

Entry of men into the labour market in West Germany and their career mobility (1945–2008)

A Long-term longitudinal analysis identifying cohort, period, and life-course effects

Rolf Becker¹ · Hans-Peter Blossfeld²

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Abstract This study analyses how the long-term modernisation process as well as ups and downs of business cycles affect the entry of men into the labour market in West Germany and their career mobility. Combining longitudinal data from the German Life History Study and the ALWA study, we first reconstructed men's job histories continuously for the period between 1945 and 2008. As a measure of men's 'goodness of jobs' at entry into the labour market and across the job career, the magnitude prestige scale (MPS), has been employed. Then, we used the time series data obtained from official statistics to perform factor analysis and suggest a more substantially grounded approach than the conventional approach to the analysis of age (A), period (P) and cohort (C) effects. In particular, we assessed how the modernisation process and continuously changing labour market conditions affect men's entry into the labour market across successive cohorts. Based on their further occupational careers, we used a multi-level event-history model to study how placements in first jobs (cohort effect) and the continuously changing macro structure (period effect) influence men's upward, lateral, and downward career mobility, controlling for men's individual-level resources, such as educational attainment and changing labour force experience (life-course or age effect). This fully dynamic

analysis shows that there was improvement in the quality of entry-level jobs and increased mobility across men's birth cohorts. This allows us to gain a better understanding of how long-term macroeconomic trends have influenced social inequality in West Germany across several generations.

Keywords APC analysis · Labour market entry · Career mobility · Modernisation process · Business cycles

Berufseintritt von Männern in Westdeutschland und ihre Karrieremobilität (1945–2008)

Eine Längsschnittstudie unter besonderer Berücksichtigung von Kohorten-, Perioden- und Lebenszykluseffekten

Zusammenfassung In dieser Studie wird untersucht, wie der langfristige Modernisierungsprozess und der Verlauf der Konjunkturzyklen sowohl den Arbeitsmarkteintritt von westdeutschen Männern als auch ihre Karrieremobilität beeinflusst. Mittels kombinierter Längsschnittdaten der Deutschen Lebensverlaufs- und der ALWA-Studie werden zunächst deren Karriereverläufe für die Periode von 1945 bis 2008 rekonstruiert. Für die Messung von Erfolgen beim Berufseintritt und in der Karriere wird die Magnitude-Prestige-Skala (MPS) herangezogen. Dann werden Zeitreihendaten der amtlichen Statistik herangezogen, um eine Faktorenanalyse durchzuführen, deren Ergebnisse dazu verwendet werden, in einer alternativen Art und Weise Alters-, Perioden- und Kohorteneffekte für Mobilitätsprozesse aufzudecken. Es wird für aufeinander folgende Geburtskohorten überprüft, wie sich Modernisierungsprozess und kontinuierlich verändernde Arbeitsmarktbedingungen auf den Berufseintritt auswirken. Für die weiteren Berufsverläufe wird ein dynamisches Mehrebenen-Modell verwendet, um zu untersuchen, wie die Platzierung im ersten Job (Kohorteneffekt)

✉ Rolf Becker
rolf.becker@edu.unibe.ch

✉ Hans-Peter Blossfeld
hp.blossfeld@eui.eu

¹ Department of Sociology of Education (ABS), University of Bern, Fabrikstrasse 8, 3012 Bern, Switzerland

² European University Institute, Department of Political and Social Sciences (SPS), Villa San Felice, Via dei Roccettini 9, 50014 San Domenico di Fiesole (FI), Italy

und die sich kontinuierlich verändernden Makrostrukturen (Periodeneffekte) die Auf- und Abwärtsmobilität sowie die laterale Mobilität unter Kontrolle individueller Ressourcen wie etwa Bildung und Berufserfahrung (Lebenszyklus- bzw. Alterseffekt) beeinflussen. Diese dynamische Analyse zeigt, dass sich in der Kohortenabfolge die Qualität der Einstiegsbeschäftigungen verbessert und die Karrieremobilität zugenommen hat. Sie deckt auf, wie langfristige makroökonomische Trends die soziale Ungleichheit in Westdeutschland über verschiedene Generationen strukturieren.

Schlüsselwörter Modernisierungsprozess · Konjunkturzyklen · A-P-K-Analyse · Arbeitsmarkteintritt · Karrieremobilität

1 Introduction

Since the global financial crisis in 2009 there has been a renewed interest in the impact of macroeconomic changes on the job trajectories of the workforce. In Germany, sociologists and economists are increasingly painting a gloomy picture about the consequences of macroeconomic changes (Grabka and Frick 2008; Bertelsmann Stiftung 2013; Bosch and Kalina 2015). It is believed that while the older generations witnessed an improvement in job opportunities during the times of the German economic miracle since the 1950s and the expansion of the welfare state in the 1960s and 1970s, recent cohorts not only suffer from declining job entry opportunities but also from more downward mobility, fewer upward job moves, and generally flatter career lines. Based on these changes, it is assumed that the rising middle class is declining again (Herbert-Quandt-Stiftung 2007; Bertelsmann Stiftung 2013; Bosch and Kalina 2015; Nachtwey 2016). Whether this diagnosis is indeed valid or not (see the critique by Groh-Samberg and Hertel 2010; Institut für Sozialforschung und Gesellschaftspolitik 2011; Niehues 2014; Mayer 2016) is still unclear, given that most of the claims and counterclaims are based on relatively short-term (and mostly cross-sectional) empirical evidence contrasting the current labour market situation with what is believed to be true about the changing macrostructure and its effects on job histories in the distant past.

The goal of this study is, therefore, to describe the long-term modernisation process and the changes in the labour market conditions affected by the ups and downs of the

business cycle.¹ Further, this study aims to analyse the effects of these macro processes on the entry of men into the labour market in West Germany and their career mobility. Using combined data from the German Life History Study (GLHS) and longitudinal study ‘Working and Learning in a Changing World’ (ALWA: *Arbeiten und Lernen im Wandel*), we reconstruct the career histories of men born between 1929 and 1976, and analyse how their careers were shaped by macroeconomic changes between 1945 and 2008. As a measure of men’s “goodness of jobs” at entry into the labour market and across the job career we do not use wages but the broader sociological concept of magnitude prestige scale (MPS) suggested by Wegener (1988, 1992). Taking into account the job entry and career processes of men over a long observation window allows us to distinguish between the effects of age (A), period (P) and cohort (C) on the career processes in a more detailed manner. Compared to conventional APC analyses, which often apply methodological constraints to identify APC effects (Glenn 1977; Mayer and Huinink 1990), we suggest a more substantially grounded approach in this study (Sørensen 1986). We propose to measure cohort and period effects using theoretically derived indicators (Blossfeld 1986). Utilising time series data obtained from official statistics we first identify the most relevant macroeconomic changes and their impact on the labour market by performing confirmatory factor analysis. We then apply these macro indicators in a multi-level regression model to assess the historical macro conditions under which the successive cohorts entering the labour market started their job careers in West Germany (cohort effect). Based on men’s further careers, we then examine how the continuously changing macrostructure influences the men’s upward, lateral and downward career mobility (period effect) using a multi-level transition rate model and controlling for the men’s individual resources, such as educational attainment and changing labour force experience (life-course or age effect). This fully dynamic analysis allows us to gain a better understanding of the effect of long-term macroeconomic trends on social inequality – among other trends, such as educational expansion and qualification upgrading of the labour force, as well as demographic trends and their consequences, such as change

¹ In the social sciences, modernisation is understood as a long-term and monotonic process of social change (Lerner, 1968). Our measure of modernisation includes processes such as industrialisation and tertiarisation, the upgrading of the occupational structure, social differentiation, bureaucratisation, the rise of the welfare state and educational expansion, as well as progress in technology and information and communication technology (ICT) (see also Bendix, 1967; North, 1990). In particular, processes in terms of long-term improvement such as increasing social and economic welfare, economic productivity, mass consume, social security, and globalization are emphasized in this study having positive impacts on upward mobility in the men’s career process.

of manpower and inter-cohort competition at the time of labour market entry and across the work history (Mayer and Huinink 1990) in Germany and across several generations.

Our paper is organised as follows: based on economic and sociological labour market theories we develop hypotheses for our dynamic analysis of cohort, period, and life-course effects on career mobility. Then, we describe the data and methods used to identify cohort, period, and life-course effects. Thereafter, we present empirical evidence for the job trajectories of men in West Germany, and finally we draw conclusions about the development of opportunities at the time of entry into the labour market, career mobility and the long-term trend of social inequality across generations.

2 Theories and hypotheses

Sociological and economic theories agree that *education* is one of the most important individual characteristic required for all kinds of job rewards (status, prestige, income, fringe benefits, employment opportunities, upward moves, etc.). The sociological status attainment theory (Blau and Duncan 1967; Sewell and Hauser 1975) – a static approach (Blossfeld 1986, p. 209) – emphasises the role of education in getting a first job, as well as for the job observed at the respondents' age of 30 years. This supply-side theory assumes that all positions in the labour market are freely available to anyone with the necessary qualifications. Thus, it does not involve changes in the structure of the labour market in its approach (Sørensen 1986).

The same is true for the economic human capital theory (Becker 1975; Mincer 1974), a semi-static approach, which postulates that the *level of education* reflects investments in human capital and the related individual productivity. Hence, well-educated people tend to get better jobs and higher incomes at the time of entry into the labour market compared to those who are not well-educated. Moreover, according to this approach, they might experience more upward moves and fewer downward moves in the later phases of their careers compared to less skilled manpower.

While an individual's formal school or university education is regarded as relatively stable over his/her job career, the main cause of change in career opportunities is *on-the-job training*. Training is, however, costly and therefore is not evenly distributed in an individual's occupational career (Mincer 1974). The human capital theory predicts that people receive training as long as their expected returns exceed their expected costs. Therefore, training is concentrated in the early phase of one's career, when more time is available to recover training costs. Therefore, career lines are considered as concavely curved, because increasing *labour force experience* reduces the likelihood of receiving new training

and consequent upward moves. Furthermore, labour force experience protects workers against downward job moves, even though decreasing productivity in the later phases of one's career may result in an increased likelihood of downward mobility (Sicherman and Galor 1990).

In the available literature related to our study there are several variants of the main human capital argument. Because employers are often not certain of an individual's productive capabilities at the time of hiring, they have to rely on education certificates as observable indicators of the individual's productivity (Spence 1973). This means that job-person mismatches may occur, and job shifts are used to resolve them (Tuma 1985; Blossfeld 1986). Because unexpected gains owing to mismatches balance unexpected losses, on average upward and downward shifts are equally likely. However, downward shifts are more likely if individuals are over-rewarded, and the likelihood of being over-rewarded increases with increasing job rewards and decreasing individual resources. Conversely, upward shifts are more likely if individuals are under-rewarded, and the likelihood of being under-rewarded increases with decreasing job rewards and increasing individual resources (Tuma 1985).

Another variant of the human capital theory is the semi-static job competition model by Thurow (1975), which considers ideas of the institutional approach to labour market segmentation. This model rejects market imperfections as a possible explanation of career mobility and suggests that individuals compete against one another for jobs based on their relative costs of being trained. Thus, there is a labour queue for each job vacancy, and the most important characteristics that increase the likelihood of being hired are education and training. Thus, according to this theoretical model, the predicted consequences of the effects of education and labour force experience on career mobility are the same as suggested by the traditional approaches.

Overall, according to all the above sociological and economic theories, formal education is expected to have a positive effect on the status attainment and the related benefits at entry into the labour market (*hypothesis 1*) and on the rate of upward moves in the later phases of a person's career (*hypothesis 2*). There is no specific effect of education on lateral moves (*hypothesis 3*). Furthermore, education protects individuals from downward moves (*hypothesis 4*). In addition, labour force experience has a negative effect on upward moves (*hypothesis 5*), because of the declining investments in further training across individuals' job histories, and a negative effect on downward moves (*hypothesis 6*) and lateral moves (*hypothesis 7*), because accumulated (job-specific) training protects individuals from downward moves.

However, all the theories discussed so far only focus on the determinants of the supply side of the labour market

and do not consider structural changes in terms of modernisation on the demand side. Therefore, it is necessary to consider these changes in a dynamic approach of career mobility (Blossfeld 1986). In the era of globalisation and tertiarisation, during the last 25 years, labour market structures and labour market conditions have become more dynamic and less predictable (Blossfeld et al. 2011; Blossfeld and Mayer 1991). Market wages and job positions have become more volatile because product markets are increasingly influenced by random shocks and contingent events in the interdependent global economy (Blossfeld et al. 2005, 2006a, b; Blossfeld and Hofmeister 2006). Due to increased global competition, there is also an increase in scientific and technological innovations in the global and national economies, which is accelerating the long-term economic modernisation trend (Blossfeld et al., 2005, 2006a, b; Blossfeld and Hofmeister 2006; Becker and Schömann 2015). Thus, less predictable economic cycles and accelerated technological modernisation are two important macro factors impacting today's labour markets in all modern economies.

In previous studies there have been various contradicting claims regarding the effects of technological change on the occupational structure and job requirements (Treiman 1970). Industrial sociologists have claimed that new technologies and changes in work organisations are leading to a general up-gradation of skills while on the job (Blauner 1975), a universal downgrading of job requirements (Bright 1966), a polarisation of the demand for skills between different job categories (Kern and Schumann 1970, 1984), and perpetual diversification of skills in occupations (Janossy 1966). At the macro sociological level, the theory of knowledge society suggested by Bell (1973) predicts an overall increase in highly skilled job positions at the expense of a decrease in unskilled jobs; however, Braverman's (1977) theory of deskilling forecasts a general increase in unskilled occupations in the course of the development of modern capitalist societies. If the arguments of Bright and Braverman are true, modernisation, on average, should worsen job entry opportunities (*hypothesis 8*) and produce increasing downward mobility (*hypothesis 9*), as well as decreasing upward mobility (*hypothesis 10*); if Blauner and Bell are right, modernisation should lead to better entry job opportunities (*hypothesis 11*) and more upward moves than downward moves (*hypothesis 12*); if Kern and Schumann are right, modernisation should lead to more upward, lateral, and downward moves (i. e. a higher overall mobility rate) (*hypothesis 13*). However, the upward mobility rate should be lower than the downward mobility rate (*hypothesis 14*), because only a few people get the opportunity to take advantage of the creation of jobs that require higher qualifications (e. g. engineers, professionals) and most workers with vocational training are forced to move down to unskilled positions. Thus, modernisation simply means more mobility,

with a trend towards the down-gradation of the occupational structure. Despite these conflicting theoretical views, empirical evidence based on representative employment statistics of today's more advanced service societies show, with an impressive regularity, that the greatest rises in non-manual employment over recent decades have not occurred in relatively low-level clerical, sales, and personal service grades but in professional, administrative, and managerial occupations, owing to the tertiarisation of the occupational structure and the expansion of public employment (Erikson and Goldthorpe 1993; Becker 2007). Further, they show that the major declines in manual employment have been in the less skilled rather than more skilled job categories (Becker and Blossfeld 1991; Blossfeld and Mayer 1991; Erikson and Goldthorpe 1993; DiPrete et al. 1997; Blossfeld et al. 2005, 2006a, b, 2011; Blossfeld and Hofmeister 2006). This empirical evidence is also true for the most recent technological developments in the field of mechanisation, automation, robotisation, and digitalisation, as demonstrated by a comparative Organisation for Economic Co-operation and Development (OECD) study (Arntz et al. 2016; see also: Autor et al. 2003; Oesch 2013). Thus, from our empirical analysis, we aim to prove that the *monotonic modernisation trend* is closely associated with a general up-gradation of the occupational distribution, little downgrading and an average improvement in job opportunities across cohorts.

In addition to the modernisation process, we observe the effects of regular ups and downs of business cycles on the growth in output, jobs, income and career mobility in capitalist economies. "Business cycles are a type of fluctuation found in the aggregate economic activity of nations that organise their work mainly in business enterprises; a cycle consists of expansions occurring at about the same time in many economic activities, followed by similarly general recessions, contractions and revivals which merge into the expansion phase of the next cycle; in duration, business cycles vary from more than one year to ten or twelve years" (Burns and Mitchell 1946). A critical feature of business cycles is that they are widely diffused over the entire economy at a certain historical point in time (Burns 1951). During periods of economic expansion, sales, production, employment, and incomes generally increase in the economy. During periods of boom, jobs are created, unemployment declines and real wages, as well as career opportunities, increase. Thus, we assume that an improvement in the labour market conditions is associated with better entry opportunities for job starters (*hypothesis 15*). Further, we expect that during periods of boom, there are more upward and fewer downward career moves (*hypothesis 16*).

During periods of contraction, sales decline, production slows down, unemployment rises and incomes stagnate or even decline. During periods of slowdown or recession, fewer job vacancies are available for people looking for

work or promotion opportunities. Young people may choose to wait until a more suitable job becomes available or accept a job whose status (including benefits such as prestige or wages) is lower than initially expected. Given these two alternatives, most young people are expected to choose the latter alternative and accept a job of lower quality than initially expected (*hypothesis 17*). Obviously, economic contraction should also lead to fewer upward job moves and is expected to force people to move in the downward direction (*hypothesis 18*). A dynamic approach to men's job mobility and status attainment should, therefore, consider the impact of both the continuous path of modernisation and the cyclical development of labour market conditions on an individual's entry into the labour market and career mobility.

Finally, let us consider the effects of the changing labour market structure (modernisation) on *job opportunities* across generations. Successive generations start their careers in different structural contexts. The main features of these contexts can be described by the historic level of modernisation and labour market conditions (the changing state of the business cycle). We assume that the modernisation process is closely linked to new job requirements, which differ from the respective structure of people's qualifications at a given time (Janossy 1966). Thus, in periods of accelerated modernisation, the gap between the structure of qualifications of the labour force and the structure of skill demands of jobs tends to widen quickly. A continuous matching of both structures may be achieved through two basic adjustments. First, people in the labour force may acquire new qualifications through further education, lifelong learning, or on-the-job training (Blossfeld et al.

2014; Becker and Schömann 2015). Second, new labour market entrants, who have a more up-to-date and relatively high educational attainment, may fill the newly created and more demanding jobs, and at the same time obsolete jobs may disappear when the older generations retire from work (generational replacement). In reality, both adjustments occur simultaneously. However, according to Janossy (1966), re-training of employees is limited by their age because the return on investments in training steeply diminishes with age for workers and companies alike. In other words, as the modernisation process advances, younger cohorts of entrants start their careers at higher average levels of job attainment (*hypothesis 19*). Because qualification is a key factor, it is particularly the qualified and highly qualified young labour market entrants who are expected to get access to the newly created skilled jobs (Blossfeld et al. 2005), whereas the unskilled job starters are penalised by the modernisation process (*hypothesis 20*). Overall, the mechanism of generational replacement in the occupational structure is supported by the macro processes of educational expansion and the up-gradation and tertiarisation of job requirements across cohorts. The generational replacement of less qualified older workers by more qualified younger workers is a particularly effective mechanism of occupational change, especially in times of globalisation and tertiarisation of economic sectors.

However, it is important to address how the experience of cohorts at their time of entry into the labour market influences their subsequent career trajectories (Blossfeld 1985). In a pyramidal job inequality structure (Sørensen 1975, 1983; Blau 1977), there is a ceiling effect, and thus a very favourable placement in the first job position makes

Table 1 Summary of hypothesised effects

Variable	Mobility	Static approaches	Semi-static approaches		Dynamic approaches
		Status attainment approach	Human capital theory	Job competition theory	
Education	Upward	+	+	+	(+)
	Downward		–	–	(–)
Time in labour force (Life-course effect)	Upward		–	–	(–)
	Downward				
Prestige of first job (Cohort effect)	Upward		–	–	–
Downward			+	+	+
Level of modernisation (Period effect)	Upward				+
Downward					–
Labour market conditions (Period effect)	Upward				+
Downward					–

it harder to find an even better position. Hence, we expect a decreasing rate of upward mobility (*hypothesis 21*) and an increasing rate of downward mobility (*hypothesis 22*) the more prestigious the job is at the time of entry into the labour market.

The main theoretical arguments and hypotheses regarding upward and downward mobility are summarised in Table 1 (see: Blossfeld 1986, p. 201). We want to stress here again that in our empirical analyses we measure men's "goodness of jobs" at entry into the labour market and across the job career not in terms of men's wages but in terms of the broader sociological concept of MPS. The MPS is based on the ISCO (International Standard Classification of Occupations) codes of jobs and is a well-known as well as often applied standard and empirically proven measure in sociology in order to describe the "quality of jobs" in an occupational hierarchy (Wegener 1988, 1992; Blossfeld 1986). Compared to income or wages, MPS scores can be considered as a much broader measure of the quality of jobs and their benefits since they do not only capture aspects of earnings quality, but also aspects of labour market security (economic security related to the risks of job losses in certain occupations) and quality of the working environment (non-economic aspects of jobs, including the nature and content of the work performed as well as workplace relationships).

3 Data, variables, design and statistical procedure

3.1 Data sources

The empirical analyses are based on two compiled longitudinal datasets. The first dataset comprises event-history data obtained from the German Life History Study (GLHS) at the Max Planck Institute for Human Development in Berlin and the Centre for Research on Inequalities and the Life Course (CIQLE) at Yale University. This dataset provides information on the occupational careers and class mobility of birth cohorts 1929–31, 1939–41, 1949–51, 1954–56, 1959–61, 1964 and 1971 in the historical period 1945–1999 (Mayer 2009, 2015; Hillmert and Mayer 2003). The cohorts born around 1930, 1940, and 1950 comprise 2171 West German men and women interviewed between October 1981 and March 1983 (Brückner and Mayer 1998). More than 2000 West Germans born around 1955 were interviewed between October 1988 and November 1989 (Brückner and Mayer 1995). Finally, the data of 2909 women and men born between 1964 and 1971 were collected between June 1998 and February 1999 (Hillmert 2004). Our analyses are restricted to 3555 West German male citizens; foreigners and migrants have been excluded. The second dataset comprises event-history data from the

"Working and Learning in a Changing World" (ALWA: *Arbeiten und Lernen im Wandel*) project of the Institute for Employment Research in Nuremberg (Kleinert et al. 2011). In this project, 10,404 individuals born between 1956 and 1988 were interviewed between August 2007 and April 2008 regarding their training and occupational career. For our analysis, we considered only 2930 West German male citizens in birth cohorts 1959–61, 1964–66, 1969–71, and 1974–76. The selection of the birth cohorts was theoretically driven by the work of Mannheim (1928) on political generations (for details: Becker 2002) as well as methodologically driven so as to emphasise the underlying process of cohort differentiation. Thus, the individuals' 'imprinting' by historical events in an important phase of their political socialisation is the main selection criterion. Besides political ages, most of these phases were correlated with the modernisation trend, business cycles and changes in labour market conditions (Ryder 1965; for details: Brückner 1990; Brückner and Mayer 1995; Hillmert 2004; Mayer et al. 2006; Mayer and Schulze 2009).

The respondents' information on their occupational careers and other areas of their life-course were collected retrospectively (Mayer 2008). The respondents were asked to reconstruct their training and occupational careers with exact time references for the start and end of each of the episodes in their work history (Blossfeld 1986). Institutionalised states and events such as training or jobs were mostly memorised in a valid manner (Becker 2001). To minimise memory-related problems, as well as to maximise the validity and reliability of information, especially with respect to time references and the sequence of episodes, special techniques were used to support the memory process of the interviewees. As an example, in the modules of life areas such as work life, autobiographical cues were presented and already available information was used for filtering the data. Additionally, a tool for checking and amending the data for temporal consistency was used during the computer-assisted telephone interviewing (CATI) process. Finally, after careful preparation for the interviews and data collection (Matthes et al. 2007), systematic inquiries, intensive editing, and close inspections of the information on life-course, in regard to chronological consistency, has been conducted in order to vouch for the quality of the data (Brückner and Mayer 1998; Reimer 2003; Hillmert 2004; Mayer 2008; Matthes et al. 2012).

Both of the longitudinal datasets provided detailed event-oriented information on the respondents' training and job career episodes (Blossfeld et al. 1989). The datasets enable us to reveal the multiple time dependence of the careers at different levels as well as to reconstruct the causal impacts of structural changes at the macro level on the individuals' mobility patterns occurring at the micro level (Mayer and Huinink 1990; Blossfeld and Rohwer 1997; Pötter and

Blossfeld 2001; Becker and Schulze 2013). Finally, the following dynamic analyses are limited to 6485 male citizens in West Germany. Hereby, we consider only those men who were older than 14 years in regard to collecting real employment episodes (duration of more than six months since their entry into the labour market) after the end of the Second World War in May 1945.

3.2 Statistical analysis, dependent and independent variables

We consider two dependent variables. (1) The job *prestige* on entering the labour market (first job) was investigated for occupational beginners (first dependent variable). Job prestige as an indicator of the ‘goodness of the job’ (Sørensen 1983) was measured using magnitude prestige scores (MPS) developed by Wegener (1988, 1992).² (2) The second dependent variable represents the *upward and downward mobility* measured by gains and losses in job prestige from job n to job $n + 1$. *Upward mobility* is defined as an increase of more than 10 per cent in the prestige score from job n to the next job, $n + 1$. *Downward mobility* is defined as any decrease in the prestige score from job n to the next job, $n + 1$. If the prestige score did not change after a job change or increased less than 10 per cent the job move was defined as *lateral job mobility*. Although, the definition of mobility is not theoretically driven, it is methodologically pragmatic (Blossfeld 1986).³

The first independent variable is the respondents’ *educational attainment*. According to human capital and signal theories, the degree of schooling and vocational training was measured using a rank order indicating an individual’s productivity or trainability. For the secondary school qualification, the level of schooling was categorised as follows: (1) no graduation, (2) lower secondary school

graduation (‘Volksschulabschluss’, ‘Hauptschulabschluss’), (3) intermediate secondary school graduation (‘Realschulabschluss’ or ‘Mittlere Reife’) and (4) higher education entrance qualification (i. e. eligibility for university training [‘Abitur’] or training at a university of applied sciences [‘Fachhochschulreife’]). For vocational and tertiary training, the levels were (1) no graduation, (2) general vocational education and training (‘Lehre’, ‘Fachschule’), (3) advanced vocational training (e. g. master, technician) and (4) university degree (Diploma, PhD). The achievements in schooling and vocational training were arranged and combined multiplicatively following the logic of the well-known CASMIN scheme (Braun and Müller 1997). Using this combination of achievements of schooling and vocational training, the higher qualifications and accumulated skills (e. g. university degree) were more likely to indicate men’s higher productivity and trainability than lower or missing degrees (e. g. lower secondary school resp. intermediate secondary school without vocational education and training).

Furthermore, the *qualifications and credentials* were measured categorically. We distinguished between academics (university degree at least) and less skilled men (a maximum of intermediate secondary school qualification without vocational education and training). The reference category included men with at least intermediate secondary school qualification without vocational education and training, and Abitur as the highest graduation level.

Additionally, the *labour force experience* (measured in months since first entering the labour market) was considered as a time-dependent variable and indicated the *life-course effect*, which is also well known as the age effect or the life-cycle effect (Mayer and Huinink 1990). We recognised that the variable is merely a proxy for several unobserved processes in the previous work history and occupational career, such as productivity, seniority, or ageing.

The *effects of structural changes such as modernisation and labour market conditions* – the so-called *period effects* – were measured using the same procedure as suggested by Blossfeld (1986). Several long time series obtained from the official statistics were utilised, which indicate the *modernisation* level in terms of historical changes in labour market structures, occupational structures and economic business cycles (i. e. volume of labour force; labour force participation rate; share of employees in the primary, secondary and tertiary sectors; gross domestic product (GDP); GDP per capita), as well as the changes in *labour market conditions* (i. e. number of firms, negative unemployment rate and ratio of notified vacancies and manpower) (Zapf and Flora

² For the GLHS cohorts born between 1929 and 1961, the jobs were coded using ISCO-68 (International Standard Classification of Occupations). This code can be transferred to the MPS-86 classification. For the younger cohorts in GLHS and ALWA, the jobs have been coded according to the occupational classification developed by the Federal Employment Agency (Bundesagentur für Arbeit). Therefore, it was necessary to convert this special code to ISCO-68 (three digits). Through this approach, it was possible to use the MPS for all jobs of all the birth cohorts. We cordially thank Britta Matthes and Bernhard Christoph from the Institute of Employment Research in Nuremberg for their professional advice and generous support. We also thank Christof Wolf (GESIS in Mannheim) and Steffen Hillmert, Steffen Kröhnert, and Karola Rockmann for the source code.

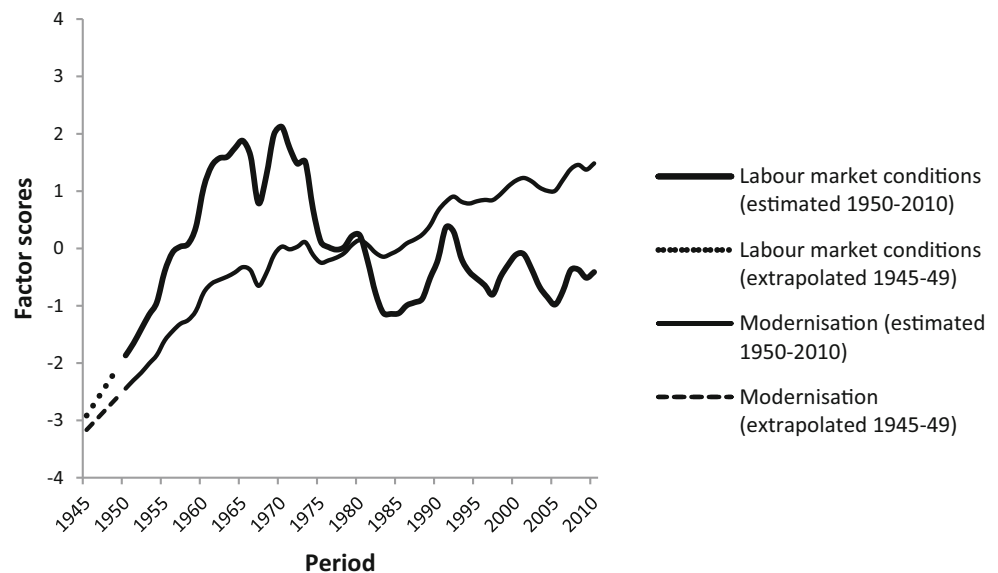
³ Although this definition of mobility outcomes seems to be arbitrary, it can be defended by the prospect theory (Kahneman and Tversky 1979). According to this theory, individuals evaluate minor losses more significantly than gains of the same absolute amount. With respect to this, we take into account the individuals’ subjective evaluations relevant to efforts in their work history (Nitsche and Mayer 2013; Mayer et al. 2010).

Table 2 Factor loadings (pattern matrix) and unique variances

Variables	Factor 1: Modernisation level	Factor 2: Labour market con- ditions	Uniqueness	Kaiser-Meyer-Olkin scores
Volume of labour force	0.9644	-0.0015	0.0699	0.7861
Labour force participation rate	0.9111	-0.0931	0.1611	0.9064
Share of employees in the primary sector	-0.9619	0.0542	0.0719	0.6975
Share of employees in the secondary sector	-0.8080	0.5319	0.0642	0.7391
Share of employees in the tertiary sector	0.9360	-0.3459	0.0042	0.7442
Economic performance (GDP)	0.8879	-0.3858	0.0628	0.8933
Economic performance per capita	0.9050	-0.4035	0.0181	0.8593
(Negative) Unemployment rate	0.2658	-0.9229	0.0776	0.7986
Ratio of notified vacancies and manpower	0.0331	0.9300	0.1340	0.6239
Number of firms	-0.5119	0.7654	0.1521	0.8777
Overall				0.7958
Eigenvalue	7.2959	1.8881		
Variance	0.6156	0.3028		

Sources: German Federal Office of Statistics (Statistical yearbooks; time series of official statistics; www.DESTATIS.de; Genesis online) *GESIS* The German System of Social Indicators

Fig. 1 Trend of modernisation and changing labour market conditions in West Germany (1945–2010)



1971).⁴ This procedure allowed us to measure the relevant cohort and period conditions directly and helped us avoid the usual methodological difficulties associated with the linear confounding of the period year, year of birth and age in years (Mason 1985; Blossfeld 1986; Mayer and Huinink 1990).

To prevent the identification problem resulting from the highly correlated or invalid time series we performed con-

firmatory factor analysis on 10 time series (Kolenikov 2009; Harrington 2009). The two uncorrelated factors – *modernisation* and *labour market conditions* – were the result of the main component method and orthogonal factor rotation. Both the factors explain 92 per cent of the variance in the 10 different time series (see Table 2). The missing factor values for the period 1945–1949 were extrapolated by polynomial regression. Because both the factors were orthogonal, it was possible to include both the dimensions of structural change in a single equation and to simultaneously estimate period effects along with other time dimensions.

The change in the period-specific factor scores have been documented in Fig. 1 for the historical period from 1945 to 2010. They reflect the modernisation trend (the changing

⁴ The utilised time series have been documented in the system of social indicators for Germany (SIMon) hosted by GESIS. The data were actualised with new statistical yearbooks published by the Federal Office of Statistics in Wiesbaden. We wish to thank Adrienn Lázár and Simon Gordt for the compilation of the time series.

occupational structures) and the economic business cycles (labour market conditions) throughout the economic history of the Federal Republic of Germany in the post-war period (Berger 2013).⁵ On the one hand, we observed a monotonic, almost linear, trend of modernisation. On the other hand, we observed that the development of labour market conditions was cyclical due to the strong dependency of the labour market on the business cycle. As expected, business cycles have been becoming shorter with increasing globalisation. The trends in the various time series are documented in Fig. 3 in the appendix. Fig. 1 demonstrates that it is essential to analyse the time-dependent interplay of modernisation, economic cycles, successive generations and individual job careers in a dynamic way that considers the most important historical macro processes (Mayer 2004; Sorokin 1927).

In our analysis, we applied the well-established procedure of *episode-splitting* (Blossfeld et al. 2007). Each job episode in the men's careers was divided into sub-episodes on a yearly basis and linked with the corresponding factor scores of the modernisation level and labour market conditions (Blossfeld 1986).⁶ At the start of each of the sub-episodes, the two-factor scores of the previous historical year were used as a *period measure*. They indicate the time-continuous change in the modernisation level and labour market conditions over historical time and were used to identify the changing *structural conditions of the mobility patterns* of the employed men. In this manner, it is possible to model structural change at the macro level as an influencing force in regard to the employees' rate of career mobility (upward, lateral, and downward) and the mobility pattern they realised in their work history (Blossfeld and Rohwer 1997; Pötter and Blossfeld 2001).

Finally, the *occupational prestige score (MPS) of the first job* to a large extent reflects the historical modernisation level and labour market conditions at the time of entry into the labour market (Blossfeld 1985). After controlling for individual resources, the job prestige level therefore serves

as a measure of favourable *cohort conditions under which men entered the labour market* for the dynamic analysis of careers. With respect to our research questions, we expect that this cohort measure has a significant impact on careers, because the starting conditions of work histories were assumed to have a long-term effect on career mobility. Thus, the more favourable the conditions are at the time of entry into the labour market, the higher is the job prestige at the start of one's occupational career and the less likely it is that one will move up and the more likely it is one will move downward in the later phases of one's occupational career (Sørensen 1975, 1983; Blau 1977).

The descriptive statistics of the dependent and independent variables are documented in Table 5 in the appendix. According to our theoretical arguments, we distinguish between the process of labour force entry and the prestige mobility in the career process.

It must be noted that episode-splitting and the above-mentioned approach of data compilation had no influence either on the observed durations or estimations of the other variables (Blossfeld 1986). For *dynamic multi-level analysis*, it is possible to model the time-dependent characteristics at the macro level as predictors for events at the individual level by performing *event-history analysis*. Through modelling, we aim to specify the occupational mobility as a stochastic and time-varying function of individual resources (micro level) and the change in the modernisation process and labour market conditions in the course of the business cycle (macro level).

In our event-history analysis, the dependent variable is the *rate* $r(t)$ (i.e. the propensity or chance of action as defined by Max Weber 1922; Pötter and Blossfeld 2001; Blossfeld and Rohwer 1997) of (upward, lateral, or downward) career mobility. This rate could be defined as the marginal value of the conditional probability of such an event occurring in the time interval $(t, t + \Delta t)$, provided that this event has not occurred before (Blossfeld et al. 2007). In our study, the rate was estimated using an *exponential model*: $r(t|x(t)) = \exp(\beta \cdot x(t))$, $x(t)$ being a time-dependent vector of exogenous variables and a vector of coefficient β , which has to be estimated. Thus, a constant hazard rate was assumed and the continuously changing historical trend of modernisation and changing labour market conditions was taken into account only in the short sub-episodes (maximum of 12 months).

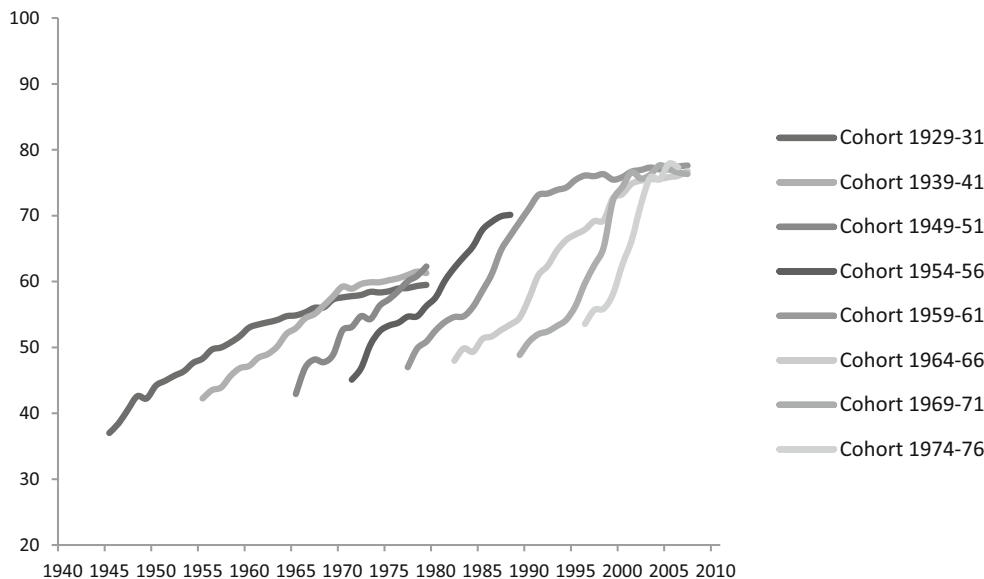
4 Empirical results

We conducted empirical analysis and assessment of the hypotheses in three steps. First, we described the career profiles of men from successive birth cohorts and compared how these profiles changed in the process of socio-eco-

⁵ The development of the labour market structures, in terms of modernisation, show a continuous positive trend, which is structured by the economic business cycles (e.g. the German economic miracle in the 1950s and 1960s or the economic boom after the German union in 1990) and recessions (e.g. economic crisis in 1967 and 1981–84, oil price shocks in 1973, 1979/80 and 1990). The labour market conditions are interrelated with job opportunities and their development corresponds to the historical trend of demand and supply of manpower (e.g. shortage of manpower in the post-war era or unemployment during periods of recession).

⁶ For each job episode, in which the factor scores for modernisation and job opportunities have remained unchanged, a new data record has been generated. In each of these data records, five categories of information have been stored: (1) the duration of job at the start and end of the time interval; (2) variable indicating whether the interval is completed owing to job change; (3) labour force experience at the start of the interval; (4) theoretically relevant covariates such as education and prestige; and (5) period-specific factor scores.

Fig. 2 Development of career profiles (average MPS) of successive cohorts of West German men (1945–2008). (Sources: GLHS and ALWA – own calculations)



conomic change in Germany from 1945 to 2008. Second, we focused on the entry of men into the labour market and examined how their first jobs were influenced by the modernisation process and the business cycle. Third, for the historical period 1945–2008 in West Germany, we conducted a multi-level event-history analysis of the career processes after entry into the labour market.

4.1 Changing career profiles of successive birth cohorts

The theoretical section emphasises how increasing skill requirements of jobs in the course of modernisation, and their correlation with changes in occupational structures (tertiarisation) and the decreasing number of unskilled positions, have altered the career profiles of each successive younger cohort of men. In Germany, this process of economic modernisation took place in parallel with continuous educational expansion (up-gradation of qualifications) across cohorts. If we first look at the average prestige scores of the first jobs across birth cohorts, it is obvious that the mean occupational status has more or less continuously increased for each successive birth cohort (Fig. 2). This finding supports *hypothesis 11* claiming that the younger cohorts of entrants start their careers at higher average levels of job attainment compared to the previous or older cohorts as the modernisation process advances.

This pattern of cohort differentiation also continues in the later stages of men's age-specific career profiles (Fig. 2). Although the youngest cohorts' average prestige levels became increasingly similar in later phases of their job careers, the early age-specific average career profiles tended to be increasingly steeper. Thus, compared to those of previous cohorts, each younger cohort reached a higher average prestige level at a younger age. At this point of our anal-

ysis it has to be emphasised that, for well-educated graduates and occupational beginners in particular, the continuing strong institutional linkage between the educational system and the labour market in Germany is an additional explanation for this trend of better job opportunities in terms of average status (Müller and Shavit 1998; Mayer et al. 2010). Our job entry and job career analysis separates the effects of individual educational attainment and macro-structural factors.

4.2 Entry into the labour market

The analysis of the impact of individual characteristics and structural changes on the job entry pattern made it evident that beginners' formal education, as well as the modernisation level and labour market conditions at the time of entry, have a strong positive influence on the prestige level of the men's first jobs (Table 3). The higher the level of education and modernisation level and the better the labour market conditions at the time of entry into the labour market the higher is the prestige level of the men's first job (*models 1 and 2*). These results are in line with *hypothesis 1* that formal education is essential for the attainment of first jobs in Germany. Further, they support *hypotheses 11 and 15* that during periods of higher modernisation levels and economic expansion of the business cycle beginners' access to prestigious jobs improve, whereas periods of economic contraction have a negative effect on beginners' first status attainment (*hypothesis 17*).

However, if the interactions of education with modernisation and job opportunities are taken into account, it is clear that highly qualified beginners, in particular, gain from the modernisation process, whereas less qualified beginners gain more from the highs in the business cycle.

Table 3 Job prestige at the time of entry into the labour market (first job)

Model	1	2	3	4	5	6
<i>Individual characteristics</i>						
Education	3.074 (0.071)****	2.967 (0.077)****	0.150 (0.422)	-0.101 (0.383)		
University degree					-8.349 (5.874)	
Low level of education						4.405 (3.157)
<i>Structural characteristics</i>						
Modernisation level		1.843 (0.442)****	-3.451 (0.759)****	-2.205 (0.670)***	3.463 (0.419)****	8.002 (0.725)****
Labour market conditions		0.630* (0.378)	2.273 (0.695)***			
<i>Interaction: Education and ...</i>						
Modernisation level			0.945 (0.109)****	0.846 (0.105)****		
Labour market conditions			-0.192 (0.094)**			
<i>Modernisation level and ...</i>						
University degree					9.958 (1.569)****	
Low level of education						-6.016 (0.916)****
Constant	35.764 (0.622)****	28.600 (1.433)****	41.887 (2.468)****	44.727 (2.271)****	41.410 (1.401)****	37.302 (2.624)****
R ²	0.2910	0.2962	0.3078	0.3059	0.2406	0.1421
N	4503	4503	4503	4503	4503	4503

Sources: GLHS and ALWA – own calculations

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$; **** $p < 0.001$

In other words, the continuous trend of modernisation improves occupational success at the time of entry into the labour market only for the highly qualified men (*model 4*). In particular, this is valid for beginners with an academic degree (*model 5*). This finding clearly supports the hypothesis of Blauner and Bell (*hypothesis 11*) and speaks against the pessimistic predictions of Bright and Braverman (*hypothesis 8*). In other words, the modernisation process is clearly a trend that presents a disadvantage to unskilled men (*model 6*), and this demonstrates how the educational system is instrumental in further reducing the proportion of unskilled school leavers.

4.3 Mobility patterns in the job career

We then analysed the mobility patterns post entry into the labour market in terms of gains and losses of job prestige in one's job career (Table 4). In addition, formal education is an important individual resource for the dynamic of the career. In line with *hypotheses 2 and 4*, education promotes upward mobility (*models 1–3*) and, at the same time, pro-

jects from downward mobility across successive jobs during one's career (*models 7–9*). There is no strong main effect of education on lateral moves (*hypothesis 3*).

Furthermore, there are significant *life-course effects* confirming *hypotheses 5, 6 and 7*: increasing labour force experience typically reduces the likelihood of prestige mobility. Labour force experience has a negative effect on upward moves because of declining investments in training across the occupational career (human capital theory) (*hypothesis 5*), as well as a negative effect on downward and lateral moves because accumulated training protects individuals' current status (human capital theory) (*hypotheses 6 and 7*). This means that more experienced men are less likely to change their jobs and more likely to maintain their prestige in later stages of their career, regardless of turbulence in the economy and labour market conditions.

Table 4 Career patterns (job mobility) for West German men only (1945–2008)

Model	Upward mobility			Lateral mobility			Downward mobility		
	1	2	3	4	5	6	7	8	9
<i>Individual characteristics</i>									
Education	0.027 (0.004)****	0.088 (0.005)****	0.085 (0.005)****	0.001 (0.003)	0.011 (0.004)***	0.006 (0.004)	-0.021 (0.005)****	-0.031 (0.006)****	-0.044 (0.007)****
<i>Age effect</i>									
Labour force experience	-0.009 (0.000)****	-0.009 (0.000)****	-0.010 (0.000)****	-0.008 (0.000)****	-0.008 (0.000)****	-0.008 (0.000)****	-0.007 (0.000)****	-0.007 (0.000)****	-0.008 (0.000)****
<i>Cohort effect</i>									
Prestige of first job	-0.027 (0.001)****	-0.027 (0.001)****	-0.027 (0.001)****	-0.003 (0.001)****	-0.003 (0.001)****	-0.004 (0.001)****	0.003 (0.001)***	0.003 (0.001)***	0.003 (0.001)***
<i>Period effects</i>									
Modernisation level			0.068 (0.028)**			0.111 (0.019)****			0.152 (0.030)****
Labour market condition			0.040 (0.022)*			0.042 (0.015)***			-0.100 (0.025)****
Intercept	-5.064 (0.042)****	-4.041 (0.063)****	-3.987 (0.065)****	-4.181 (0.029)****	-4.051 (0.039)****	-3.973 (0.041)****	-5.011 (0.047)****	-5.129 (0.061)****	-5.056 (0.064)****
Log likelihood L ₀	-10,005.649	-10,005.649	-10,005.649	-16,661.661	-16,661.661	-16,661.661	-8547.017	-8547.017	-8547.017
Log likelihood L ₁	-9440.308	-9142.912	-9137.340	-15,685.645	-15,672.606	-15,649.352	-8200.662	-8196.344	-8177.770
LR chi ² (d.f.)	1130.68 (2)	1725.47 (3)	1736.62 (5)	1952.03 (2)	1978.11 (3)	2024.62 (5)	692.71 (2)	701.35 (3)	738.49 (5)
Number of sub-episodes	71,448	71,448	71,448	71,448	71,448	71,448	71,448	71,448	71,448
Number of events	2680	2680	2680	5652	5652	5652	2218	2218	2218

Sources: GLHS and ALWA – own calculations

* $p \leq 0.1$; ** $p \leq 0.05$; *** $p \leq 0.01$; **** $p \leq 0.001$

As theoretically expected, mobility patterns are determined by *cohort effects*.⁷ With respect to upward mobility, the ceiling effect hypothesis advanced by Sørensen (1975) is confirmed: on the one hand, the higher the prestige in the first job the harder it is to move up further over one's career (*models 2 and 3*). This confirms *hypothesis 21*. On the other hand, downward mobility is also more likely for those men who succeed in starting their career in a more prestigious job position (*models 8 and 9*), because there are simply more jobs at lower prestige levels. Thus, these findings are also in line with *hypotheses 22*.

Finally, we observed the following important *period effects*. On the one hand, the trend of modernisation stimulates men's mobility in each of the three directions—upward, lateral, and downward. The higher the modernisation level in the post-war period, the more likely is career mobility in the upward, lateral, and downward directions. These results clearly do not confirm the hypothesis of Blauner and Bell that progressing modernisation simply leads to more upward and less downward moves. Instead, they confirm Kern und Schumann's (1970, 1984) position that the modernisation process not only engenders upward job opportunities, as expected, but also leads to more lateral and downward moves. Thus, this speaks in favour of Kern and Schumann's polarisation thesis (*hypothesis 13*) that some people get the opportunity to take advantage of the creation of jobs that require higher qualifications (e. g. engineers, professionals), whereas others are forced to move down to more unskilled positions in their careers. Thus, the period effect of the modernisation process simply implies more mobility during one's job career. On the other hand, mobility patterns also significantly depend on the business cycle. The more favourable the labour market conditions, the higher the likelihood of lateral mobility (*model 6*) and the lower is the likelihood of downward mobility (*model 9*). However, an upswing in the business cycle positively affects upward mobility. Thus, these results only partially support *hypothesis 16*. This implies that status attainment is affected by the modernisation process; however, status maintenance depends mainly on the labour market conditions at the time. Favourable labour market conditions in the course of an economic boom increase the likelihood of

upward mobility; however, improving labour market conditions lead to less downward mobility (*hypothesis 18*).

5 Summary and conclusions

Following research by Weber (1922) and Coleman (1986), the aim of this study was to contribute to a better understanding of how the long-term modernisation process and the ups and downs of the business cycle in the course of modernisation have affected the entry of men into the labour market in West Germany, and their career mobility, since the end of World War II (Mayer 2004). To achieve this, we reconstructed the individual job histories of men from successive birth cohorts in an observation window of more than 50 years and linked them with the most important macro changes in the labour market. Our longitudinal analysis shows that birth cohorts are one of the most important 'cultural carriers' of change in the labour market. Furthermore, our dynamic multi-level analysis provides a better understanding of how long-term macroeconomic trends have influenced processes of career mobility and social inequality in West Germany across several generations.

Utilising two longitudinal event-history datasets (from the GLHS and the ALWA study), we linked the careers of individual men with time series describing long-term developments at the macro level. In our analysis, we applied a substantial approach to the identification of life-course, period and cohort effects, and found that the modernisation trend and changing labour market conditions have a strong impact on both the men's job entry into the labour market and their further career trajectories. Our results show that generational replacement is a particularly important mechanism for the modernisation of the labour market. New labour market entrants who have a more up-to-date and relatively high level of educational attainment tend to match the requirements of newly created jobs, which are more prestigious and demanding. Thus, as the modernisation process advances, younger cohorts of entrants start their careers at increasingly higher average levels of job attainment. Because upgraded qualification is the key to getting these jobs, it is particularly the highly qualified young labour market entrants who are the winners in the modernisation process, while the unskilled school leavers are penalised by the modernisation process. Thus, one conclusion of our analysis is that the educational system must reduce the proportion of school leavers who leave without any educational certificate or further vocational training.

Furthermore, we demonstrated that the progress of modernisation is an important 'vehicle' for status attainment. However, modernisation not only engenders upward job opportunities, as supposed by theorists of the knowledge society (Bell 1973), it also leads to increasing lateral and

⁷ The traditional measurement of cohort effects is documented in *Table 6* in the appendix. There is no linear trend of cohort differentiation in the post-war period in West Germany. The mobility increased from the cohorts born in 1930 to those born in 1954–56. The situation has worsened for the cohorts born around 1960, and has become better for the younger cohorts, except for the youngest cohorts born between 1974 and 1976. The varying development across birth cohorts suggests that the theoretical integration of trends in modernisation and labour market conditions are more parsimonious explanations for the mobility processes specific for ages, periods, and cohorts. For each of the cohorts, these trends are also indicated by the mobility rates across the career.

downward moves. Thus, it seems that the polarisation thesis of Kern and Schumann (1970, 1984) describes the period effect of the modernisation process quite adequately. Some men, especially the more qualified ones, can take advantage of the creation of better jobs (engineers, professionals) during their careers, while others are forced to move down to less prestigious job positions during their careers. Therefore, we conclude that the idea of a linear trend of increased upward mobility in the modernisation process is as misleading as the claims of monotonic trends towards individualisation, flexibilisation, destandardisation, and destabilisation of careers (Mayer et al. 2010; Brückner and Mayer 2005; Mayer and Blossfeld 1990). They are misleading because they all treat occupational careers as holistic entities, which seem to be independent from individuals' scopes and structural life-course conditions in historical periods and for successive birth cohorts (Mayer 2004). Overall, we found that highly qualified men adapted to the newly created jobs quite easily and gained from these societal changes (Becker and Hadjar 2015). Based on our results, it is evident that the claim of a descending middle class after the period of long-term prosperity in the 1960s and 1970s is not supported. In particular, if we look at the career profiles of successive birth cohorts of men since World War II (Fig. 2), there is a clear improvement in men's average prestige at labour market entry with an increasingly steeper career profile. If we include women in our analysis, we expect quite a positive picture across cohorts because women have not only outperformed men in the educational system in Germany but could also gain from their better qualifications at the time of entry into the labour market (Blossfeld et al. 2015). However, the scenario of labour market entry and further stages of the career may be different for migrants and East Germans.

Investments in human capital – that is, skills and credentials – still remains one of the most important decisions in the life-course of individuals in regard to being prepared for work and life in the fast-changing world. Furthermore, it must be noted that the value of their human capital depends on the dynamic linkages between micro and macro levels of work organisation, stratification, and mobility in work history (Haveman and Cohen 1997, p. 108). Finally, we must admit that we could not control for the corporate action of firms and the ecological dynamics of firm populations at the meso level (Hannan 1988; Windzio 2001). This is also true for the size of the firm employing the respondents and having an impact on their career (e. g. Baron and Bielby 1980; Carroll and Mayer 1986; Mayer and Carroll 1987; Spilerman 1977), since we have no time-varying information at all on the “life-course” of the firm – i. e. on the growth and shrinkage of their number of employees (Wachter and Bender 2006; Hannan and Freeman 1989). Furthermore, it must be noted that the datasets taken into account do not comprise information on the individuals' preferences and aspirations affected by economic cycles, modernisation, and labour market conditions. By controlling for resources and measuring social action it is possible to take into account the individuals' preferences and decisions.

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Appendix

Fig. 3 Development of key indicators in West Germany, 1945–2010 (Note: The values for the period 1945–1949 have been extrapolated)

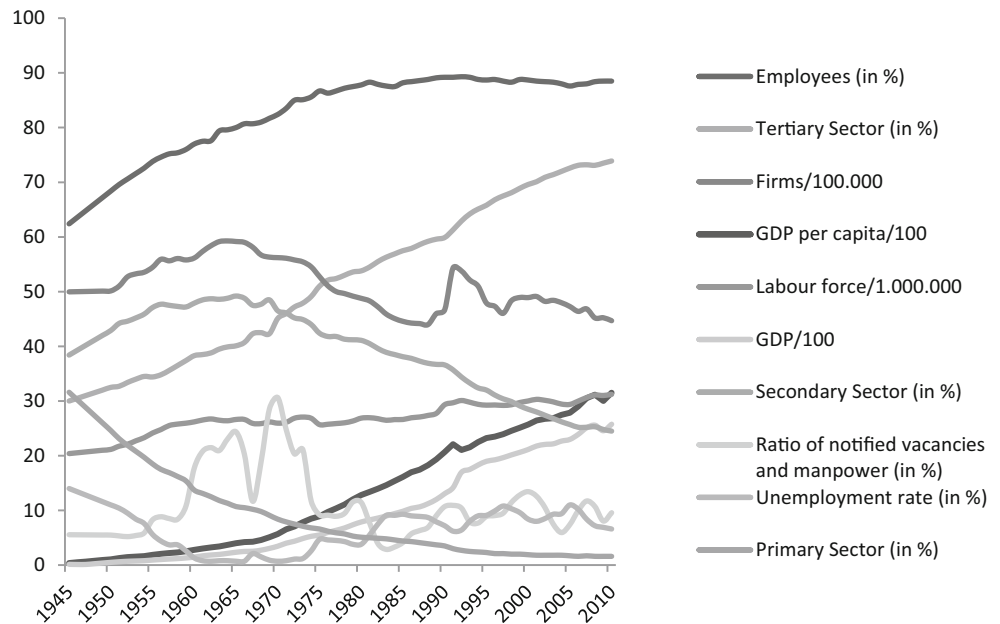


Table 5 Summary of independent and dependent variables

Variable	N	Mean	Std. Dev	Minimum	Maximum
Entry into the labour market (first job)					
<i>Dependent variables</i>					
Prestige (MPS)	4503	58.5784	25.9323	20.0	186.8
<i>Independent variables</i>					
Education	4503	7.4216	4.5509	1	16
Modernisation level	4503	-0.1413	0.8783	-3.3090	1.2296
Labour market conditions	4503	-0.2474	0.9950	-3.1260	2.1217
University degree	4503	0.1739	0.3791	0	1
Low level of education	4503	0.4094	0.4917	0	1
Career patterns (job mobility)					
<i>Dependent variables</i>					
Upward mobility	71,448	0.0376	0.1903	0	1
Lateral mobility	71,448	0.0799	0.2711	0	1
Downward mobility	71,448	0.0313	0.1742	0	1
<i>Independent variables</i>					
Education	71,448	6.8209	4.3140	1	16
Age effect: Labour force experience	71,448	119.7543	91.6271	0	444
Cohort effect: Prestige of first job	71,448	55.6047	22.9394	20.0	186.8
Period effect: Modernisation level	71,448	0.2210	0.7643	-3.3090	1.4573
Period effect: Labour market conditions	71,448	-0.1409	0.8938	-3.1260	2.1217

Table 6 Mobility patterns across birth cohorts for West German men only (in brackets: mobility rate in %)

	Upward	Lateral	Downward
Cohort 1929–21	<i>Reference</i> [2.1%]	<i>Reference</i> [4.4%]	<i>Reference</i> [1.9%]
Cohort 1939–41	0.262 (0.099)** [2.6%]	0.419 (0.067)*** [6.6%]	0.194 (0.107) [2.3%]
Cohort 1949–51	0.667 (0.110)*** [3.8%]	0.863 (0.073)*** [9.7%]	0.620 (0.119)*** [3.3%]
Cohort 1954–56	1.014 (0.089)*** [5.2%]	1.060 (0.062)*** [11.1%]	0.778 (0.099)*** [3.6%]
Cohort 1959–61	0.645 (0.082)*** [3.7%]	0.657 (0.058)*** [7.7%]	0.635 (0.088)*** [3.3%]
Cohort 1964–66	0.698 (0.081)*** [3.9%]	0.709 (0.057)*** [8.0%]	0.645 (0.087)*** [3.3%]
Cohort 1969–71	1.074 (0.087)*** [5.5%]	1.073 (0.061)*** [11.0%]	0.973 (0.094)*** [4.3%]
Cohort 1974–76	1.018 (0.142)*** [5.2%]	0.7378 (0.111)*** [8.0%]	0.973 (0.154)*** [4.4%]
Constant	–6.326 (0.072)***	–5.610 (0.050)***	–6.446 (0.076)***
<i>N</i> of sub episodes	71,448	71,448	71,448

Sources: GLHS and ALWA – own calculations

* $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$

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Rolf Becker is FullProfessor of Sociology of Education at the University of Bern since 2004. He has studied Sociology and Political Science at the University of Mannheim, received his PhD in Sociology from the Free University of Berlin, and his Habilitation from the Dresden University of Technology. He has published several books on Sociology of Education, Inequality of Educational Opportunities, and Life Course Research. His research interests are also in the field of Social Stratification and mobility as well as Methods of the Social Sciences.

Hans-Peter Blossfeld has a Chair in Sociology at the European University Institute in Florence, Italy, since 2012. He is on leave from his Chair in Sociology at the Faculty for Social Sciences, Economics, and Business Administration at the University of Bamberg, Germany, until August 2017. He has published 43 books and over 300 articles on life course research, social inequality, youth, family, educational sociology, labor market research, demography, social stratification and mobility, the modern methods of quantitative social research, and statistical methods for longitudinal data analysis – which have been cited more than 24,000 times (H-Index = 68; I10-Index = 213; see Google Scholar, Feb. 2017).