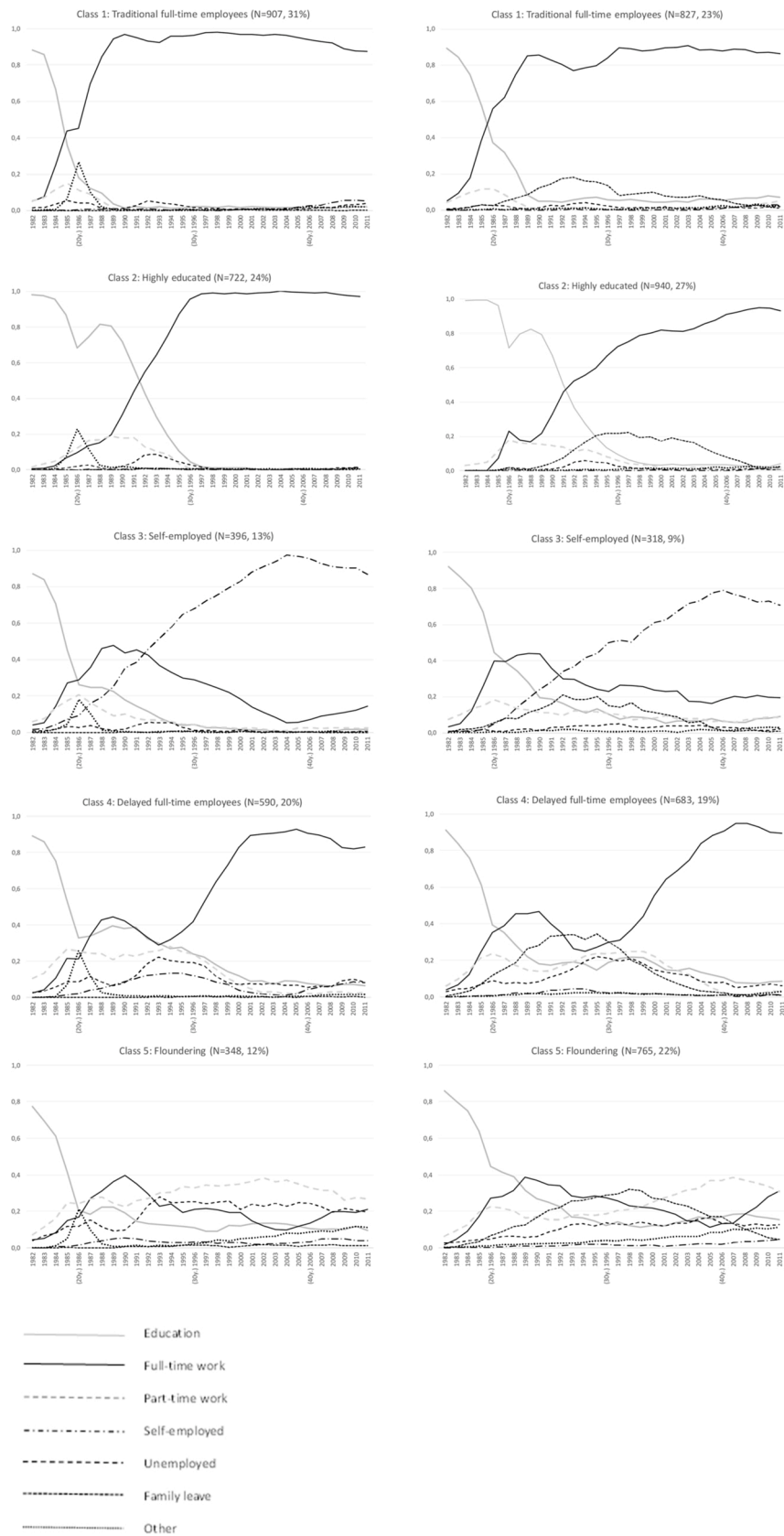
Fig. 1. Five employment trajectories found separately for men (left side) and for women (right side).

Table 3

Characteristics of men and women at age 46 (column-% of each descriptive category) in the five employment trajectories* with tests for interdependence (Chi-squares, degrees of freedom, p-values).

	Men					Women				
	Trad	High	Self	Delay	Flound	Trad	High	Self	Delay	Flound
Professional education (N = 6178)										
None or a short course	6	0	8	3	10	3	0	4	2	6
Vocational education	64	9	52	34	46	32	5	41	31	29
Polytechnic	16	38	22	27	19	44	37	30	36	34
University of applied science	5	11	4	11	7	11	10	8	15	10
University	1	40	7	19	5	5	48	12	13	17
Missing data	8	2	7	6	13	5	0	5	3	4
	$X^2 = 960.83(20), p<.001$					$X^2 = 752.29(20), p<.001$				
Marital status (N = 4610)										
Single	13	12	11	13	15	11	11	10	11	9
Cohabiting	20	17	21	16	17	20	18	16	20	18
Married	57	62	55	60	58	56	61	65	58	62
Divorced	9	9	13	11	9	13	10	8	11	11
Widowed	0	1	1	0	0	1	1	1	1	0
	$X^2 = 14.734(16), p = .544$					$X^2 = 12.794(16), p = .688$				
Number of people in household (N = 4160)										
One	40	26	35	28	36	56	33	46	53	33
Two	37	47	33	45	38	34	46	33	34	34
Three	17	19	19	20	14	8	17	16	8	16
Four or more	7	7	13	7	12	2	4	5	4	17
Missing data	1	1	0	0	0	0	0	0	1	0
	$X^2 = 47.505(12), p<.001$					$X^2 = 213.16(12), p<.001$				
Annual household income (N = 5884)										
<20,000€	4	2	5	7	33	7	3	14	5	23
20,000–50,000€	41	14	39	35	46	39	29	41	43	39
50,001–80,000€	40	35	32	38	15	38	28	24	36	24
>80,000€	15	49	24	20	6	16	40	21	15	14
Missing data	0	0	0	0	0	0	0	0	1	0
	$X^2 = 711.32(12), p<.001$					$X^2 = 424.19(12), p<.001$				
Current work situation (more than one status possible:)										
Permanent, full time	82	92	31	73	24	79	87	28	75	28
Temporary, full time	1	1	2	1	4	3	2	4	4	15
Permanent, part time	4	2	1	5	9	7	5	7	9	13
Temporary, part time	1	0	0	2	4	1	1	3	1	7
Self-employed, full time	5	2	65	7	7	2	2	49	1	3
Self-employed, part time	2	2	5	4	3	1	1	7	1	3
Student, full time	1	0	0	2	2	3	1	4	2	4
Student, part time	1	1	1	3	1	3	4	5	4	4
Unemployed, < 6 months	2	1	2	3	7	2	1	1	3	4
Unemployed, 6–12 months	1	1	1	1	5	0	0	2	1	3
Unemployed, > 1 year	2	1	0	3	13	1	0	1	1	4
Supported work/studying	1	0	0	1	3	0	0	0	1	2
Laid off/ reduced hours	1	0	0	1	1	0	0	0	0	0
On parental leave	0	0	0	0	0	0	1	1	0	3
Retired	2	0	0	0	18	1	0	2	1	9
Homemaker	0	0	1	0	3	0	0	3	0	4
Other	3	1	2	3	7	4	2	4	5	8

* Trad = traditional full-time employees; High = highly educated employees, Self = self-employed; Delay = delayed full-time employees; Flound = floundering employees.

full-time employees, with apparent difficulties in entering working life at their twenties during a macroeconomic recession, followed by delayed employment in their late thirties. Indeed, the macroeconomic fluctuation as depicted in the national unemployment rates was quite heavily concentrated on the delayed employee categories instead of being homogeneously reflected across all trajectories. Some of the female delayed employees seemed to have ended up in taking family leaves during the 1990s' recession as an alternative to unemployment. For some of them however, taking longer parental leaves had apparently brought difficulties in entering and stabilizing their employment later on, and even drifting to floundering until the end of the follow-up in spite of a higher level of education. In contrast, the floundering men had characteristically often attained only low education. This educational

difference was already observed in an earlier study within the present cohort, showing that delays in entering employment by the age of 31 were associated with maternal attitude towards financial aid among men and with own academic attainment among women (Ek et al., 2005). Now that the present study has followed the cohort members' employment patterns until age 46, it appears that, as compared to staying constantly floundering, even delayed investments related to full-time employment are associated with better overall life satisfaction and absence of retirement thoughts in midlife among men, even after employment-related investments in early life were accounted for, but not among women in any model. Conversely, regarding psychological distress, analogous results have been found in the Northern Swedish Cohort, since longitudinally strengthening (delayed) labor market

Table 4

Early life factors according to the five employment trajectories* in men and women: Proportions (%) of the categorical variables with tests for interdependence (chi, degrees of freedom, p-value). Means of the continuous variable with ANOVA for interdependence (F-value, degrees of freedom, p-value).

	Men					Women				
	Trad	High	Self	Delay	Flound	Trad	High	Self	Delay	Flound
Mother's attitude on social aid in 1966 (n = 6496)										
One's own effort	64	72	69	63	55	64	72	67	63	63
One should adapt	13	8	13	13	12	14	10	14	16	13
State should help	7	4	5	7	9	10	6	6	9	8
Missing data	17	15	13	17	23	12	11	13	13	16
	$X^2(df) = 32.62(8), p < .001$					$X^2(df) = 25.38(8), p = .001$				
Father's SES at age 14 (n = 6496)										
White collar	27	44	34	33	20	26	42	28	26	30
Blue collar	45	35	28	41	45	47	39	39	49	41
Farmer	9	7	23	9	10	12	11	18	12	11
Missing data	20	14	15	17	26	14	9	15	13	17
	$X^2(df) = 152.56(8), p < .001$					$X^2(df) = 66.93(8), p < .001$				
Grade point (4−10) average at age 16 (n = 6496)	7.15	8.00	7.41	7.49	7.21	7.83	8.47	8.07	7.85	7.90
	$F(df) = 122.48(4), p < .001$					$F(df) = 106.98(4), p < .001$				

* Trad = traditional full-time employees; High = highly educated employees, Self = self-employed; Delay = delayed full-time employees; Flound = floundering employees.

Table 5

General linear regression models* (F and p-values) of associations between early life factors and well-being outcomes at age 46 in men and women: unadjusted (Model 1), mutually adjusted for early life factors (Model 2), additionally adjusted for employment trajectories between ages 16-45 (Model 3) and additionally adjusted for life situation at age 46y (Model 4).

		Job satisfaction		Life satisfaction		Retirement thoughts		Work engagement		Work favoring attitude		Job control	
		F	p	F	p	F	p	F	p	F	p	F	p
Men													
Mother's	Model 1	1.01	.365	1.69	.186	2.91	.055	1.10	.332	1.21	.298	3.29	.037
attitude on	Model 2	1.56	.210	1.76	.172	1.76	.173	.80	.452	.68	.506	3.04	.048
social aid	Model 3	1.65	.193	1.00	.367	1.29	.275	.69	.500	.55	.578	3.37	.035
	Model 4	1.45	.236	1.37	.254	1.96	.142	1.79	.168	4.75	.622	2.84	.059
Father's	Model 1	3.13	.044	2.95	.052	1.98	.138	4.07	.017	9.34	.000	21.96	.000
SES	Model 2	1.71	.181	1.57	.208	.07	.935	2.03	.132	5.67	.004	15.06	.000
at age 14	Model 3	1.22	.297	1.51	.222	.14	.873	1.18	.309	2.55	.078	9.50	.000
	Model 4	1.20	.300	1.19	.305	.05	.952	.92	.398	2.60	.075	8.36	.001
GPA	Model 1	3.11	.045	8.34	.000	19.04	.000	6.82	.001	7.41	.000	21.86	.000
at age 16	Model 2	1.78	.168	6.76	.001	15.80	.000	3.58	.028	5.89	.003	13.44	.000
	Model 3	1.65	.192	1.85	.158	8.10	.000	2.33	.098	4.37	.013	9.55	.000
	Model 4	.87	.420	1.65	.192	7.55	.001	.71	.493	2.57	.760	6.96	.000
Women													
Mother's	Model 1	3.26	.039	.09	.911	1.94	.144	4.91	.007	3.31	.036	.69	.502
attitude on	Model 2	3.43	.033	.54	.585	.97	.380	4.32	.013	2.75	.064	.66	.517
social aid	Model 3	3.50	.030	.78	.459	.86	.425	4.40	.012	2.82	.060	1.14	.318
	Model 4	2.74	.065	.19	.825	.59	.557	3.76	.024	2.82	.060	1.23	.292
Father's	Model 1	2.57	.077	2.55	.078	5.86	.003	1.21	.298	1.57	.209	10.45	.000
SES	Model 2	3.28	.038	2.08	.125	3.04	.380	1.40	.255	1.70	.182	7.02	.001
at age 14	Model 3	3.39	.034	2.10	.123	2.69	.068	1.26	.284	1.70	.182	8.56	.000
	Model 4	1.73	.177	.98	.377	1.83	.161	.94	.393	.58	.559	7.28	.001
GPA	Model 1	.32	.730	7.05	.001	28.03	.000	.71	.491	1.22	.296	14.59	.000
at age 16	Model 2	.21	.813	5.40	.005	23.16	.000	.83	.436	.49	.615	9.99	.000
	Model 3	.17	.840	3.80	.022	19.91	.000	.67	.511	.32	.729	8.26	.000
	Model 4	.34	.711	1.51	.220	12.68	.000	.56	.572	.13	.879	5.46	.004

*Degrees of freedom = 2 in all models.

Model 1: unadjusted.

Model 2: adjusted for all early life variables mutually (Mother's attitude, Father's SES, GPA).

Model 3: additionally adjusted for employment trajectories between ages 16–45.

Model 4: additionally adjusted for marital status (married/cohabiting vs. not), employment status (full-time work vs. not) and household income at age 46.

Table 6

Work-related well-being at age 46 in relation to preceding employment trajectories* among men: mean values of the outcomes and their bootstrapped 95 % confidence intervals with F- and p-values for ANOVA, unadjusted (Model 1), adjusted for early life factors (Model 2) and additionally adjusted for life situation at age 46 (Model 3).

a.

	Men					
	Trad	High	Self	Delay	Flound	Significance
Job satisfaction						
Model 1	3.74	3.84	3.84	3.73	3.58	$F(4,2547)=4.68$
	3.68−3.79	3.78−3.91	3.75−3.92	3.66−3.80	3.45−3.72	$p = .001$
Model 2	3.78	3.81	3.82	3.71	3.62	$F(4,1954) = 2.05$
	3.71−3.85	3.74−3.88	3.72−3.92	3.62−3.80	3.48−3.77	$p = .086$
Model 3	3.80	3.79	3.83	3.70	3.67	$F(4,1806)=1.62$
	3.73−3.88	3.72−3.87	3.73−3.92	3.62−3.78	3.50−3.83	$p = .166$
Life satisfaction						
Model 1	3.99	4.15	3.97	3.95	3.51	$F(4,2875)=35.64$
	3.94−4.04	4.10−4.21	3.89−4.06	3.88−4.01	3.40−3.63	$p<.001$
Model 2	4.00	4.12	3.99	3.94	3.53	$F(4,2180) = 20.81$
	3.94−4.06	4.06−4.19	3.90−4.08	3.86−4.02	3.37−3.67	$p<.001$
Model 3	4.02	4.05	3.95	3.95	3.73	$F(4,2032)=5.46$
	3.96−4.08	3.99−4.11	3.87−4.04	3.87−4.04	3.58−3.87	$p<.001$
Retirement thoughts						
Model 1	1.74	1.50	1.71	1.61	1.96	$F(4,2931) = 23.82$
	1.69−1.79	1.46−1.55	1.64−1.78	1.56−1.67	1.86−2.07	$p<.001$
Model 2	1.73	1.56	1.70	1.61	1.93	$F(4,2216)=9.97$
	1.67−1.79	1.51−1.62	1.62−1.77	1.54−1.68	1.80−2.06	$p<.001$
Model 3	1.72	1.61	1.73	1.62	1.82	$F(4,2028)=3.66$
	1.65−1.78	1.55−1.66	1.63−1.82	1.55−1.68	1.67−1.96	$p = .006$
Work engagement						
Model 1	4.30	4.56	4.57	4.40	4.28	$F(4,2558)=5.99$
	4.21−4.39	4.46−4.64	4.47−4.68	4.29−4.51	4.08−4.47	$p<.001$
Model 2	4.37	4.50	4.60	4.38	4.40	$F(4,1960) = 2.21$
	4.27−4.47	4.40−4.59	4.46−4.72	4.25−4.50	4.17−4.61	$p = .065$
Model 3	4.44	4.46	4.60	4.37	4.52	$F(4,1810)=1.71$
	4.33−4.54	4.36−4.56	4.47−4.76	4.24−4.50	4.27−4.77	$p = .145$
Work favoring attitude						
Model 1	3.23	3.37	3.54	3.30	3.15	$F(4,2940)=17.47$
	3.18−3.28	3.32−3.42	3.46−3.61	3.25−3.36	3.06−3.24	$p<.001$
Model 2	3.28	3.35	3.53	3.27	3.21	$F(4,2216)=9.54$
	3.22−3.33	3.29−3.41	3.45−3.62	3.20−3.34	3.10−3.32	$p<.001$
Model 3	3.29	3.33	3.53	3.26	3.26	$F(4,2035)=7.41$
	3.24−3.35	3.27−3.39	3.43−3.62	3.20−3.32	3.15−3.37	$p<.001$
Job control						
Model 1	3.54	3.75	3.98	3.59	3.48	$F(4,2562)=50.83$
	3.50−3.58	3.71−3.79	3.92−4.05	3.53−3.65	3.38−3.59	$p<.001$
Model 2	3.59	3.70	4.00	3.58	3.51	$F(4,1963)=35.07$
	3.54−3.63	3.65−3.74	3.94−4.06	3.52−3.63	3.40−3.62	$p<.001$
Model 3	3.62	3.68	3.99	3.58	3.54	$F(4,1813) = 29.24$
	3.57−3.67	3.64−3.72	3.93−4.06	3.51−3.64	3.42−3.66	$p<.001$

b

	Women					
	Trad	High	Self	Delay	Flound	Significance
Job satisfaction						
Model 1	3.78	3.79	3.98	3.73	3.76	$F(4,3069)=4.32$
	3.72−3.84	3.74−3.85	3.88−4.07	3.66−3.80	3.69−3.83	$p = .002$
Model 2	3.79	3.80	3.95	3.75	3.75	$F(4,2481) = 2.62$
	3.72−3.86	3.74−3.87	3.84−4.06	3.67−3.83	3.68−3.81	$p = .033$
Model 3	3.80	3.79	3.96	3.74	3.79	$F(4,2189) = 2.409$
	3.73−3.88	3.72−3.85	3.84−4.09	3.65−3.84	3.71−3.87	$p = .047$
Life satisfaction						
Model 1	4.08	4.13	3.98	3.99	3.92	$F(4,3457)=9.16$
	4.03−4.13	4.08−4.18	3.88−4.09	3.93−4.05	3.86−3.97	$p<.001$
Model 2	4.11	4.12	4.00	4.05	3.96	$F(4,2778)=4.37$
	4.05−4.16	4.07−4.18	3.89−4.11	3.99−4.11	3.90−4.03	$p = .002$
Model 3	4.10	4.10	3.99	4.03	4.06	$F(4,2453)=1.53$
	4.05−4.15	4.04−4.15	3.87−4.10	3.95−4.10	3.99−4.13	$p = .192$
Retirement thoughts						

Table 6 (*continued*)

b

| | Women | | | | | |
	Trad	High	Self	Delay	Flound	Significance
Model 1	1.61	1.47	1.66	1.57	1.68	$F_{(4,3490)}=10.10$
	1.56–1.67	1.43–1.51	1.58–1.75	1.52–1.63	1.61–1.75	$p<.001$
Model 2	1.60	1.53	1.64	1.52	1.64	$F_{(4,2809)}=3.14$
	1.54–1.65	1.48–1.57	1.55–1.74	1.46–1.58	1.57–1.71	$p=.014$
Model 3	1.60	1.55	1.64	1.51	1.61	$F_{(4,2448)}=2.15$
	1.54–1.66	1.49–1.60	1.54–1.75	1.44–1.57	1.53–1.69	$p=.072$
Work engagement						
Model 1	4.65	4.72	4.87	4.63	4.72	$F_{(4,3077)}=2.60$
	4.56–4.74	4.65–4.79	4.74–5.00	4.54–4.71	4.63–4.82	$p=.035$
Model 2	4.67	4.70	4.85	4.67	4.72	$F_{(4,2486)}=1.22$
	4.57–4.75	4.63–4.78	4.71–5.00	4.56–4.77	4.61–4.83	$p=.301$
Model 3	4.66	4.67	4.83	4.67	4.74	$F_{(4,2195)}=1.02$
	4.56–4.77	4.58–4.76	4.67–4.98	4.55–4.78	4.63–4.85	$p=.396$
Work favoring attitude						
Model 1	3.39	3.46	3.62	3.45	3.36	$F_{(4,3511)}=8.38$
	3.34–3.43	3.41–3.51	3.54–3.69	3.39–3.51	3.30–3.42	$p<.001$
Model 2	3.38	3.46	3.59	3.47	3.37	$F_{(4,2819)}=5.54$
	3.32–3.44	3.41–3.51	3.51–3.68	3.41–3.53	3.30–3.44	$p<.001$
Model 3	3.38	3.44	3.59	3.45	3.39	$F_{(4,2458)}=4.02$
	3.32–3.44	3.38–3.49	3.49–3.67	3.39–3.51	3.31–3.46	$p=.003$
Job control						
Model 1	3.45	3.55	3.93	3.39	3.37	$F_{(4,3089)}=61.03$
	3.41–3.49	3.51–3.58	3.85–4.00	3.35–3.43	3.33–3.42	$p<.001$
Model 2	3.48	3.52	3.96	3.42	3.39	$F_{(4,2497)}=47.80$
	3.44–3.53	3.48–3.56	3.88–4.05	3.37–3.47	3.34–3.44	$p<.001$
Model 3	3.49	3.51	3.97	3.44	3.42	$F_{(4,2199)}=40.12$
	3.44–3.54	3.47–3.55	3.89–4.05	3.39–3.49	3.36–3.48	$p<.001$

*Employment trajectories from 16–45 years: Trad = Traditional employees, High=Highly educated employees.

Self = Self-employed, Delay = Delayed full-time employees, Flound = Floundering trajectory.

Model 1: unadjusted.

Model 2: adjusted for mother's attitude on social aid at age 0, father's SES at age 14 and own GPA at age 16.

Model 3: additionally for life situation at age 46 (employment and marital status, yearly income.

attachment was associated with lower psychological distress at age 42 as compared to continuously poor labor attachment, equivalent to floundering (Waenerlund et al., 2014). In terms of well-being, similar kind of gains from re-employment have been found in a Portuguese sample, where individuals who were re-employed after a long period of unemployment reported more positive affect and life satisfaction as compared to those who were re-employed after a shorter history of unemployment. In that sample however, the effect was larger in women as compared to men (Ferreira, Reitzle, Lee et al., 2015).

4.2. Early life social role investments preceding the employment trajectories and well-being in midlife

To our knowledge, this is the first study to empirically show that the mother's attitude towards the importance of self-reliance regarding one's own standard of living appears to be associated with highly educated and self-employed trajectories. Our results are in line with earlier studies on childhood socioeconomic factors affecting career outcomes, showing that a white-collar family background seems to predict a highly-educated employment trajectory (e.g. Schoon et al., 2007) and may even predict higher stability of employment during the later phases of work careers (Hoven et al., 2017). Notably, farmers' children tended to end up self-employed in our study. Previously, a British 1958 Birth Cohort Study has shown that, for men, becoming an entrepreneur was predicted by having a self-employed father (Schoon & Duckworth, 2012), a result in line with the present finding on farmers, who form a specific category of self-employment.

Our results on different backgrounds of entering the various employment trajectories can be interpreted in light of the SIT (e.g.,

Lehnart et al., 2010; Lodi-Smith & Roberts, 2007; Roberts & Wood, 2006) implying that primary socialization into an employment role is enhanced through childhood value-based encouragement to invest one's energy in a breadwinner role. Mother's emphasis on economical self-reliance may foster the overall idea of becoming an entrepreneur, or of investing heavily in education in order to end up in well-paid employment. Mother's attitude may also encourage higher commitment to schoolwork, which has been suggested to predict success at school as much as general intelligence (Steinmayr et al., 2011; Spinath, Eckert, and Steinmayr (2014). Sufficient success at school in turn is a prerequisite of academic careers. Likewise, growing in a family providing either entrepreneurial or academic role models may lead to internalization of the ideal of high investments in these social roles, later manifested as investing in success at school during adolescence and finally, in adulthood, investing in higher education, an employment role or in starting an own business.

In line with SIT, apart from influencing the acquisition of future employment trajectories, we found associations of pre-employment factors with employment-related well-being in midlife, even when adjusted for preceding longitudinal employment trajectories and current life situation in midlife. In the fully adjusted models, mother's attitude towards economical self-reliance associated with the female cohort members' work engagement at the age of 46 years. We also found that the father's higher SES in the cohort members' youth preceded later perceptions of job control in midlife among both genders, a finding which can be interpreted in light of intergenerational transmission of higher SES (e.g. Carvalho, 2012) accompanied with favorable job characteristics, a finding also in line with SIT. Furthermore, GPA at age 16 was predictive of both highly educated trajectory and higher job

control and less retirement intentions in midlife among both genders. It is well known, that highly educated have higher job control, as well as willingness to continue working in later stages of career.

As a general pattern in our models, however, the unadjusted associations between early life variables and well-being at midlife largely diminished when the later social role investments in education and employment, the 30-year long employment trajectories, were added into the models. This emphasizes the substantial importance of later career-long investments in employment roles as regards to work-related well-being in midlife.

4.3. Psychological outcomes of employment trajectories up to midlife

We found clear differences in work-related well-being and satisfaction in life according to the preceding employment trajectories. In accordance with SIT, those on the self-employed and highly-educated trajectories, characterized by highest investments in employment and education, reported overall the highest levels of work-related well-being. The self-employed reported the most work-favoring attitudes and highest job control. This is in line with earlier cross-sectional findings, according to which job autonomy and interesting work are the main factors behind the high job satisfaction among the self-employed (Benz & Frey, 2008). In turn, those floundering reported the lowest levels of both work-related well-being and life satisfaction. Lower psychological well-being among those with unstable work has been documented already previously (e.g. Virtanen et al., 2005, Waenerberg et al., 2014). Interpreted in light of SIT, lacking an employment role through constant floundering deepens a social de-investment process regarding employment. This could then be reflected as thoughts for retirement already at age 46. We also found, that men who ended up in full-time work later on, and as a consequence could develop their commitment to an employment role at least later, reported higher satisfaction in midlife as compared to those continuously floundering, in accordance with SIT. When comparing men and women in the delayed trajectories, the women had slightly more often temporary and part-time contracts than the men, which may at least partially underlie the lack of such difference between the delayed and floundering trajectories among women. We'd like to note that the processes of commitment and de-commitment to employment-related roles are usually not intentional, not even in adulthood, but rather evolve through unintentional psychological reactions to the surrounding resources as perceived by the individual.

Surprisingly, the perception of the inherently positive concept of work engagement was not statistically significantly dependent on the preceding employment trajectories. Work engagement is defined as "a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption" (Schaufeli et al., 2002). As a state-like work related experience, it is positively influenced by current job resources, such as performance feedback, social support, and so on (Schaufeli & Bakker, 2004) even if one's employment history would be unstable.

Notably, the characteristics and psychological outcomes of the trajectories patterned overall similarly in men and women, with the exception of the aforementioned differences in educational investments. A gendered result emerged so that differences in overall life satisfaction indicators between the trajectories were only found among men in the adjusted models. This might be attributed to women having more choice in addressing their activities between work and family, which may buffer for disappointments in either domain (Wood & Neels, 2017).

4.4. Methodological considerations

The major strengths of this study are its prospective design based on general population, covering both genders and all branches of occupational and economic activity, the large sample size with an acceptable response rate, and the length of follow-up spanning the first half of the life course. As the cohort members are of the same age, differences in

macroeconomic cycles between different generations do not bias the patterning and evaluation of the employment trajectories.

An additional strength is the availability of a wide range of established and high-quality variables. Regarding early life factors, any recall bias could be eliminated by using survey data collected in 1966 for mothers' values on social investments and in 1980 for fathers' occupational status, and also by using nationally registered indicators for own success at school. The high reliability of the retrospective life history calendar (LHC) from 16–45 years was ascertained by the close accordance of the self-reported yearly employment statuses in LHC with the corresponding individually gathered data obtained from national employment registers. An additional strength in using this method in defining the employment trajectories is the data driven approach enabling the identification of all relevant emerging trajectories regarding the chosen roles and their timing during the follow-up instead of being limited to predefined criteria for earlier or later transitions. Moreover, the full picture of overlapping and changing probabilities of each role within each category during the course of the study can be captured.

There are however also limitations regarding the variables. Although the NFBC1966 study is prospective and longitudinal in nature, a so-called secondary data design regarding social role investments had to be used: the variables from earlier follow-ups reflecting the investments in education and employment had to be chosen from data collected at each time. With our LHC instrument retrospectively collecting information on annual employment statuses, we missed the opportunity to collect further information on whether the work contracts had been permanent or fixed-term. At the end of the follow-up, the outcomes of trajectories between 16–45 years were studied in essence cross-sectionally with the variables obtained a year later, at age 46. We used a large and versatile set of established survey measures regarding well-being at work, which is a widely used concept although still lacking one golden standard of measurement.

We conducted a careful latent class analysis on the LHC measures with an established analytical strategy in studying individual developmental courses over age or time, and for identifying distinctive groups of individual trajectories within the population that emerge, instead of predefined criteria, from the data itself. The adopted analytical strategy illustrates the timelines and allows for descriptive interpretations regarding macroeconomic trends. In addition, in multivariate analyses, we were able to take into account several potentially relevant covariates at both ends of the 30-year-long follow-up. Still, our study is an observational longitudinal cohort study. Any causal inferences must be drawn with caution since unmeasured uncontrolled third factors always remain possible.

We ended up with five different employment trajectories for both men and women, with sensible interpretations regarding Finnish working life during the study period. As our study was limited to one cohort, intergenerational or international comparisons are beyond our reach. We recommend caution in evaluating generalizability of the results to other contexts and cultures of working life. The Finnish context can be characterized as a western, developed, highly educated, rapidly aging welfare society, with quite high gender equality in working life, where the general European Union –level recommendations of research in occupational well-being merit attention (European Union OSHA, 2013). In our analysis of employment trajectories, the systematic notion of self-employment among other roles appeared as a specific strength enabling new insight to the research in the field (European Union OSHA, 2013; Hoven et al., 2017).

4.5. Practical implications

In light of the urgent need for lengthening the working careers and supporting economic sustainability in the aging western societies, understanding both the patterning and the antecedents of well-being at work in midlife including perceptions towards career is a highly relevant

issue. Early retirement from regular employment presents a major challenge to social and health policies. Although a medical condition lowering one's work ability is a criterion for a preterm retirement, low quality of work in terms of e.g. low job control has been found to associate with intentions to retire early (e.g. Siegrist et al., 2006). At the age of 46, such intentions are very preterm indeed. When designing interventions aiming to lengthen the careers, all measures enhancing work-related well-being and commitment to work are of crucial importance. As one aspect, evidence of a positive connection of more intense social investments in education and employment with better well-being, as shown in this study, should be highlighted.

In the turbulences of global economy, increasing attention is being focused on the small and medium size enterprises and entrepreneurs. Regarding the resulting potential for well-being of this development, our results are encouraging, since careers characterized by self-employment were associated with the most positive perceptions of work in midlife. At the same time, we found that already very early attitudinal factors in childhood families were influential in terms of later employment-related social investments. With the larger aim of promoting self-employment in the economies, more attention should be paid to support the development of self-reliance-favoring attitudes already in the early stages of life. To promote all potential for higher education in the work force, also children living in families with some disadvantage should be encouraged and supported to invest in education.

Lastly, in light of the distinct employment trajectories found in this study, notwithstanding the basic idea of trajectory analysis, of conceptualizing developmental differences, we feel that also the contextual macroeconomic circumstances merit attention as shapers of trajectories in addition to individual life courses. It could have been possible that all trajectories had been likewise affected by external economic shocks, but the different groups of employees were unevenly hit by the recession phases of the macroeconomic cycles in our study. Those who had managed to enter full-time employment when the 1990s' recession started, or were still in education by the time, suffered less in terms of employment stability, while those currently unemployed or on family leaves ended up having trouble in entering the labor market later on. On the other hand, the men who did gain full-time employment during this study, even in a delayed manner in their late thirties, reported better psychological well-being at the age of 46 than those who had remained floundering.

By taking a positive psychological approach of social role investments and outcomes, our study provides a novel insight for the longitudinal development of work-related well-being during the first half of the life-course. More studies on the potentially underlying mechanisms behind the observed uneven patterning of employment trajectories and well-being are needed, for example in relation to various aspects of health. Future studies should also deepen our understanding on how these various employment trajectories are reflected in the later stages of careers and retirement patterns.

4.6. Conclusions

To conclude, our findings suggest that the beneficial psychological outcomes of individual employment trajectories, although shaped by macroeconomic contexts, appear to develop during the life course through social investments and values already in early childhood, through higher education and stability of employment and, as a novel finding, through self-employment. The results are in accordance with SIT, proposing that work related social investments of an individual are long rooted in childhood primary socialization, further supported by individual commitment to accumulating investments in education and employment, thereby resulting in work-related well-being in midlife.

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