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TITLE

Workers' Movement out of Declining Occupations in Great Britain, Germany and Switzerland

Research paper

Author

Emily Murphy

FNSNF
SWISS NATIONAL SCIENCE FOUNDATION

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Swiss National Centre of Competence in Research

A u t h o r

Murphy, E.

A b s t r a c t

The employment structure undergoes constant change. Some occupations grow while others decline under the pressure of technological advances, welfare state reforms and globalisation. This evolution at the aggregate level has been well documented. Our knowledge of how macro-level change in the employment structure is brought about through micro-level career adjustments is less extensive. Drawing on panel data, this paper examines what type of workers are most likely to leave occupations that have declined over the past 20 years, and the destination of these individual exits in Great Britain, Germany and Switzerland. In all three countries, we find that male production workers are less likely to exit a declining occupation, but are more likely to become unemployed if they do leave. In comparison, the most probable route out of declining occupations for female clerical workers is into high paid growing occupations.

A u t h o r   a f f i l i a t i o n

University of Lausanne

C o r r e s p o n d e n c e   t o

emily.murphy@unil.ch

Swiss National Centre of Competence in Research

1. Introduction

Labour markets are subject to perpetual change on both an aggregate and individual level. The direction of macro level change has been extensively studied in the sociological and economic literature. Three major aggregate trends have to varying degrees, emerged across OECD countries. First is a general upgrading of the occupational structure (Oesch and Rodriguez-Menés, 2011), allied with an up-skilling of the workforce (Tåhlin, 2007). The second trend sees a large decline in the employment share of mid-wage production and clerical occupations that predominantly require workers to carry out routine job tasks (Autor *et al.* 2003; Goos and Manning, 2007). Third, globalisation is said to have led to an increase in 'interrupted careers' (Grunow and Mayer, 2007: 19; Blossfeld *et al.* 2006).

While a rapid decline of employment opportunities in occupations that revolve around goods production or back-office operations has taken place, little is known of how this change is brought about by movements on the labour market's micro-level. It could be that these workers simply retire, or end up in long-term unemployment or inactivity (Knuth and Kalina, 2002; Nickell, 2001). In this instance, labour market turbulence results in 'interrupted careers', but no greater incidence of occupational switching.

Yet the speed with which the occupational structures of Western Europe are changing suggests that cohort renewal alone does not suffice. We should expect to see substantial amounts of intra-generational mobility, with its origin in declining occupations and destination in growing occupations.

Switching occupations is not necessarily easy for workers. Structural change potentially leads to a 'lock-in' effect for workers whose skills are no longer in demand (Andersen, 2006). Manufacturing workers are often cited as a group at risk of being permanently 'removed' from the labour market if they lose their jobs (Iversen and Cusack, 2000: 314). More recently, clerks seem to have joined them as a declining occupational group (OECD, 2008: 210). Complete removal of worker groups is hard however to reconcile with studies of worker flows in Europe and the United States. Overall, these demonstrate a large amount of worker flows. A sizeable number of flows are between declining sectors and unemployment. But unemployment may indirectly move workers into growing sectors (Bachmann and Burda, 2010; Haynes *et al.* 2000).

The aim of the current paper is to analyse the movement of workers from declining occupations in Great Britain, Germany and Switzerland. The micro-puzzle we explore is

twofold: 1) If occupations shrink because workers leave, what is the destination of their exit? Are they leaving through the front door – to be re-employed in alternative occupations – or through the back door of unemployment, inactivity or retirement? Our comparative approach means we are able to distinguish certain mobility outcomes of workers in declining occupations on the basis of institutional contexts. 2) We focus particular attention on two occupational groups implicated most in the general picture of employment structure change, namely (office) clerks and production workers. These occupations differ greatly in their skill content and sex composition, which means we can test for occupationally gendered patterns of movement. Our principal goal here is to see which types of workers decide to stay in a declining occupation and which workers leave for growing occupations over time. To this end, we divide our working populations into occupations that have expanded or declined over the past 20 years. Our analyses are based on three longitudinal data sources: the British Household Panel Survey (BHPS), the German Socio-Economic Panel (SOEP) and the Swiss Household Panel (SHP). Competing risk regressions by country are used to determine the likelihood of experiencing a transition to a growing occupation, or into unemployment.

The paper proceeds as follows: the next section outlines the theories from which we derive our hypotheses. Section three explains the data and our analytical strategy. Section four presents the descriptive results and model estimates. The last section concludes with a brief discussion of our key findings.

2. Theoretical background

2.1. Institutional Filters and Ease of Movement by Skill

Individual exits from declining occupations and aggregate employment change are crucially linked by the issue of how portable skills are across occupations. The political economy literature has mapped out certain ways in which workers' skill sets might connect to distinct employment regimes. Skill transferability between occupations is seen as being tied to a country's institutional framework. In a simplistic reduction, countries exhibit particular 'skill profiles', based on their mix of institutional arrangements at the national and employer level. A critical point rests on the specificity of skill acquisition. Employment in 'coordinated' market economies (CMEs) relies on more specific human capital development, at the firm or industry level, while in 'liberal' market economies (LMEs) skills tend to be more general (Estevez-Abe *et al.* 2001).

The sociological literature has similarly emphasised the ways that different welfare and educational systems channel employment relationships. DiPrete and his colleagues

(1997; 2002), along with work by Gangl (2004), posit a dynamic relationship between country-specific institutional setups and workers' mobility at all stages of the life course. They develop a typology of national mobility. On one end of the continuum lie the 'individualist mobility regimes', and on the other end the 'collectivist regimes'. 'Individualist' contexts are ones in which lower employment protection, lower collective bargaining power and more open education-work links stimulate job-to-job mobility within and across occupational and industry boundaries. An example would be the United States, where workers exhibit high levels of occupational mobility (Kambourov and Manovskii, 2008)

On the other hand, 'collectivist' labour markets should exhibit less volatility. Greater state intervention constrains dismissals, which in turn results in employers hiring more selectively. Combined with stratified vocational education systems and 'credentialised' employment structures, workers face more rigid barriers to occupation or industry switches. Germany is an example of a 'collective' context. In individualist mobility regimes, individual resources are what tend to determine both workers' risks and their mobility opportunities. In contrast, collective mobility regimes match rewards and risk on a group basis i.e. occupational class. As workers in the individualist regimes are expected to possess more general skills that transfer between occupations, they realise higher returns to occupational mobility than workers switching careers in a 'collectivist' country. This results in lower total worker reallocation, given a collectivised institutional framework (Gangl 2003; DiPrete *et al*. 2002).

Recent evidence of worker movements within OECD countries does support a delineation of national mobility that hinges on certain institutional frameworks. Strong employment protection legislation and tightly coordinated wage setting has been shown to support skill-bounded occupation matching. This significantly lowers workers' total mobility in the labour market (Gomez-Salvador *et al*. 2004).

Although there may be lower rates of mobility in some countries, research on labour market turbulence and mobility demonstrates constant motion: 'flows' of workers and jobs (OECD, 2009). More than 20% of newly created jobs replace older ones each year, and such job destruction results in workers being laid off or quitting (OECD 2009; Burgess *et. al* 2001). Overall, in countries that have stringent firing regulations, job destruction and mobility might be lower which shelters workers from being as 'exposed to globalisation' (Mills *et al.* 2006*:* 23; Messina and Vallanti, 2007). Yet, at the same time, continuous change in labour demand results in a non-negligible degree of decline and growth of occupations. How effectively are workers threatened by job decline

shielded from employment insecurity? From what has been sketched, relocating from a declining to a growing occupation could be costly. A heightened risk of unemployment is expected to fall squarely on workers possessing only 'specialised', or in our case, increasingly obsolete lower skills, being the least likely to be re-hired (Esping-Andersen, 1999).

For the purpose of our study, Great Britain is considered as an 'individualised mobility regime', Germany as being a 'collective mobility regime', and Switzerland as slotting somewhere in-between, with little employment protection (individualised element) but tight education-occupation tracks (collective element).

Switzerland's economy provides a nuanced picture of workers' movement out of declining occupations. Its wage bargaining is coordinated on a sector-specific basis, and workers enjoy little employment protection (Bonoli and Mach, 2001). This implies that a worker engaged in occupational switching faces fewer barriers in Switzerland than in Germany. Although Switzerland's dual-education system has been compared to Germany's, it differs in the high share of vocational training that occurs at tertiary level, which marks Switzerland as having a more general skill profile than previously implied (Culpepper, 2007).

The previous reasoning leads us to the country-specific hypothesis:

Hypothesis 1: *Workers in declining occupations are more likely to move to growing occupations, and less likely to exit into unemployment in 'individualised' employment systems, such as Great Britain, than in 'collective regimes', such as Germany, while Switzerland takes an intermediate stance.*

2.2. *Changes in the Skill Distance of Occupations, by Gender and Class*
We now shift our focus from country-specific mobility to the movement of specific groups of workers. Shaw (1987) was among the first to find a negative relationship between intra-generational mobility and the skill distance between occupations. On an individual level, the closer the proximity in skill requirements of an alternative occupation to a current one, the more likely a worker is to switch occupations, as little prior skill investment would be lost.

Building on this work, Gathmann and Schönberg (2010) examine the consequences of occupational task content for workers' mobility. According to their argument, 'task tenure' overrides occupational tenure in determining wages when a worker changes

careers. They give an example of a goods transporter whose main job tasks revolve around 'packaging'. He would experience 10 percentage points less of a wage loss if he moved to become a warehouse keeper as opposed to a bank teller. Thus, a greater distance in the tasks performed between occupations translates into a greater loss of past experience for workers who move from one to the other.

Skill and task transferability is a critical determinant of occupational mobility, but what about changes in labour demand by occupations? Recent empirical studies suggest women's required skill levels have risen significantly more, relative to men (Tåhlin, 2007). One of the drivers of this has been the dramatic reduction for women in routine task requirements, in favour of non-routine analytical and interpersonal tasks. For men however, there has been very little reduction in the use of routine manual and routine cognitive skills (Black and Spitz-Oener, 2010). Complementary to this has been the gendered uptake of computers on the job. At least in lower-skilled occupations, women's use of computers has considerably outpaced that of men's (Green *et al.* 2003).

It is not only that the skill content of women's jobs has upgraded rapidly within occupations. Changes in the distribution of employment across occupations would also seem to grant at least low-educated women better job prospects than their male counterparts (Esping-Andersen, 1999; Faggio and Nickell, 2003). Care assistants, educational assistants, and nurses are three of the occupations that are growing in Western Europe (Goos and Manning, 2007: 128; Oesch and Rodriguez-Ménes, 2011). Job growth in community, social and personal services makes up 40% of OECD countries' total employment growth (OECD 2005). The occupations that have grown over the last two decades rely heavily on interactive, or interpersonal skills; and these 'people' skills have 'feminine' associations. Accordingly, when interactive tasks become more important in an occupation, women's relative employment in this occupation increases (Borghans *et al*. 2005).

In comparison, occupations comprised of routine manual or routine cognitive tasks, alongside low-skill, non-interactive occupations, are declining. Individuals in these occupations are more at risk of job loss as their skills become obsolete. Two broad worker profiles are conjectured to be 'losing out'. The first group is low-to-mid skilled occupations in craft and industrial production, predominantly 'male'. The second group is mid-skilled office positions. The majority of these are female, for example, filing clerks, or secretaries. Both groups are in the middle and not the very bottom of the occupational hierarchy, but they depend on very different work logics: the former technical, and the latter organizational (Oesch, 2006:65).

The results of longitudinal studies on gendered mobility by DiPrete and Nonemaker (1997) and Campos and Dabusinska (2009) provide tentative support that men are 'pushed' out of jobs in their current industry via layoffs. In contrast, women are more often 'pulled' by opportunities in growing sectors. We combine the expectations for gender and occupations and relate them to workers' mobility out of declining and into growing occupations. Our expectation is that male production workers in declining occupations are more negatively affected than female clerks. The reasoning behind this is that skill requirements for women are moving in line with the demands of growing occupations. Therefore, we hypothesise that for women compared to men in declining occupations, skills should be more easily transferred to growing occupations. In a similar vein, for the clerical class of occupations, the skill distance between declining and growing occupations should be shorter than for the male-dominated production class.

From the previous discussion we derive our second hypothesis to test:

Hypothesis 2*: Female clerical workers are more likely to transition from declining directly into growing occupations. For male production workers the route out of declining occupations should largely be through unemployment.*

3. Data and Analytical Approach

3.1. *Data and sampling*
For our analyses of individual employment transitions we combine longitudinal data from the British Household Panel (BHPS), and the German Socio-Economic Panel (SOEP) spanning two decades: the 1990s and 2000s[i] to create unbalanced panels of ten years each. Only one time period, 1999-2009, is available from the Swiss Household Panel (SHP)[ii]. Our sample is restricted to men and women aged 18-64, working full-time or 15 hours or more per week in the first year of observation, either as employees or self-employed. We impose the condition that individuals must appear in at least three years of our observation periods[iii]. All those with missing relevant covariates are dropped from our analysis. Main sample statistics are reported in the appendix (Tables A1- A3).

3.2. *Occupations*
We define occupations according to the 'micro-class' concept introduced by Grusky and Weeden (2001; 2005) and further developed by Jonsson *et al*. (2009)[iv]. The grouping of occupations as regards similarities in training, unionisation, and education allows for coherent, cross-nationally comparable measures of occupations (Grusky and Weeden, 2001). This provides us with 84 more or less harmonised occupations, an ideal medium

between wholly disaggregated occupations and too parsimonious classes[v]. Although our mobility analysis still relies on the initial accuracy of nation-specific occupational coding, we hope to minimize any spurious changes due to coding errors across years since any occupational moves involve a change of 1) delineated occupational group and 2) category of growth or decline. In the British and Swiss case, we use national labour force surveys to sort occupations. We use the spring quarterly data for Great Britain, available from the Quarterly Labour Force Survey (QLFS)[vi], the annual Swiss Labour Force Survey (SLFS) and the Socio-Economic Panel for Germany (SOEP).

By way of a two-stage ranking procedure we generate occupation quartiles. Occupations are initially organized into ones that have declined and ones that have grown over the past 20 years. We have chosen this time frame, which differs from the estimations run across decades, for two reasons. One is for comparative purposes: having the same occupations in each group for both time periods is preferable. Occupational evolutions have been shown to occur over shorter time periods. However, theoretically, long-term trends seem more critical in analysing major career change[vii]. We pool two cross-sections from the labour force surveys, 1990 and 1991 to mark a beginning and 2009 and 2010 for an end-point[viii]. We then compute relative change in overall paid employment by occupation in the British, German, and Swiss economy. Occupations are rank ordered and divided into declining and growing occupations; each constitutes approximately 50% of the working population, aged between 18-65. To subdivide these into lower and higher quality occupations, we pool two starting years[ix] and rank occupations according to median hourly wage[x]. Again the workforce is split in half and these higher and lower paid occupations are re-classified in terms of whether they are declining or growing. This leaves us with four categories: lower-paid and higher-paid declining occupations, and lower-paid and higher-paid growing occupations. Table 1 lists three occupations in each category, which have strongly declined or expanded in relative and absolute terms during the 1990s and 2000s.

Table 1. Growing and Declining (Micro-class) Occupations: 1990/1-2009/2010

		Declining	Growing
Lower Quality	Britain	Office and clerical workers Operatives and kindred workers Tailors and rel. workers	Nursery school teachers and aides Health service/attendant workers Physical oriented service workers
	Germany	Bricklayers, carpenters and rel. Mass transportation operators Office and clerical workers	Health semi-professionals Sales workers and shop assistants Nursery school teachers and aides
	Switzerland	Office and clerical workers Farmers and farm managers Welders and rel. metal workers	Housekeeping workers Sales workers and shop assistants Food service workers
Higher Quality	Britain	Blacksmiths and machinists Welders and rel. metal workers Electronics service and repair workers	Personnel and labour relations workers Social and welfare workers Systems analysts and programmers
	Germany	Electronics service and repair workers Welders and rel. metal workers Other mechanics	Social and welfare workers Systems analysts and programmers Commercial Managers
	Switzerland	Plumbers and pipe-fitters Printers and rel. workers Nonmedical technicians	Elementary and secondary school teachers Systems analysts and programmers Commercial Managers

Source: GB-Labour Force Survey (LFS): 1991; 1992; 2009; 2010; DE- SOEP 1990; 1991; 2009; 2010; and CH- Swiss Labour Force Survey (SLFS) 1999; 2000; 2008; 2009

Notes: Lower quality refers to occupations with low median wages and higher quality refers to occupations with high median wages. Lower quality growing and declining occupations (50%) and higher quality growing and declining occupations (50%) each make up half of the total working population per country.

3.3. Estimation method: single-failure competing risk model

Our unit of analysis is set as an individual per year. Our dependent variable is the conditional exit from a declining occupation into four competing, absorbing states at time *t* (duration, calendar time in our case): (i) re-employment in a higher quality growing occupation or (ii) a lower quality growing occupation, (iii) unemployment, and (iv) out of the labour force[xi].

Transition probabilities are estimated using Fine and Gray's (1999) semi-parametric proportional hazards model. Regressions are run separately for each country. This type of survival analysis is specifically designed to predict the overall likelihood of observing

an event of interest. It explicitly takes each competing event into account, and assumes that each specified (risk) event is inter-dependent. The effect a variable can have on the cause-specific hazard differs from its effect on the sub-hazard function. The method allows for the calculation of the cumulative incidence function (CIF), or the marginal probability (failure) function (Gichangi and Vach, 2005; Tunny and Mangan, 2004).

Our sample is a stock sample, thus the data is left truncated and includes individuals whose jobs began before the base year. We try to control for ongoing spell duration with the inclusion of lagged, time varying job tenure, although only firm tenure is available for the Swiss model. As we do not have occupational experience, these measures only go so far in minimizing problems of unobserved heterogeneity and employment 'state dependence' (Heckmann, 2001). Selectivity bias could also arise due to right censoring, or panel attrition, causing us to over-estimate individual career stability since those who experience negative life events, such as unemployment, are more likely to drop out of surveys. Important individual, human capital and job characteristics are included as independent variables to reduce systematic error.

4. Empirical Results

4.1. A Comparison of Movement Out of Declining and Growing Occupations
In this section we discuss the results for the second period of analysis only. However, our results for the 1990s complement those of the 2000s. The figures chart the changing stocks of male and female workers employed in a growing or declining occupation in 2000[xii], who either remain in their initial occupation category, or become re-employed in an alternative occupation, unemployed, inactive or retired over the subsequent decade. As predicted, we observe certain country-specific trends. In Great Britain more workers from declining occupations move to growing ones. In Germany, more workers from declining occupations become unemployed, in comparison to workers from growing occupations. Switzerland occupies a middle ground, with fewer re-employed in growing occupations than in either Germany or Great Britain, but no substantial differences in unemployment shares.

We confirm that in all countries, workers coming from a declining occupation are more likely to have left their occupations after ten years compared to workers in growing occupations. Only 59% of our sample of German workers, and 57% of British workers, from declining occupations remained employed in a declining occupation by 2010 and 2008, respectively. For Swiss workers originally employed in a declining occupation in 1999, 67% of them were still working in a declining occupation by 2009.

A key observation is that most of the movement is directed towards re-employment in growing occupations. We find tentative support for our first hypothesis in that the greatest number of workers, 30% of our sample, is (re-) employed in a growing occupation by the end in Great Britain (Figures 1.1 and 1.2). A striking finding however, is the substantial amount of labour reallocation visible in all three contexts. As shown in Figures 2.1 and 2.2 for Germany, 24% of workers from declining occupations are in a growing occupation after ten years. In comparison, only 11% of workers coming from growing occupations in Great Britain and Germany have changed to a declining occupation over the 2000s.

These percentages add up to a net difference in outward mobility of 19 percentage points (p.p) in the British context and a 13p.p differential in Germany. In Switzerland, shown in Figures 3.1 and 3.2, mobility is more similar across the growing and declining occupational groups. Nevertheless, workers' total moves out of declining occupations are still 13 p.p higher than total exits out of growing occupations.

In line with the mobility regime theories, in Germany workers from declining occupations, compared to their counterparts in growing occupations, seem to have a higher likelihood of ending up unemployed. 6% of workers coming from a declining occupation were unemployed in 2010 as opposed to 3% of workers from a growing occupation. In Great Britain and Switzerland we note no significant differences in total unemployment stocks between workers from declining and growing occupations during the 2000s.

The question that remains is how many workers in each of the economies' declining occupations exit employment altogether, either by retiring early, or becoming inactive? The graphs demonstrate similar stocks of individuals in (early)[xiii] retirement and inactivity across declining and growing worker divisions. Inactivity levels only differed in Switzerland, where 3% of the workers from declining occupations became inactive ten years on, in comparison to 1% of those first observed in growing occupations. Thus, differences in the proportion of people remaining in growing or declining occupations cannot simply be explained on the basis of labour force removal, either retirement or inactivity.
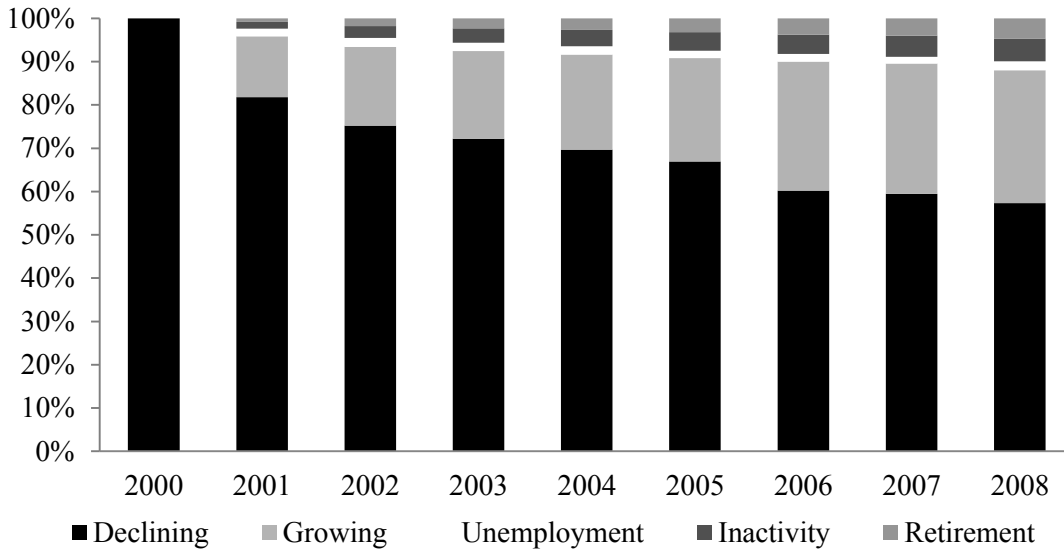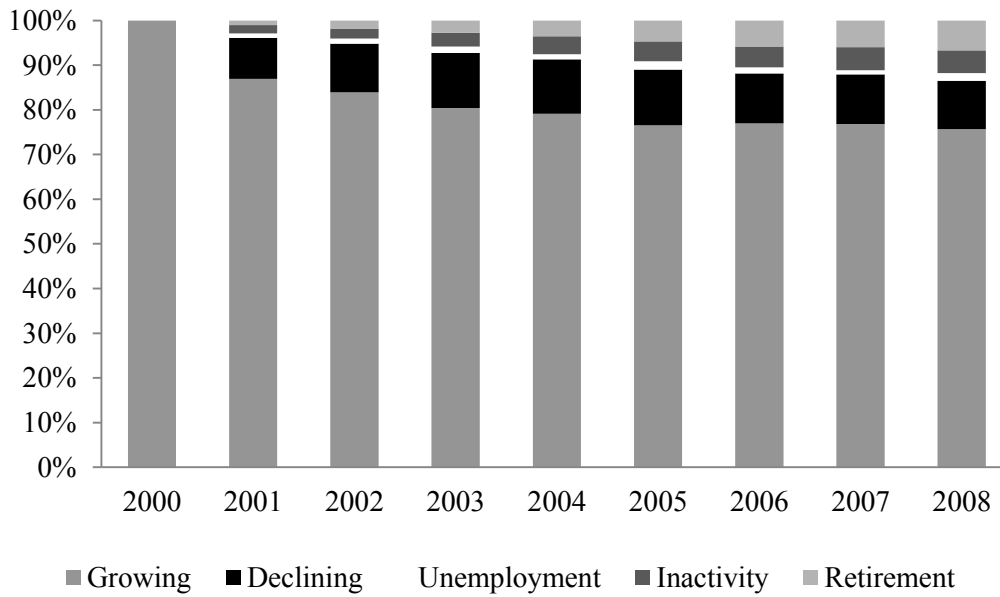
[1.1]

[1.2]

Source: British Household Panel Survey, 2000-2008

Figure 1. The movement of workers from [1.1] declining occupations [1.2.] growing occupations in Great Britain; Proportion (%) in each state over 2000s
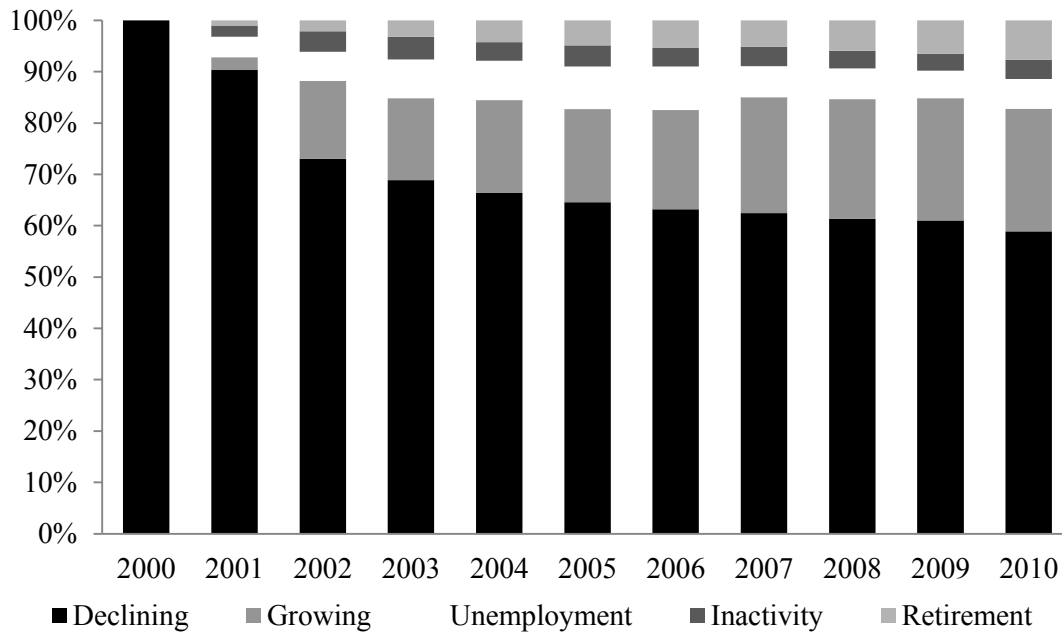
Notes: N= 3 943, sample aged 18-64, unweighted data.
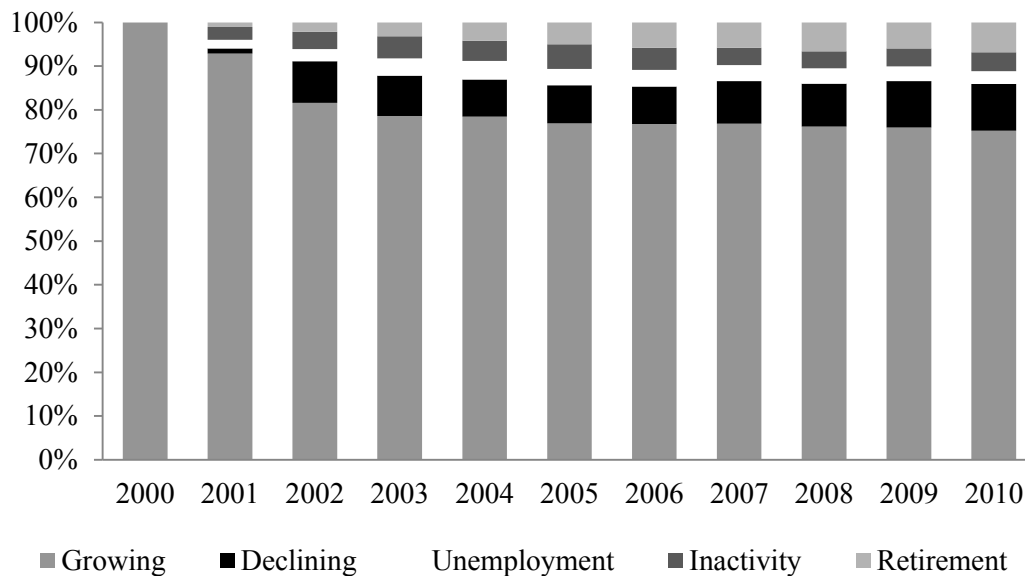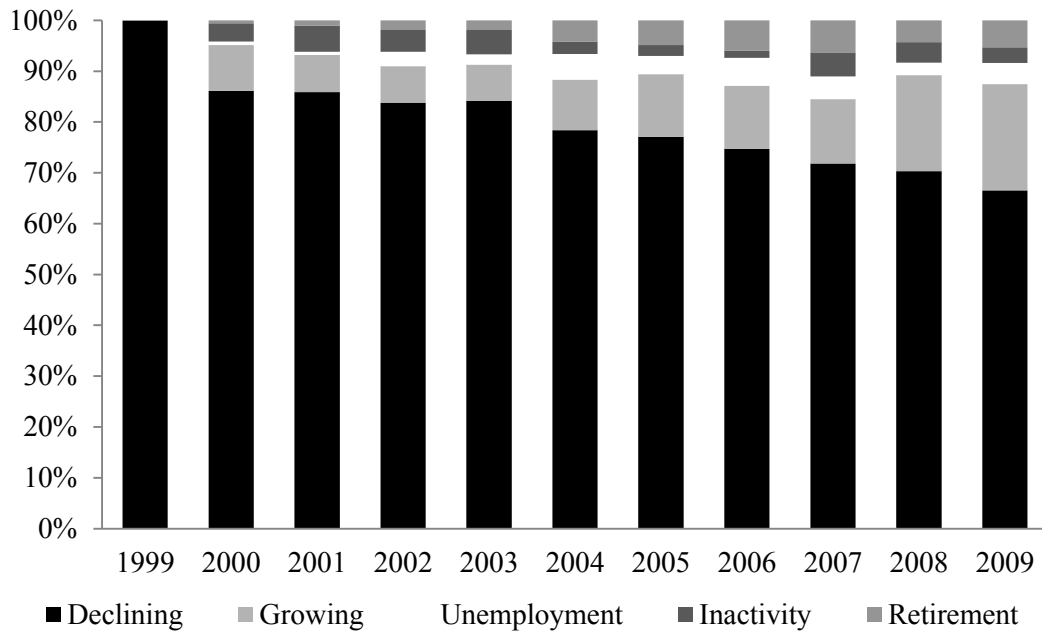
[2.1]

Notes: N= 5 669, sample aged 18-64, unweighted data.

[2.2]

Source: German Socio-Economic Panel, 2000-2010

Figure 2. The movement of workers from [1.1] declining occupations [1.2.] growing occupations in Germany; Proportion (%) in each state over 2000s

Notes: N= 1180, sample aged 18-64, unweighted data

[3.1]

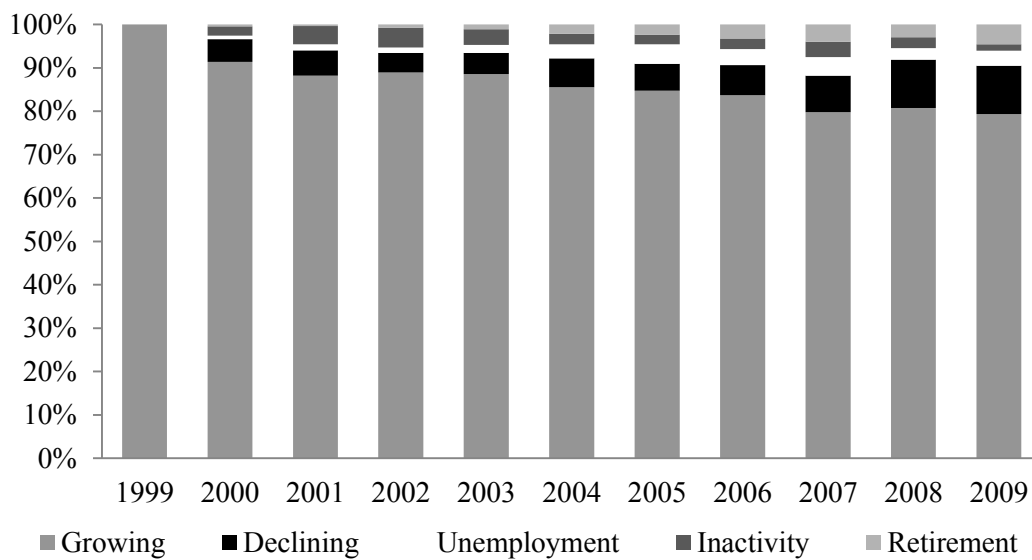*Notes: N= 1 809, sample aged 18-64, unweighted data.*

[3.2]

Source: Swiss Household Panel, 2000-2009

Figure 3. The movement of workers from [3.1] declining occupations [3.2.] growing occupations in Switzerland; Proportion (%) in each state over 2000s

Our descriptive findings provide an outline of the work trajectories of those in shrinking economic sectors. However, these results do not allow us to identify any systematic differences in destination between classes of workers, and suffer from problems of panel attrition. In the following section we present the results of our competing risk regressions.

4.2. Transitions from Declining to Growing Occupations: Competing Risk Regression Estimates

To what extent do we find that individual career changes reflect changes in the distribution of aggregate employment? To answer this question, we model the drivers of first predicted exit, focusing on workers' transitions into higher and lower paid growing occupations, and unemployment.

Contradictory to our hypothesis of gender effects, Tables 2-4 show that once we control for class and other human capital indicators, being female does not, in and of itself predict moves into growing occupations in any of the countries analysed. While the female dummy variables in all three models are positive for transitions into low-paid growing occupations, they are not significant.

While being female does not predict switches to growing sectors, working in the service and sales industries is positively associated with a transition to a growing occupation. Service and commercial sales industries channel exits from a declining occupation into higher quality growing occupations in Switzerland. In Germany and Great Britain, workers in service industries display a higher probability of moving into lower quality jobs in expanding sectors and it protects German workers from unemployment, in comparison to manufacturing and primary industry workers.

In terms of education, the stratification of individual transition probabilities seemingly mirrors aggregate trends. Unsurprisingly, a worker with tertiary education is less likely to become unemployed, and most likely to move to a high-paid growing occupation in all three countries. In the British 'general skill' context, general (upper) secondary education supports moves into high-paid growing occupations, but has no effect in the German 'specific skill' context (Tables 2 and 3). Interestingly though, in these countries vocational (secondary-level) education lowers a worker's vulnerability to unemployment exit, whereas general education does not.

Table 2. Competing risk estimates: Overall likelihood of exiting a declining occupation in Great Britain 2000s

To:	Lower Quality Growing		Higher Quality Growing		Unemployment	
	ß	s.e	ß	s.e	ß	s.e
Female *(ref: Male)*	0.411	(0.214)	-0.162	(0.113)	-0.273	(0.286)
Job Characteristics						
Temporary/fixed term contract *(ref: Permanent)*	-0.061	(0.383)	-0.024	(0.237)	0.823	(0.432)
Part-time *(ref: Fulltime)*	0.327	(0.191)	-0.454**	(0.167)	0.280	(0.407)
Self-employed *(ref: Employee)*	0.767	(0.745)	0.155	(0.505)	0.134	(1.020)
Education[a]						
I Incomplete/compulsory/basic vocational	ref.	ref.	ref.	ref.	ref.	ref.
IIa (Post-)Secondary: vocational track	-0.385	(0.222)	0.560***	(0.167)	-0.743*	(0.379)
IIb (Post-)Secondary: general track	-0.464*	(0.195)	0.521***	(0.154)	-0.360	(0.289)
III Tertiary level:lower and higher academic track	-0.280	(0.207)	0.882***	(0.148)	-0.926**	(0.358)
Occupational class[b]						
Technical (semi-) professionals	-1.339*	(0.597)	0.850***	(0.156)	-0.089	(0.409)
Socio-cultural(semi-)professionals	-1.276	(1.011)	0.621*	(0.280)	0.117	(1.196)
Clerks	0.309	(0.248)	0.752***	(0.144)	-0.619	(0.339)
Craft and Production workers	ref.	ref.	ref.	ref.	ref.	ref.
Interpersonal service workers	0.719**	(0.273)	0.341	(0.232)	-1.196	(0.685)
Manufacturing, construction and agriculture [c]	ref.	ref.	ref.	ref.	ref.	ref.
Services and sales industries	0.454*	(0.218)	0.044	(0.123)	-0.074	(0.264)
Public sector (ref: Private sector)	-0.468*	(0.184)	0.039	(0.116)	-0.737	(0.506)
Birth Cohort						
Cohort 1: 1935-1944	0.084	(0.294)	-0.942**	(0.305)	-0.185	(0.512)
Cohort 2: 1945-1954	-0.233	(0.212)	-0.189	(0.135)	-0.385	(0.328)
Cohort 3: 1955-1964	0.150	(0.165)	-0.020	(0.112)	-0.082	(0.279)
Cohort 4: 1965+	ref.	ref.	ref.	ref.	ref.	ref.
Time varying covariates[d]						
Job tenure	0.003	(0.011)	-0.015	(0.008)	0.023	(0.015)

Total transitions across all destinations	1 714
N	5 841

Notes: significance at * p<0.05 ** p<0.01 *** p<0.00. [a]Casmin scale [b]Oesch class schema: Managerial class excluded as too few cases. [c]SIC80 industry coding,[d] time lagged by one year. Marital status control not shown; robust standard errors in parantheses. Fourth competing exit route (OLF) model estimates not displayed.

Table 3. Competing risk estimates: Overall likelihood of exiting a declining occupation in Germany 2000s

To:	Lower Quality Growing		Higher Quality Growing		Unemployment	
	ß	s.e	ß	s.e	ß	s.e
Female *(ref: Male)*	0.082	(0.127)	-0.153	(0.109)	-0.025	(0.111)
East Germany	0.051	(0.123)	-0.183	(0.112)	0.652***	(0.108)
Job Characteristics						
Temporary/fixed term contract *(ref: Permanent)*	0.809***	(0.108)	0.503***	(0.114)	1.098***	(0.121)
Part-time *(ref: Fulltime)*	0.085	(0.167)	-0.026	(0.141)	-0.209	(0.169)
Self-employed *(ref: Employee)*	0.155	(0.141)	-0.514**	(0.168)	-0.111	(0.151)
Education[a]						
I Incomplete/compulsory/basic vocational	*ref.*	*ref.*	*ref.*	*ref.*	*ref.*	*ref.*
IIa (Post-)Secondary: vocational track	-0.196	(0.106)	0.186	(0.102)	-0.209*	(0.104)
IIb (Post-)Secondary: general track	-0.361	(0.263)	0.147	(0.241)	0.118	(0.209)
III Tertiary level: lower and higher academic track	-0.451*	(0.227)	0.888***	(0.140)	-0.607**	(0.229)
Managers and administrators	0.372*	(0.171)	1.362***	(0.139)	-1.093***	(0.302)
Technical (semi-) professionals	-2.014*	(1.006)	1.929***	(0.183)	-0.590	(0.502)
Socio-cultural (semi-)professionals	-0.363	(0.400)	0.454	(0.239)	-0.285	(0.428)
Clerks	-0.139	(0.147)	0.999***	(0.115)	-0.137	(0.135)
Craft and Production workers	*ref.*	*ref.*	*ref.*	*ref.*	*ref.*	*ref.*
Manufacturing, construction and agriculture [c]	*ref.*	*ref.*	*ref.*	*ref.*	*ref.*	*ref.*
Services and sales industries	0.701***	(0.106)	0.171	(0.096)	-0.367**	(0.118)
Public sector *(ref: Private sector)*	-0.846***	(0.162)	0.359***	(0.107)	-0.343*	(0.167)
Birth Cohort						
Cohort 1: 1925-1944	-0.695**	(0.228)	-0.920***	(0.197)	1.109***	(0.158)
Cohort 2: 1945-1954	-0.156	(0.133)	-0.535***	(0.124)	0.800***	(0.120)
Cohort 3: 1955-1964	-0.231*	(0.112)	-0.110	(0.099)	0.266*	(0.116)
Cohort 4: 1965+	*ref.*	*ref.*	*ref.*	*ref.*	*ref.*	*ref.*
Time varying covariates[d]						
Job tenure	0.004	(0.003)	0.014***	(0.003)	-0.020***	(0.005)
Total transitions across all destinations			3 864			
N			20 975			

Notes: significance at * p<0.05 ** p<0.01 *** p<0.00. [a]Casmin scale [b]Oesch class schema: Interpersonal service class excluded as too few cases; [c](2 Digit)NACE industry coding [d] time lagged by one year. Marital status and foreign nationality control not shown; robust standard errors in parantheses. Fourth competing exit route (OLF) model estimates not displayed.

Table 4. Competing risk estimates: Overall likelihood of exiting a declining occupation in Switzerland 2000s

To:	Lower Quality Growing		Higher Quality Growing		Unemployment	
	ß	s.e	ß	s.e	ß	s.e
Female *(ref: Male)*	0.481	(0.319)	-0.152	(0.290)	-0.189	(0.375)
Foreign national *(ref: Swiss national)*	0.436	(0.313)	-0.524	(0.378)	1.056**	(0.370)
Job Characteristics						
Temporary/fixed term contract *(ref: Permanent)*	-0.064	(0.460)	-0.221	(0.392)	0.911	(0.519)
Part-time *(ref: Fulltime)*	-0.183	(0.338)	0.085	(0.286)	0.638	(0.364)
Education[a]						
I Incomplete/compulsory/basic vocational	*ref.*	*ref.*	*ref.*	*ref.*	*ref.*	*ref.*
IIa Apprenticeship: vocational track/full-time school	-0.233	(0.278)	0.042	(0.326)	0.229	(0.427)
IIb (Post)-secondary: vocational/technical certs	-0.911	(0.507)	0.901*	(0.354)	-0.012	(0.659)
III Tertiary: academic (bachelor/maturity) track	-0.996	(0.583)	0.856*	(0.382)	0.314	(0.650)
Occupational class[b]						
Socio-cultural(semi-)professionals	-1.028	(0.751)	0.512	(0.414)	-0.041	(0.870)
Technical (semi-) professionals	-0.033	(0.325)	0.284	(0.327)	-0.307	(0.699)
Clerks	-1.199**	(0.376)	0.547	(0.302)	0.782*	(0.390)
Craft and Production workers	*ref.*	*ref.*	*ref.*	*ref.*	*ref.*	*ref.*
Interpersonal service workers	-0.433	(0.468)	0.650	(0.370)	-0.832	(1.036)
Manufacturing, construction and agriculture [c]	*ref.*	*ref.*	*ref.*	*ref.*	*ref.*	*ref.*
Services and sales industries	-0.449	(0.289)	0.489*	(0.247)	-0.076	(0.372)
Public sector *(ref: Private sector)*	0.077	(0.323)	-0.340	(0.204)	-0.667	(0.399)
Birth Cohort						
Cohort 1: 1925-1944	-0.177	(0.397)	-0.523	(0.429)	0.307	(0.616)
Cohort 2: 1945-1954	-0.616	(0.365)	-0.739*	(0.299)	0.459	(0.451)
Cohort 3: 1955-1964	-0.072	(0.279)	-0.511*	(0.236)	-0.077	(0.441)
Cohort 4: 1965+	*ref.*	*ref.*	*ref.*	*ref.*	*ref.*	*ref.*
Firm tenure (as of year 1999)	0.004	(0.016)	-0.008	(0.015)	-0.045*	(0.022)
Total transitions across all destinations			1094			
N			4 728			

Source: SHP 1999-2009

Notes: significance at * p<0.05 ** p<0.01 *** p<0.00. [a]Highest education level achieved [b]Oesch class schema: Managerial class excluded as too few cases. [c] NOGA(2-Digit) industry coding. Marital status control not shown; robust standard errors in parantheses. Fourth competing exit route (OLF) model estimates not displayed.

The more bounded German labour market seems to encourage older birth cohorts to stay on in declining occupations. At the same time, these ageing individuals are much more vulnerable to unemployment exit. This contrasts with the British case, where no cohort is at higher risk of leaving via unemployment. Other control variables work in expected ways, with workers generally considered in a more precarious labour market position, foreign born or temporary workers being more likely to exit.

4.3. The Changing Career Paths of Production and Clerical Workers

The estimates in British and German tables (Tables 2 and 3) corroborate our conjecture of an ease of movement for office clerks leaving declining occupations for growing occupations. Clerks are significantly more likely to transition to a higher quality occupation than are production workers. A different situation appears in Switzerland (Table 4); clerks have a lower likelihood of switching to a lower quality growing occupation and are not significantly more likely to move to a higher quality growing occupation compared to the production class. However, some caution should be applied in interpreting the coefficients in Table 4, due to the extremely low number of unemployment events recorded (see appendix Table A9).

By plotting the models' predicted cumulative incidence functions of exit from a declining occupation for low-educated male production workers, and for women with medium levels of education working as clerks, we test our second hypothesis. In order to best represent the divergent mobility strategies of each class we take the most common education level of these two types of workers. The education profiles are country specific. The majority of British and German male production workers have low levels of education, equivalent to Casmin levels 1a-1c. In Switzerland, male production workers and female office clerks primarily hold apprenticeships, and as such full-time vocational schooling and apprenticeships are the chosen educational forms for both groups (cf. Appendix Tables A1-A3). For female clerks in Great Britain we assign general secondary education (a combination of Casmin level 2b and 2c), while in Germany clerks have vocational secondary education (Casmin 2a and 2d). We analyse the cohort born between 1955-64. The majority of these individuals would have entered the labour market during the 1970s and 80s and should be well established in the labour market by the 2000s. Both production workers and clerks are positioned in the private sector but working in different industries: manufacturing, construction and agriculture for production workers, and social and commercial services and sales for clerks. All other covariates in the models are estimated at their means.

Our evidence largely substantiates the hypothesized mobility patterns for female clerks versus male production workers in declining occupations. The main finding to take away from Figures 5, 7 and 9, is the high likelihood that an office clerk will have moved to a growing occupation, and a high quality one at that. At around the 6-year mark, 20% of clerks in Germany are predicted to have exited this way. In Great Britain, the figure is even higher, 32% of clerks that remain are predicted to make a transition into higher-paid growing occupations. For Switzerland, the incidence probability among clerks is somewhat lower, at 12%.
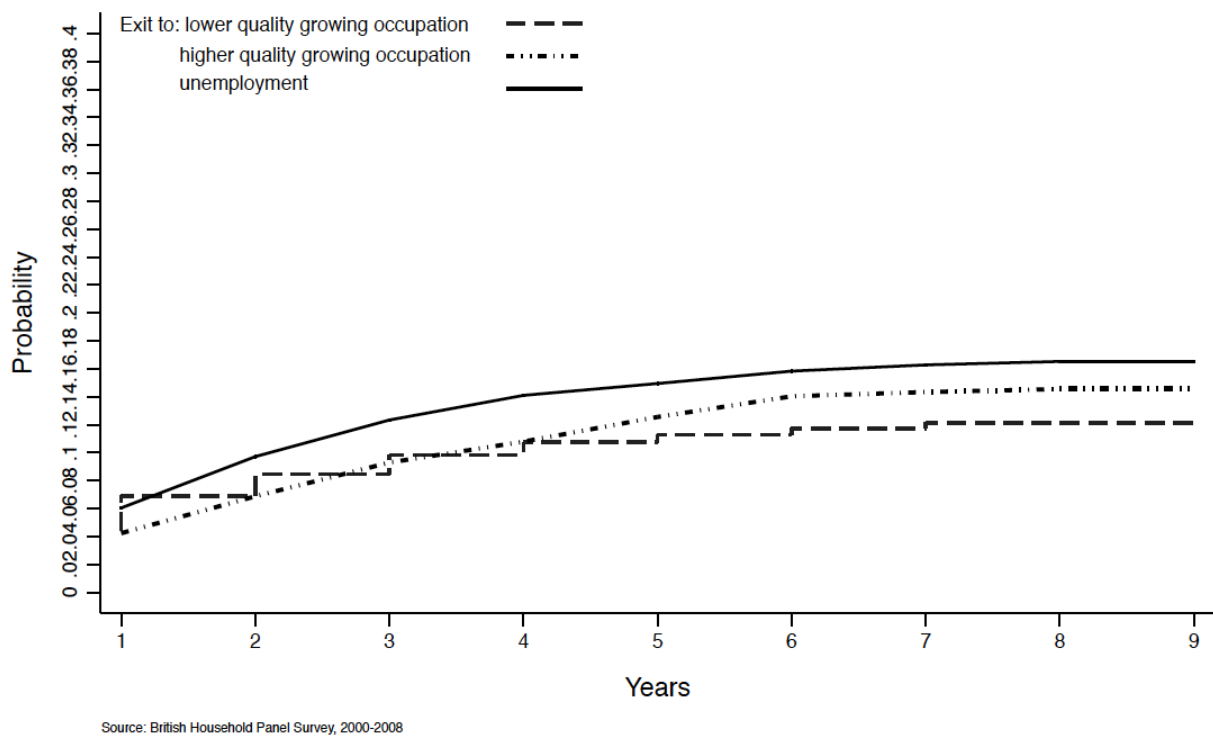

Source: British Household Panel Survey, 2000-2008

Figure 4.   First predicted exit route for male production workers with basic education coming from a declining occupation in the private industrial sector in Great Britain during the 1990s (1955-1964 birth cohort)
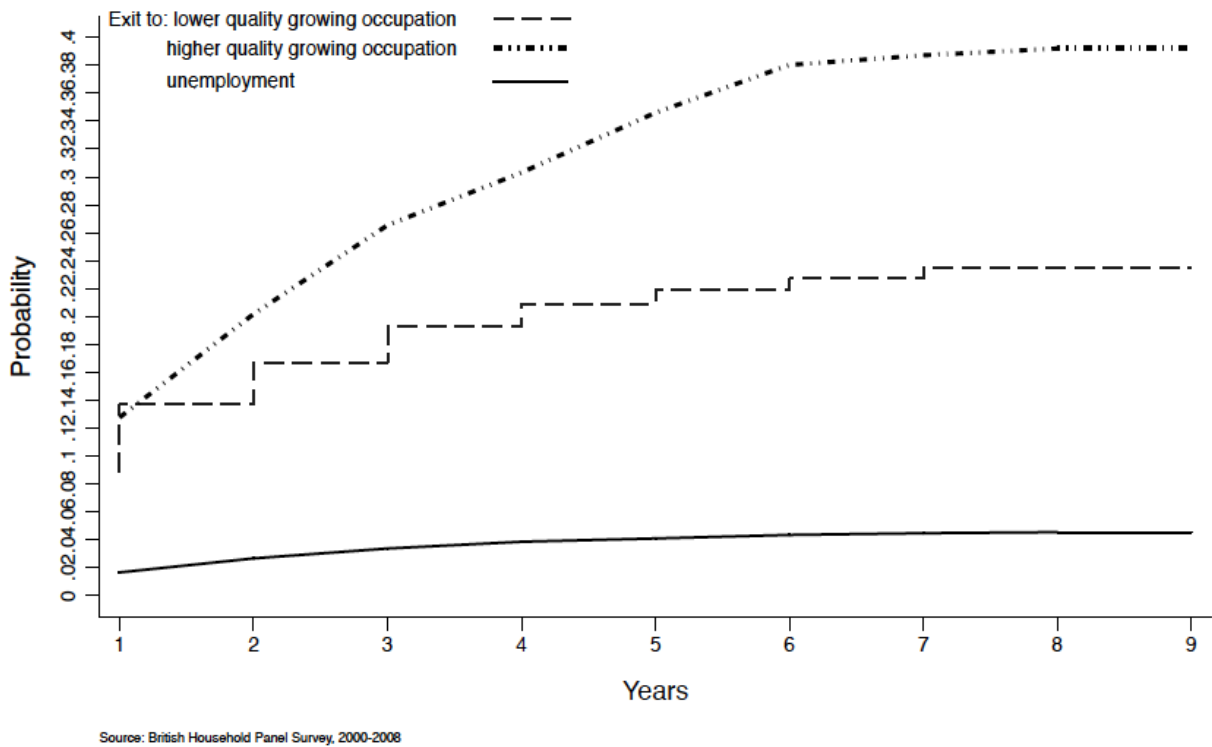
Figure 5. First predicted exit route for female clerical workers with general secondary level educational, coming from a declining occupation in the private service sector in Great Britain during the 2000s (1955-1964 birth cohort)
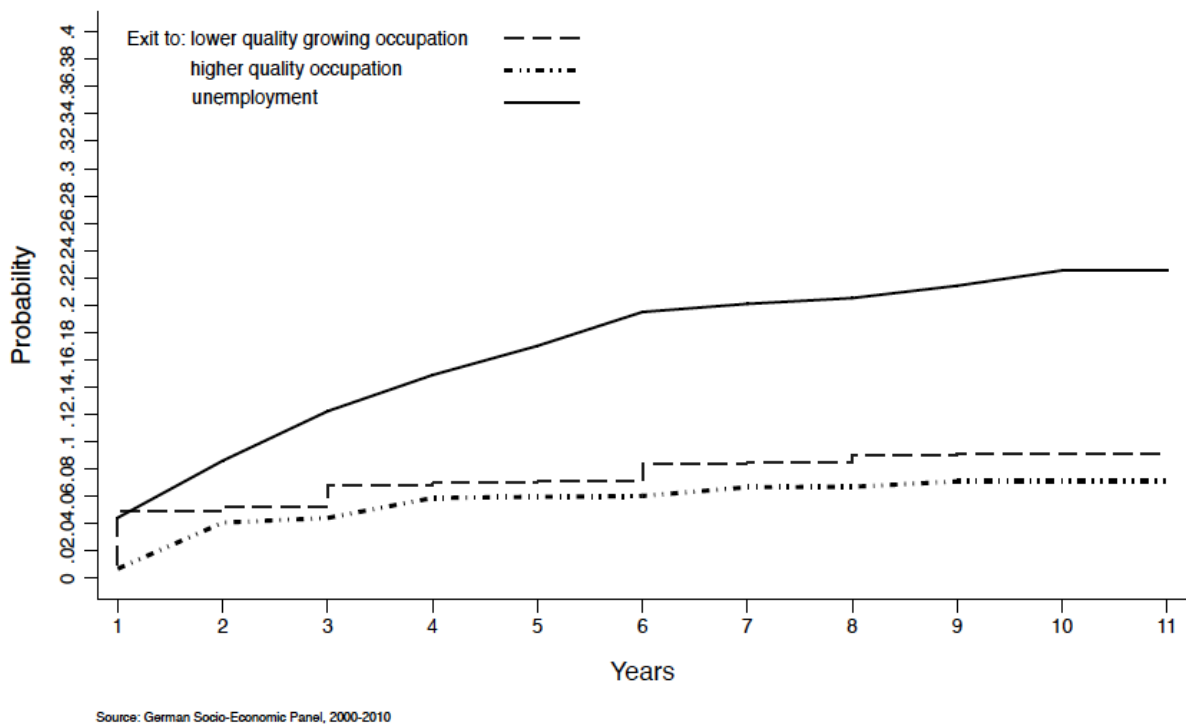

Figure 6. First predicted exit route for male production workers with basic education, coming from a declining occupation in the private industrial sector in Germany during the 2000s (1955-1964 birth cohort)
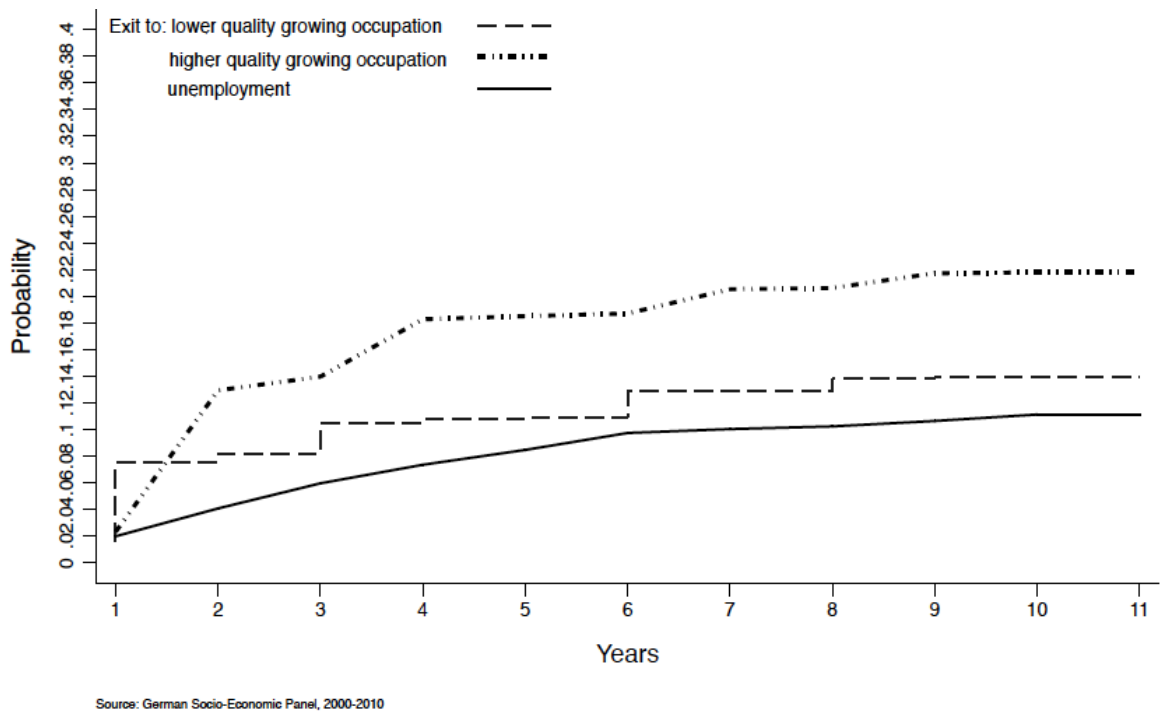
Figure 7. First predicted exit route for female clerical workers with secondary level vocational education, coming from a declining occupation in the private service sector in Germany during the 2000s (1955-1964 birth cohort)
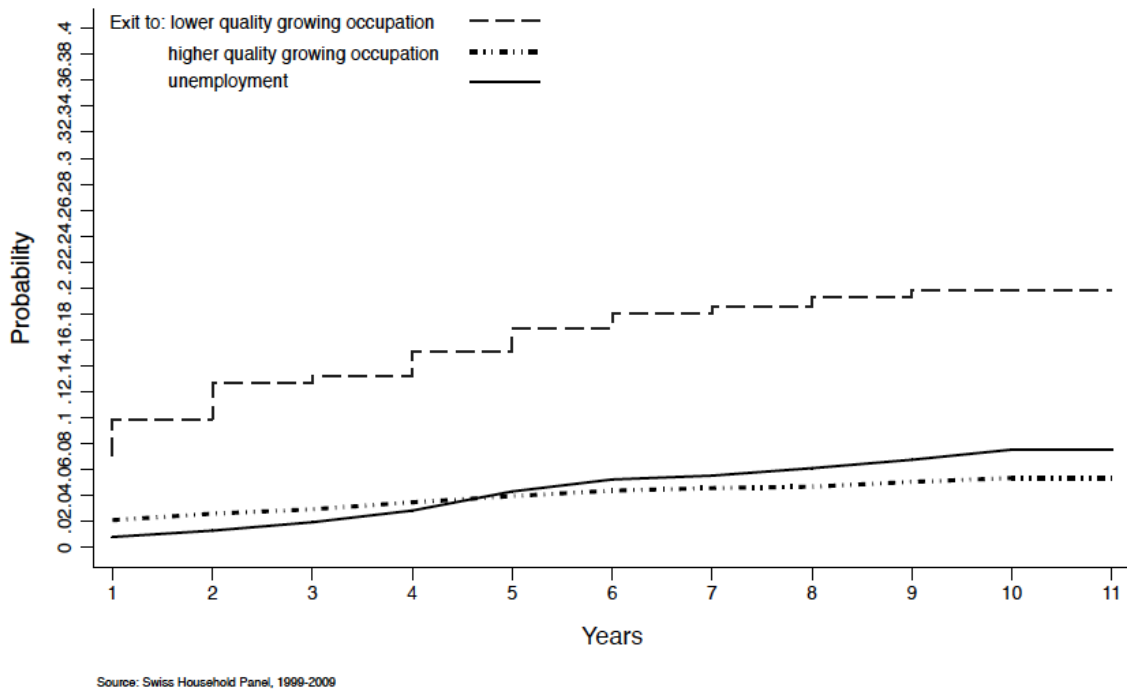

Figure 8. First predicted exit route for male production workers with an apprenticeship, coming from a declining occupation in the private industrial sector in Switzerland during the 2000s (1955-1964 birth cohort)
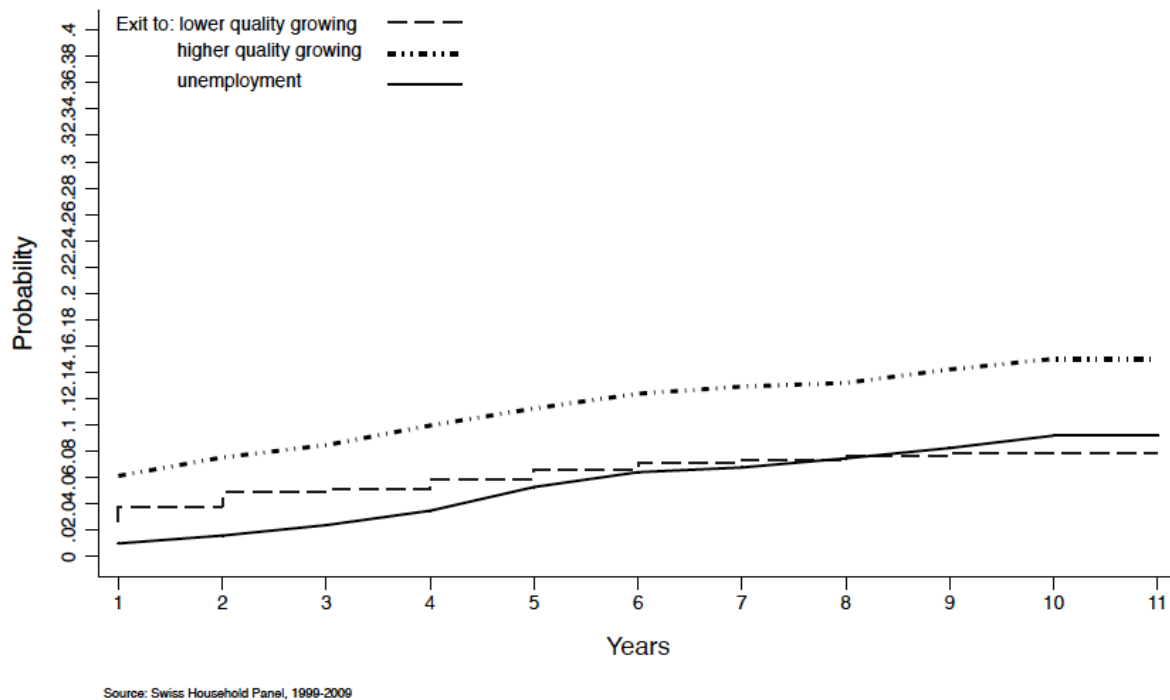
23

Source: Swiss Household Panel, 1999-2009

Figure 9. First predicted exit route for female clerical workers with an apprenticeship, coming from a declining occupation in the private service sector in Switzerland during the 2000s (1955-1964 birth cohort)

The next noteworthy finding is the opposite picture of exit among middle-aged production workers in Great Britain (Fig. 4) and Germany (Fig. 6). For them the most likely destination of exit from a declining occupation is unemployment, with an estimated total of 15% and 20% conditional probability, respectively. The mobility of Swiss production workers (Fig.8) differs from British or German workers. Total exits from declining occupations in Switzerland are less frequent over time and the highest percentage predicted unemployment incidence rests at a low of 6%. Swiss production workers, if they move, change to lower quality growing occupations.

Net differences between clerks and production workers make evident the greater chance of smooth transitions out of declining occupations for clerks as opposed to production workers. From the curves we can see that predicted cumulative unemployment incidence is considerably lower for clerks than for production workers, while unemployment as a destination is much less likely than competing growing occupation routes. In both Great Britain and Germany, male production workers are twice as likely as female clerks to move out of a declining occupation by way of unemployment. Switzerland varies from both countries, and does not support our second hypothesis. Approximately 2% more clerks are predicted to move to unemployment in the 8th year.

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The mobility distribution of production workers across our three destination states roughly fit our country-level predictions. The largest proportion of production workers are predicted to exit declining occupations for alternative re-employment in Great Britain, at most 14% to higher quality occupations and 10% to lower quality growing occupations. In Switzerland, the highest percentage of predicted exits recorded is 18% to lower quality growing occupations, with 4% to higher quality growing occupations. The lowest probability of observing production workers exits to growing occupations is found for Germany. The highest incidence is only 8% of production workers to lower quality growing occupations and 6% exit to higher quality growing occupations, an indication of the greater challenge that career switching poses in this context.

If we compare male production workers with higher levels of education to female clerks with lower levels of education, class differentials in work trajectories prove quite robust (results available from the author). Faced with negative change in employment opportunities at the macro-level, the figures clearly illustrate that mid-to later career production workers in declining occupations are at a disadvantage in terms of available mobility routes, as compared with clerks.

5. Conclusion

This paper assesses how intra-generational occupational mobility contributes to macro-level adjustments in the employment structure of Western Europe. Our study divides occupations into growing and declining categories and provides empirical evidence of the types of workers in contracting occupations who are more likely to exit over time, and the destination of their exits. We analyse some important drivers of movement out of declining occupations and into growing occupations, alongside career interruptions due to exits into unemployment.

To sum up, there are four key findings. First, we find a substantial amount of worker reallocation from declining occupations to growing occupations in all three countries. On average, more than 20% of our working sample in declining occupations across Great Britain, Germany and Switzerland are re-employed in a growing occupation ten years later.

Second, we note that a general fluidity in movement does not apply equally to all workers from declining occupations in different national contexts. Individual transitions out of declining occupations in Great Britain, Germany and Switzerland follow gendered

occupational pathways. Female clerks are much more likely than male production workers to find employment in a high quality growing occupation.

Third, our results show that risks of unemployment exit from a declining occupation are heavily concentrated on male production workers in both Great Britain and Germany. Switzerland proves to be an exception, where a production worker's most probable route out of a declining occupation is a transition into a lower quality growing occupation.

A fourth finding is the way in which different institutional contexts structure individuals' labour market transitions. We document a greater likelihood that both production workers and female clerks in Great Britain will move out of declining occupations and into growing occupations compared with either Germany or Switzerland. Where labour markets are not as occupationally bounded, or have unusually low aggregate unemployment such as in Switzerland, switching from a declining to a growing occupation could be opportune. But many production workers in Germany stay in declining occupations up until the point where they are pushed into unemployment.

Unlike workers in low and medium-wage production jobs, low and medium-wage clerks seem better able to adapt their skills to the requirements of growing occupations. The main policy implication of our results points to an increasing need to target production workers, particularly men, already employed in declining occupations, and offer them forward looking training programmes that foster 'security-in–transition' (Auer, 2006: 37). In this way, the challenges that accompany bursts of change in the employment structure might be better negotiated on the individual level.

Acknowledgements

Notes

i   In Germany we analyse the years: 1990-2010, and Great Britain: 1991-2008. We do not have two time-periods in the Swiss case; only data spanning the years 1999-2009 are used. We use all respondent samples in the SHP, and in the BHPS (Northern Ireland appears in the 2000 sample). In the SOEP, we include all foreign samples and East Germans, but exclude the high-income earner sample.

ii   Further documentation on panel design is available in Voorpostel *et al*. (2010) -SHP; Taylor *et al*. (2010) –BHPS; and Wagner *et al*. (2007) -SOEP.

iii   As a result of this minimum observation restriction, no 64 year olds can be in the base year.

iv   We benefit from the crosswalks generated by Lambert and Griffith (2011). These translate 3-digit 1990 Standard Occupational Coding (SOC90) indicators in the British data, and 4-digit 1988 International Standard Classification of Occupations (ISCO-88) in the Swiss and German data, with minor alterations, into the 'micro-class' scheme.

v   A detailed description of Jonsson *et al.*'s (2009) micro-class research can be accessed at: http://www.classmobility.org/.

vi   The first year (1991) contains annual data, as the design of data-collection began to operate on a quarterly basis in 1993.

vii   In previous iterations we have computed change over a ten year time period. Doing this does not significantly alter our model estimates.

viii   These years refer to the German case; for Great Britain we combine the years 1991 and 1992, and 2009-2010, and for Switzerland 1999 and 2000, and 2008- 2009. We take the average proportion of people in each occupation across two consecutive years.

ix   Specifically we use 1994-1995 (LFS); 1993-1994(SOEP); 2000-2001 (SLFS)

x   We use hourly wages averaged over two years of each survey. We merge the years 1992 and 1993 in SOEP; 1994 and 1995 in the LFS; and 1999 and 2000 in SLFS. Hourly wages are only available in the British Labour Force Survey. To obtain hourly median wage in Switzerland and Germany we divide monthly earnings by the usual number of hours worked by an individual and then calculate standardised occupational median earnings.

xi   'Out of the labour force' is modeled as a fourth competing risk, but due to its heteregoneous nature estimates are not shown.

xii   Switzerland is the exception as the first year of analysis is 1999.

xiii   Early retirement is implicated for men in all countries, and for women in Germany. The retirement age for females in the labour force in Switzerland is 64, while in Great Britain it is 60 years of age.

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Appendix A

Table A1: Great Britain Summary Statistics

(Whole sample)

	1991 Sample			2000 Sample		
	Mean	**Std. Dev.**		**Mean**	**Std. Dev.**	
Age	37.0	36.42	37.56	37.7	37.16	38.21
Education	2.1	2.03	2.15	2.5	2.41	2.52
Job Tenure	5.6	5.22	5.91	5.1	4.76	5.36

Distribution	**%**	**%**
Private sector	79.5	76.6
Public sector	20.5	23.4

Birth cohorts		
Cohort 1: 1925-45	24.2	6.6
Cohort 2: 1945-54	25.8	22.0
Cohort 3: 1955-64	28.2	26.8
Cohort 4: 1965+	21.8	44.7

	Men	**Women**	**Men**	**Women**
Oesch Class Schema				
Managerial and administrative	4.4	1.5	1.3	0.7
Technical (semi-) professionals	10.9	1.6	11.8	3.7
Socio- cultural (semi-) professionals	1.6	2.1	2.0	2.8
Clerks	13.4	59.7	18.9	61.4
Educational distribution %				
(1) Basic		28.0		19.3
(2a) Vocational		23.5		21.8
(2b) General		36.4		34.9
(3) Tertiary		12.1		23.9
Craft and production workers	67.1	20.1	61.9	16.9
Educational distribution %				
(1) Basic	56.9		43.5	
(2a) Vocational	13.8		15.9	
(2b) General	19.0		23.2	
(3) Tertiary	10.3		17.4	
Interpersonal service workers	2.7	15.0	4.1	14.5
% of total sample	**59.1**	**40.9**	**58.4**	**41.61**
Manufacturing, Construction and Agriculture industries	63.7	30.0	57.0	22.9
Service and Sales industries	36.3	70.1	43.0	77.2

Table A2: Germany Summary Statistics

(Whole sample)

	1990 Sample			2000 Sample		
	Mean		**Std. Dev.**	**Mean**		**Std. Dev.**
Age	38.9	38.53	39.29	40.6	40.24	40.88
Education	1.5	1.52	1.58	1.7	1.69	1.74
Job Tenure	12.0	11.65	12.31	10.4	10.15	10.75

Distribution	**%**	**%**
East Germany	38.11	18.17
Private sector	84.4	86.0
Public sector	15.6	14.1
Birth cohorts		
Cohort 1: 1925-45	32.8	9.3
Cohort 2: 1945-54	24.1	23.1
Cohort 3: 1955-64	28.5	33.5
Cohort 4: 1965+	14.7	34.1

	Men	**Women**	**Men**	**Women**
Oesch Class Schema				
Managerial and administrative	5.4	3.7	6.9	5.4
Technical (semi-) professionals	1.2	0.7	1.8	0.1
Socio- cultural (semi-) professionals	1.5	2.0	1.5	4.2
Clerks	6.3	42.3	8.9	64.2
Educational distribution %				
(1) Basic		40.2		26.4
(2a) Vocational		46.2		60.1
(2b) General		7.6		5.1
(3) Tertiary		6.0		8.4
Craft and production workers	85.6	51.3	80.9	35.8
Educational distribution %				
(1) Basic	68.2		58.5	
(2a) Vocational	26.9		34.7	
(2b) General	2.5		3.2	
(3) Tertiary	2.4		3.7	
% of total sample	**70.7**	**29.3**	**71.2**	**28.8**
Manufacturing, Construction and Agriculture industries	79.0	65.3	72.4	46.0
Service and Sales industries	21.0	34.7	27.6	54.0

Table A3: Switzerland Summary Statistics

(Whole sample)		1999 Sample	
	Mean	**Std. Dev.**	
Age	39.8	39.06	40.46
Education	2.7	2.59	2.80
Firm Tenure	8.7	8.13	9.24
Distribution		**%**	
Private sector		65.6	
Public sector		34.4	
Birth cohorts			
Cohort 1: 1925-45		11.2	
Cohort 2: 1945-54		24.5	
Cohort 3: 1955-64		28.9	
Cohort 4: 1965+		35.3	

	Men	**Women**
Oesch Class Schema		
Managerial and administrative	5.1	6.1
Technical (semi-) professionals	20.7	6.6
Socio- cultural (semi-) professionals	5.8	4.4
Clerks	18.8	66.2
Educational distribution %		
(1) Basic		18.8
(2a) Apprenticeship/full-time voc. school		66.3
(2b) Vocational/technical (certs)		7.3
(3) Tertiary		7.6
Craft and production workers	42.0	9.4
Educational distribution %		
(1) Basic	18.6	
(2a) Apprenticeship/full-time voc. school	67.5	
(2b) Vocational/technical (certs)	13.1	
(3) Tertiary	0.8	
Interpersonal service workers	7.6	7.4
% of total sample	**55.2**	**44.8**
Manufacturing, Construction and Agriculture industries	42.8	21.6
Service and Sales industries	57.2	78.4

Table A4. Competing risk estimates: Overall likelihood of exiting a declining occupation in Great Britain 1990s

To:	Lower Quality Growing		Higher Quality Growing		Unemployment	
	ß	s.e	ß	s.e	ß	s.e
Female *(ref: Male)*	0.792***	(0.209)	-0.443**	(0.152)	-0.280	(0.221)
Job Characteristics						
Temporary/fixed term contract *(ref: Permanent)*	-0.352	(0.361)	-0.236	(0.261)	0.979***	(0.259)
Part-time *(ref: Fulltime)*	-0.166	(0.210)	-0.538*	(0.225)	-0.441	(0.362)
Self-employed *(ref: Employee)*	0.518	(0.276)	0.192	(0.209)	-0.906**	(0.306)
Education[a]						
I Incomplete/compulsory/basic vocational	*ref.*	*ref.*	*ref.*	*ref.*	*ref.*	*ref.*
IIa (Post-)Secondary: vocational track	-0.733**	(0.278)	0.655***	(0.170)	0.015	(0.260)
IIb (Post-)Secondary: general track	-0.352	(0.205)	0.431**	(0.164)	-0.489	(0.264)
III Tertiary level:lower and higher academic track	-0.419	(0.231)	1.068***	(0.158)	-0.173	(0.276)
Occupational class[b]						
Managers and administrators	1.060**	(0.356)	-0.105	(0.378)	-0.190	(0.577)
Technical (semi-) professionals	-0.349	(0.514)	0.455*	(0.199)	-0.694	(0.429)
Clerks	0.359	(0.267)	0.654***	(0.165)	-0.351	(0.276)
Craft and Production workers	*ref.*	*ref.*	*ref.*	*ref.*	*ref.*	*ref.*
Interpersonal service workers	1.069***	(0.292)	0.440	(0.282)	-0.650	(0.465)
Manufacturing, construction and agriculture [c]	*ref.*	*ref.*	*ref.*	*ref.*	*ref.*	*ref.*
Services and sales industries	0.073	(0.228)	0.089	(0.135)	0.125	(0.215)
Public sector *(ref: Private sector)*	0.107	(0.174)	0.069	(0.129)	-0.709**	(0.240)
Birth Cohort						
Cohort 1: 1925-1944	-0.509	(0.274)	-0.228	(0.219)	0.482	(0.280)
Cohort 2: 1945-1954	-0.293	(0.245)	0.555**	(0.170)	0.075	(0.287)
Cohort 3: 1955-1964	-0.122	(0.229)	0.268	(0.170)	0.225	(0.258)
Cohort 4: 1965+	*ref.*	*ref.*	*ref.*	*ref.*	*ref.*	*ref.*
Time varying covariates[d]						
Job tenure	-0.017	(0.012)	-0.035**	(0.011)	-0.020	(0.013)

|	
Total transitions across all destinations	1 522
N	5 698

Notes: significance at * $p<0.05$ ** $p<0.01$ *** $p<0.00$. [a]Casmin scale [b]Oesch class schema: Socio-cultural (semi-) professional class excluded as too few cases. [c]SIC80 industry coding [d] time lagged by one year. Marital status control not shown; robust standard errors iin parantheses. Fourth competing exit route (OLF) model estimates not displayed.

Table A5. Competing risk estimates: Overall likelihood of exiting a declining occupation in Germany 1990s

| To:	Lower Quality Growing		Higher Quality Growing		Unemployment	
	ß	s.e	ß	s.e	ß	s.e
Female *(ref: Male)*	0.198	(0.110)	-0.107	(0.111)	0.312***	(0.095)
East Germany	0.190	(0.107)	-0.247*	(0.100)	0.492***	(0.092)
Job Characteristics						
Temporary/fixed term contract *(ref: Permanent)*	-0.064	(0.254)	0.331	(0.220)	1.164***	(0.164)
Part-time *(ref: Fulltime)*	-0.141	(0.187)	-0.088	(0.163)	0.256	(0.160)
Self-employed *(ref: Employee)*	0.464*	(0.220)	-0.334	(0.289)	-1.111**	(0.386)
Education[a]						
I Incomplete/compulsory/basic vocational	ref.	ref.	ref.	ref.	ref.	ref.
IIa (Post-)Secondary: vocational track	-0.120	(0.115)	0.255*	(0.110)	0.011	(0.103)
IIb (Post-)Secondary: general track	-0.317	(0.277)	0.309	(0.222)	-0.423	(0.295)
III Tertiary level:lower and higher academic track	-0.620*	(0.272)	0.994***	(0.153)	-0.316	(0.216)
Occupational class[b]						
Managers and administrators	0.225	(0.217)	1.714***	(0.157)	-0.463*	(0.215)
Technical (semi-) professionals	-0.506	(0.512)	1.797***	(0.205)	-1.320*	(0.617)
Socio-cultural (semi-)professionals	-1.589*	(0.760)	0.769**	(0.277)	-1.112	(0.583)
Clerks	-0.247	(0.145)	1.456***	(0.125)	-0.572***	(0.141)
Craft and Production workers	ref.	ref.	ref.	ref.	ref.	ref.
Manufacturing, construction and agriculture[c]	ref.	ref.	ref.	ref.	ref.	ref.
Services and sales industries	0.963***	(0.113)	0.168	(0.113)	-0.395**	(0.136)
Public sector *(ref: Private sector)*	-0.348*	(0.135)	0.013	(0.131)	-0.361*	(0.166)
Birth Cohort						
1925-1944	-0.686***	(0.169)	-0.517**	(0.173)	0.660***	(0.154)
1945-1954	-0.196	(0.149)	-0.222	(0.159)	0.279	(0.157)
1955-1964	-0.168	(0.137)	-0.106	(0.149)	0.249	(0.147)
1965+	ref.	ref.	ref.	ref.	ref.	ref.
Time varying covariates[d]						
Job tenure	-0.001	(0.005)	0.002	(0.004)	0.003	(0.003)
Total transitions across all destinations			3 576			
N			17 954			

Source: SOEP 1990-2000

Notes: significance at * p<0.05 ** p<0.01 *** p<0.00. [a]Casmin scale [b]Oesch class schema: Interpersonal service class excluded as too few cases; [c](2 Digit)NACE industry coding [d] time lagged by one year. Marital status and foreign nationality controls not shown; robust standard errors in parantheses. Fourth competing exit route (OLF) model estimates not displayed.
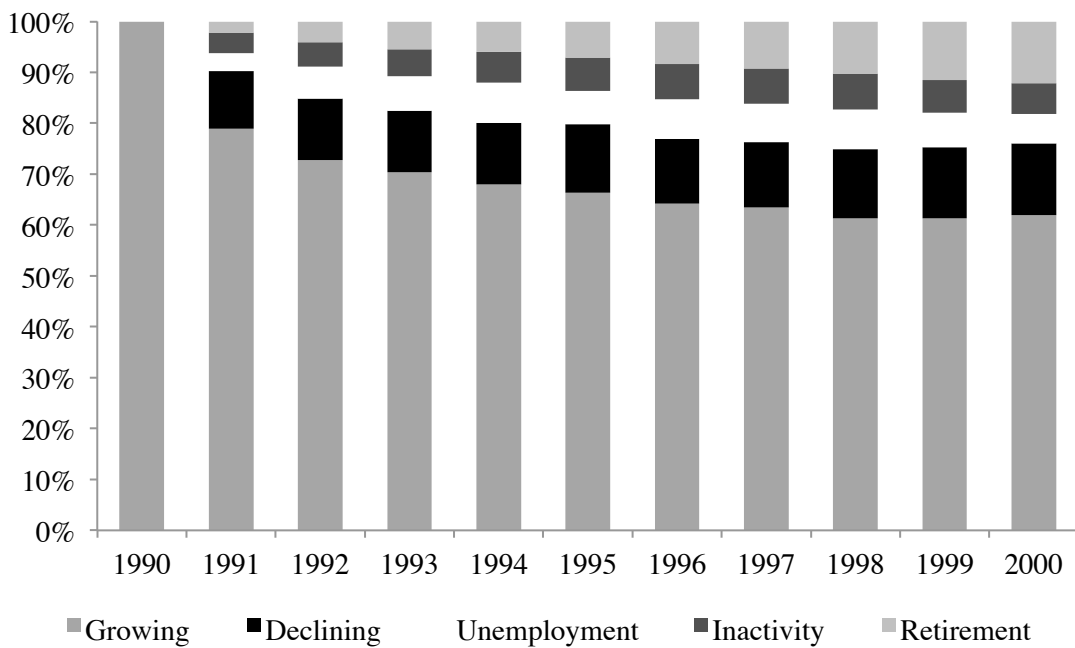
[A1.1]
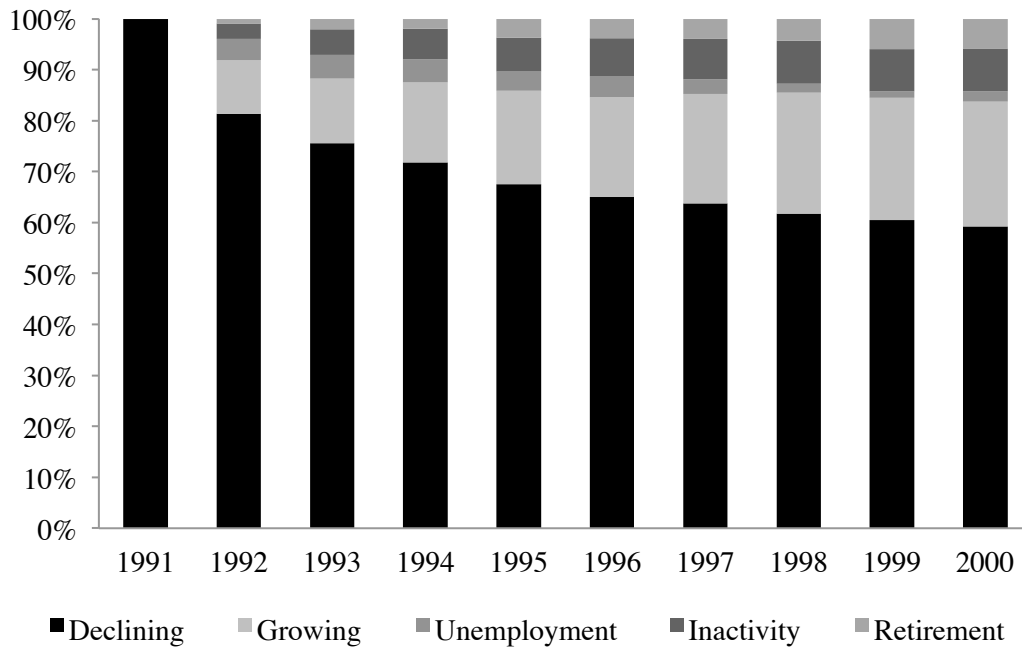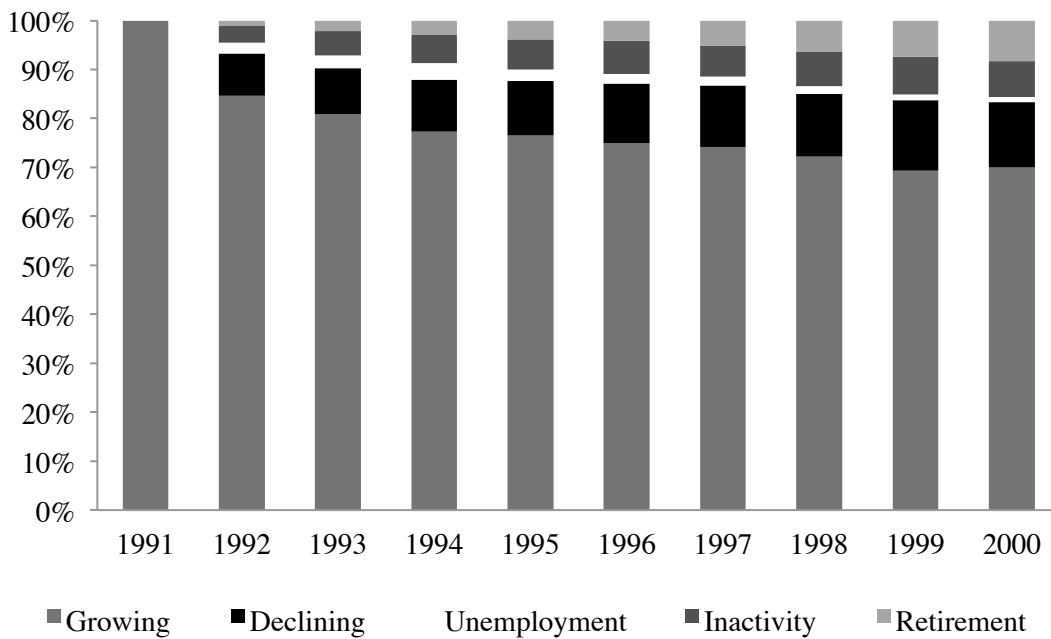
[A1.2]

Source: British Household Panel Survey, 1991-2000

Figure A1. The movement of workers from [10.1] declining occupations [10.2.] growing occupations in Great Britain; Proportion (%) in each state over 1990s
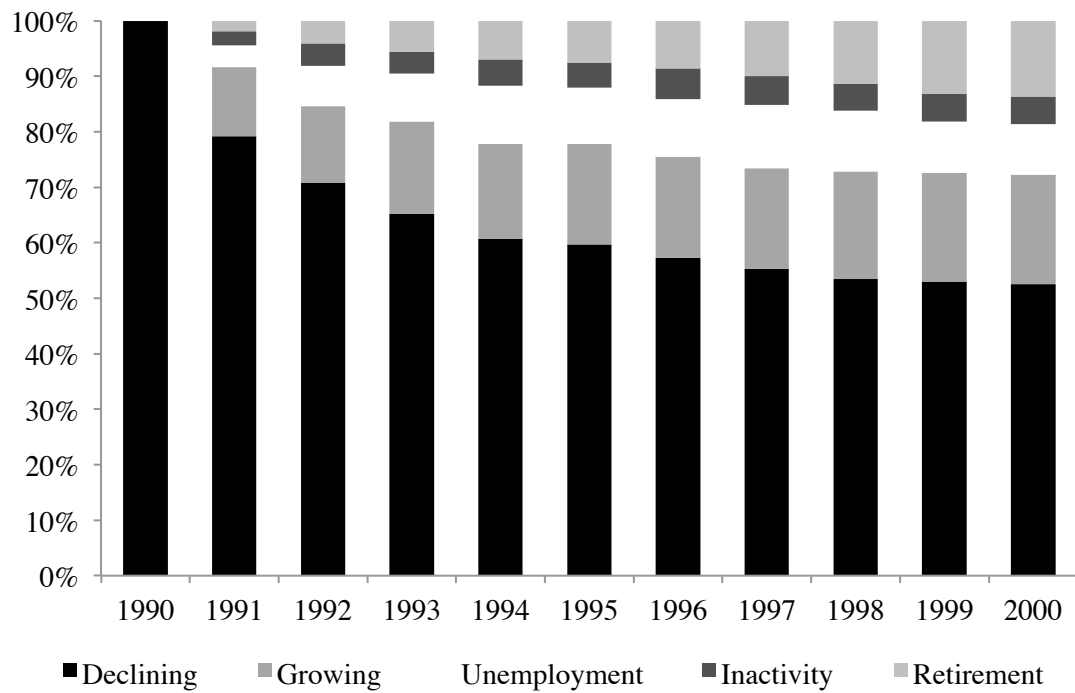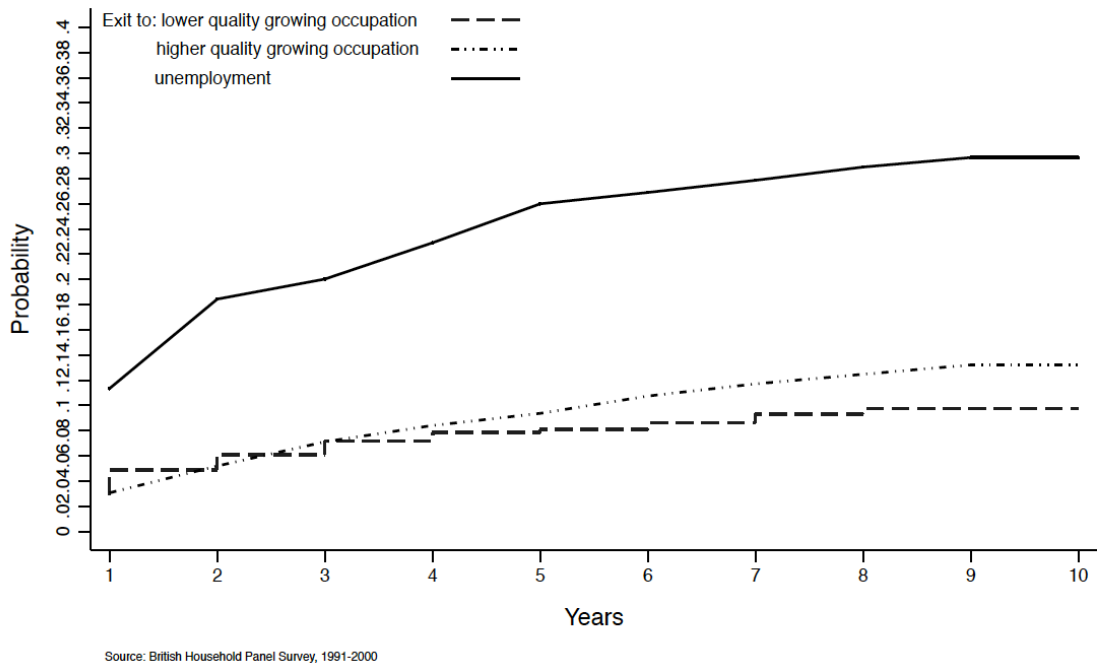
Notes: *N*= 4 046, sample aged 18-64, unweighted data.

[A2.1]

Notes: *N*= 3 749, sample aged 18-64, unweighted data.

[A2.2]

Source: German Socio-Economic Panel, 1990-2000

Figure A2. The movement of workers from [11.1] declining occupations [11.2.]
         growing occupations in Germany; Proportion (%) in each state over 1990s

Figure A3. First predicted exit route for male production workers with basic education coming from a declining occupation in the private industrial sector in Great Britain during the 1990s (1955-1964 birth cohort)
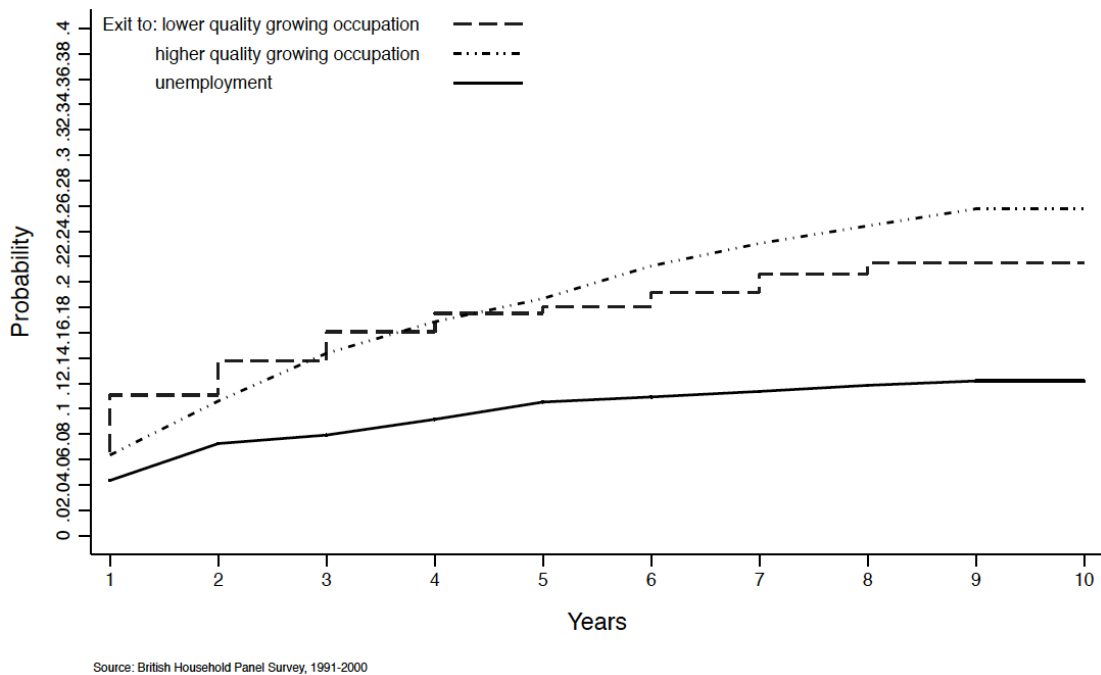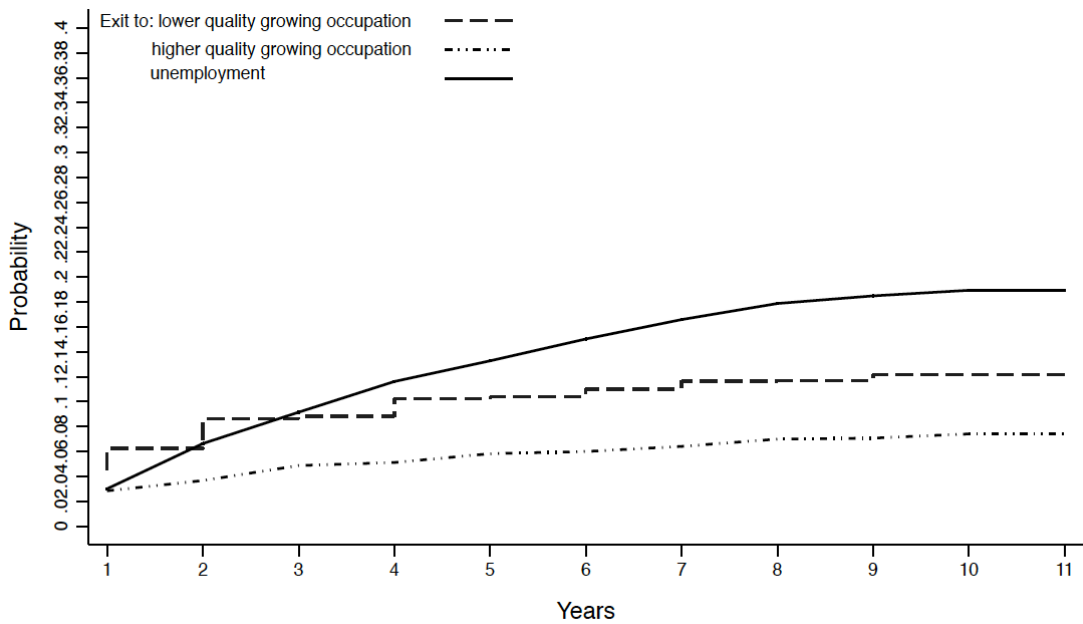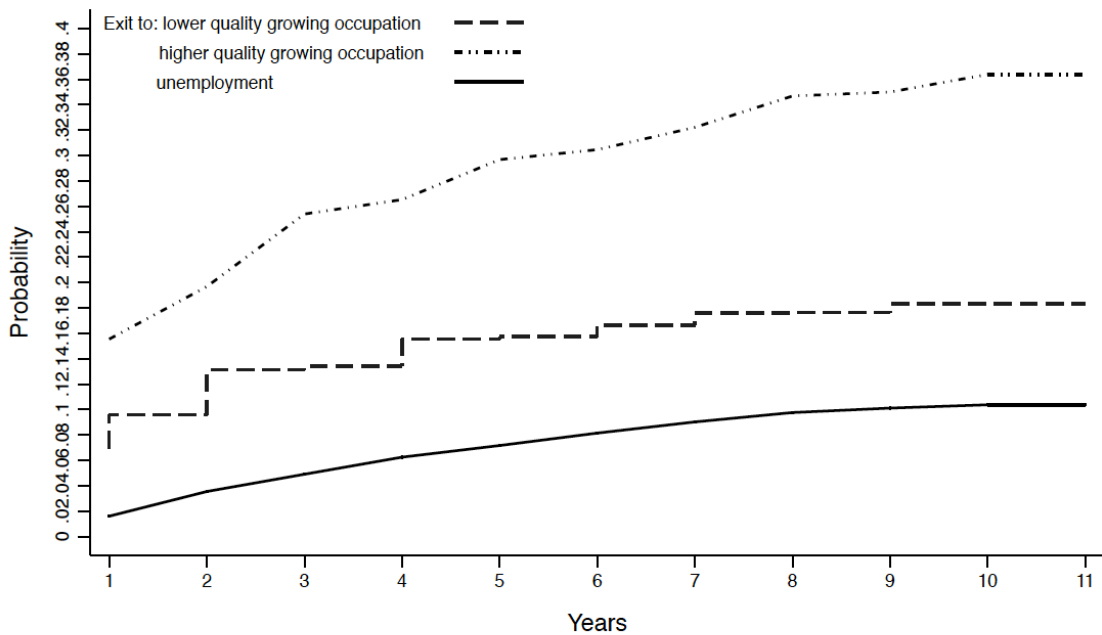

Figure A4. First predicted exit route for female clerical workers with general secondary level education, coming from a declining occupation in the private service sector in Great Britain during the 1990s (1955-1964 birth cohort)

Figure A5. First predicted exit route for male production workers with basic education, coming from a declining occupation in the private industrial sector in Germany during the 1990s (1955-1964 birth cohort)

Figure A6. First predicted exit route for female clerical workers with secondary level vocational education, coming from a declining occupation in the private service sector in Germany during the 1990s (1955-1964 birth cohort)