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When do employees cross boundaries? Individual and contextual determinants of career mobility

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ABSTRACT

This study investigates the joint effects of individual characteristics and the labour market on career mobility. We propose that level of education, openness to experience, and a favourable labour market relate positively to employees crossing organizational, industrial, and occupational boundaries. Management programme alumni ($N = 503$) provided information through an online survey about their career histories, their level of education, and their openness to experience. Additionally, we used the unemployment rate as an indicator for yearly changes in the labour market. The results of our cross-classified multilevel analysis indicate that both individual characteristics and the labour market are determinants of career mobility. Level of education had a positive effect on organizational and industrial boundary crossing, and changes in the labour market related to organizational boundary crossing. Against our assumptions, openness to experience had no effect on career mobility, and none of the predictors were related to occupational boundary crossing. Our results demonstrate the importance of investigating career mobility from a boundary perspective combined with a focus on both individual and contextual characteristics. The dominance of education compared to personality and the difficulty of explaining occupational mobility open new research avenues and yield practical implications for employees, career counsellors, and organizations.

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Career boundaries; career mobility; labour market situation; education level; openness to experience; cross-classified multilevel model

Over the past few decades, employees' careers have substantially changed; a long-term employment relationship with a single employer is no longer the default career path (Biemann, Zacher, & Feldman, 2012; Sullivan, 1999). Mobility has become a key aspect of careers, impacting both organizations and employees (Ng, Sorensen, Eby, & Feldman, 2007). For organizations, career mobility is important because it relates to their strategic HR management (De Vos & Dries, 2013); it affects their human and social capital composition and their success in attracting and retaining talented employees. Mobility is also relevant to employees: every successful career transition potentially increases employability and subsequent opportunities for career advancement (Forrier, Verbruggen, & De Cuyper, 2015). Accordingly, mobility is positively related to indicators of objective and subjective career success (Chen, Veiga, & Powell, 2011; Chudzikowski, 2012; Rigotti, Korek, & Otto, 2014).

Thus, career mobility is crucial for both organizations and employees due to its potential to create desirable outcomes. Yet, individuals cannot change jobs freely, because making a career transition requires favourable external conditions (Inkson, Gunz, Ganesh, & Roper, 2012; King, Burke, & Pemberton, 2005). Various theoretical models acknowledge that career mobility depends on both individual attributes and contextual factors (Forrier, Sels, & Stynen, 2009; Grote & Hall, 2013; Mayrhofer, Meyer, & Steyrer, 2007; Ng et al., 2007). Yet, we know little about the extent to which contextual

factors actually constrain career mobility, because few empirical studies investigate contextual determinants of mobility. Moreover, the relative importance of individual and contextual determinants for different kinds of career mobility is unclear (Kattenbach et al., 2014; Ng et al., 2007).

To address these shortcomings, our study analyses and compares the effects of individual characteristics and the economic context on career mobility. Taking a boundary-focused perspective on career mobility (Gunz, Evans, & Jalland, 2000; Gunz, Peiperl, & Tzabbar, 2007; Inkson et al., 2012), we define career mobility in terms of transitions across organizational, industry, and/or occupational boundaries. Drawing on recent theoretical models (Forrier et al., 2009; Ng et al., 2007), we investigate the effect of two individual characteristics on career-related boundary crossing: openness to experience and level of education. Furthermore, we investigate the labour market as a contextual determinant of career mobility because it constrains available mobility options (DiPrete, deGraaf, Luijckx, Tahlin, & Blossfeld, 1997; Feldman & Ng, 2007).

The contributions of our study to existing career research are threefold. First, by analysing factors involved in the crossing of distinct career-related boundaries, we respond to the call to "bring back boundaries" to career research (Inkson et al., 2012, p. 335). Analysing organizational, industrial, and occupational boundaries separately enables us to detect possible divergent effects and, thus, to clarify the importance of distinguishing various career-related boundaries.

Consequently, our study also has important implications for boundaryless career theory (Arthur & Rousseau, 1996) – a research stream that has thus far mainly focused on career moves across organizational boundaries.

Second, our study provides an empirical test of core propositions articulated in the theoretical models by Ng et al. (2007) and Forrier et al. (2009) and may contribute to their synthesis and further development. Our study adds insights to work identifying the relative importance of individual and contextual determinants of career mobility because it enables a direct comparison of the respective effects. These comparisons also yield immediate practical implications by improving our understanding of opportunities and hindrances for different kinds of career mobility. Employees who aim to advance their careers by crossing organizational, industrial, or occupational boundaries may gain helpful insights about factors involved in these distinct types of mobility. For organizations, our results can provide implications about the relevance of investing resources in career management programmes for employee retention. Career counsellors could use the insights about the relevance of different predictors of career mobility to help their clients successfully plan career moves.

Third, we make a methodological contribution by applying a cross-classified multilevel model (Fielding & Goldstein, 2006; Goldstein, 1994; Rasbash & Goldstein, 1994), which makes it possible to take into account that career transitions are simultaneously nested in individuals and their respective years of transition. This method allows us to estimate the effect of individual characteristics independently of contextual predictors, permitting us to adequately compare these effects.

A boundary-focused perspective on career mobility

There are many definitions of career mobility, because career mobility is a manifold phenomenon that can be conceptualized in various ways, such as by changes in employer, job function, or occupation (e.g., Forrier et al., 2009; Ng et al., 2007). In our study, we investigate career mobility from a boundary-focused perspective. In response to career researchers' emphasis on the boundaryless career concept (Arthur & Rousseau, 1996), several authors have emphasized that boundaries continue to be of relevance for understanding career paths (Gunz et al., 2000, 2007; Inkson et al., 2012). In general, boundaries "refer to the physical, temporal, emotional, cognitive, and/or relational limits that define entities as separate from one another" (Ashforth, Kreiner, & Fugate, 2000, p. 474), and a transition between these entities means crossing the boundary between them. Correspondingly, career-related boundaries separate career-related entities from each other (e.g., organizations). Thus, we define a career transition, the basic element of career mobility, as the crossing of one or more career-related boundaries.

To date, the career literature has concentrated mostly on crossing *organizational* boundaries; that is, career moves "across the boundaries of separate employers" (Arthur & Rousseau, 1996, p. 6). Organizational boundaries separate organizations from their environment (Santos & Eisenhardt, 2005) and are presumably the most salient career-related boundaries. Gunz et al. (2007) discuss *industry* as another career-related boundary, arguing that individual knowledge and skills are often not fully

transferable among industries. Consequently, it is easier for employees to find a new job in their current industry rather than in another (Gunz et al., 2000). Furthermore, *occupation* constitutes a career-related boundary. Every occupation is characterized by a specific set of work role requirements that define the tasks to be executed and the capabilities needed to perform well in the work role (Dierdorff, Rubin, & Morgeson, 2009). When crossing occupational boundaries (e.g., when an engineer becomes a marketer), individuals usually have to acquire fundamentally new skills and knowledge through vocational or professional education and training (Carless & Arnup, 2011; Feldman & Ng, 2007). They also have to adapt to an unfamiliar work environment and redefine their identities (Ibarra & Barbulescu, 2010). In line with recent calls to empirically investigate a broader set of boundaries (Gunz et al., 2000; Inkson et al., 2012; Rodrigues & Guest, 2010), our study examines the determinants of crossing organizational, industrial, and/or occupational boundaries.

Determinants of career mobility

Whether individuals make a career transition depends undoubtedly on a range of factors. Several authors (e.g., Forrier et al., 2009; Inkson et al., 2012) have argued that the current career literature with its focus on boundaryless (Arthur & Rousseau, 1996) and protean careers (Hall, 1996) has mostly concentrated on individual agency while neglecting to address the influence of structural factors on career mobility. In line with this criticism, recent theoretical models (Forrier et al., 2009; Ng et al., 2007) acknowledge that the determinants of career mobility comprise both individual agency – determined, for instance, by personality traits – and structural variables in a larger context – for instance, the labour market situation.

Ng et al. (2007) assume that in the course of individuals' careers, they alternate between periods of equilibrium, in which they feel comfortable with their current job, and moments of disequilibrium that lead to career mobility. Ng et al. argue that career mobility is a product of both micro-level individual and macro-level structural factors that have the potential to interrupt an individual's career equilibrium. The macro-level structural factors define available mobility options and include, for instance, economic conditions or societal characteristics. In terms of micro-level individual factors, the model suggests that individual differences, such as personality traits or attachment styles, relate to individuals' preferences for career mobility – an important precursor of actual career mobility. Lastly, intention to change jobs also depends on decisional factors, such as an individual's readiness for change.

Likewise, Forrier et al. (2009) present a model that includes individual agency and structural factors as determinants of career mobility. The central individual agency component in their model is movement capital, which they define as "the individual skills, knowledge, competencies, and attitudes influencing an individual's career mobility opportunities" (p. 742). Movement capital consists of several aspects – for instance, human and social capital – and is a major determinant of career mobility because it influences individuals' perceived options and motivation for mobility. Moreover, Forrier et al. (2009) argue that career mobility depends on the structure of risks and opportunities, because contextual factors (e.g., the demand in the

external labour market) also influence employees' career mobility options and motivation.

The central proposition articulated in the theoretical models by Ng et al. (2007) and Forrier et al. (2009) is that individual characteristics and structural factors *jointly* influence career mobility. Our study aims to investigate and compare the effects of individual and contextual determinants of career mobility, using the theoretical models presented above to identify relevant predictors. Concerning individual predictors of career mobility, the models highlight different constructs. Forrier et al. (2009) propose movement capital as the central individual determinant of career mobility *opportunities*, whereas Ng et al. (2007) focus on individual differences relating to one's career mobility *preferences*. In our study, we account for both opportunities and preferences to address the major individual determinants of career mobility. First, we include an individual's level of education as a predictor, because this element of movement capital directly affects his/her opportunities for mobility (Forrier et al., 2015). Second, in line with Ng et al.'s (2007) theoretical model, we use the well-established taxonomy of the Big Five personality traits (Costa & McCrae, 1992) to address individuals' preferences for mobility. We include openness to experience as a predictor because this personality trait should most pertinently reflect individuals' preferences for career mobility. Finally, both models propose that the *availability* of mobility options is a major contextual determinant of career mobility. To address the availability of mobility options, our study includes the labour market as a contextual predictor of career mobility because it is directly linked to available job alternatives (DiPrete & Nonnemaker, 1997). In the following section, we describe our hypotheses regarding the three predictors of career-related boundary crossings.

Openness to experience

Individuals who are most open to new experiences show a high level of curiosity and desire for variety (e.g., Costa & McCrae, 1992; McCrae & Costa, 1997), which results in a tendency to pursue new activities and search for new experiences. Accordingly, Ng et al. (2007) propose in their theoretical model that open individuals should have a higher preference for career mobility because crossing career boundaries satisfies their desire for variety. In line with this proposition, recent meta-analytical findings about the antecedents of turnover show that open individuals are more likely to voluntarily leave their organization (Rubenstein, Eberly, Lee, & Mitchell, 2018), and there is also empirical evidence showing that openness to experience relates positively to changing one's occupation (Carless & Arnup, 2011). When changing their *organization*, individuals must identify with a new social group (Ashforth & Mael, 1989), encounter new experiences in an unfamiliar work environment, and frequently perform new work tasks. Similarly, when individuals change the *industry* they work in, they enter a new work environment and must acquire novel, industry-specific knowledge (Gunz et al., 2000). Finally, changing one's *occupation* is associated with redefining one's identity (Ibarra & Barbulescu, 2010), acquiring new skills and knowledge, and adjusting to a different work environment (Feldman & Ng, 2007). Thus, career mobility should be attractive for open individuals because it usually goes along

with willingness to participate in a range of new experiences. Hence, we state that:

H1: Openness to experience is positively related to the probability of crossing (a) organizational, (b) industrial, and (c) occupational boundaries.

Level of education

According to Forrier et al.'s (2009) theoretical model, career mobility depends on an individual's available opportunities for mobility. Level of education is an important aspect of human capital that determines an individual's value in the labour market and consequently shapes his/her career opportunities (Forrier et al., 2009; Fugate, Kinicki, & Ashforth, 2004). Individuals with a higher level of education are attractive to employers because they possess valuable declarative and procedural knowledge resulting in a higher level of task performance (Alessandri, Borgogni, & Truxillo, 2015; Ng & Feldman, 2009). They also show more organizational citizenship behaviour and less counterproductive work behaviour (Ng & Feldman, 2009). Accordingly, organizations use level of education as an essential criterion for personnel selection (Ng & Feldman, 2009), and employees with a higher level of education often indicate higher confidence in finding a new job on the internal or external labour market (Wittekind, Raeder, & Grote, 2010). Thus, a higher level of education should result in more career opportunities in different *organizations*. Although the increase in educational specialization that usually results from earning a higher educational degree might strengthen the boundaries surrounding one's occupation, we assume that individuals with a higher level of education have more career opportunities across *occupations* and *industries* as well. As described earlier, crossing occupational or industrial boundaries requires adaptation to a new work environment and acquisition of fundamentally new skills and knowledge (Feldman & Ng, 2007; Gunz et al., 2000). Individuals with a higher level of education possess higher cognitive abilities (Avolio & Waldman, 1994; Berry, Gruys, & Sackett, 2006) that should enable them to acquire new knowledge and skills more easily. Moreover, earning a graduate degree involves learning useful meta-skills (e.g., planning and motivational persistence) that can be applied in different industries and occupations. Hence, well-educated individuals are presumably more capable of successfully adapting to a new environment because they possess facilitating cognitive abilities and meta-skills. This should make it easier for them to cross industrial and occupational boundaries and, consequently, offers them career opportunities in different industries and occupations. Thus, we hypothesize that

H2: Level of education is positively related to the probability of crossing (a) organizational, (b) industrial, and (c) occupational boundaries.

Changes in the labour market

The labour market is the key contextual determinant of career mobility because it affects career mobility in at least two

respects (Feldman & Ng, 2007). First, the labour market reflects the availability of alternative employment and thus enables or constrains career mobility. This assumption is consistent with research on turnover that identifies accessible job alternatives and the unemployment rate as determinants of voluntary turnover (e.g., Davis, Trevor, & Feng, 2015; Heavey, Holwerda, & Hausknecht, 2013; Trevor, 2001). When the labour market improves, there are greater opportunities for career mobility in different *organizations, industries, and occupations*. Thus, we hypothesize that an improvement in the labour market relates to not only a greater number of organizational boundary crossings but also to a higher probability of industrial and occupational boundary crossings.

Second, the labour market influences individuals' willingness to take risks and evaluate new employment options (Ng et al., 2007). When the unemployment rate increases and there are relatively few open positions available, employees are presumably risk-averse and reluctant to quit their current jobs. In contrast, if employees perceive that the labour market situation is improving and organizations are seeking employees, they presumably worry less about job security. They should be more willing to resign from their current positions to risk seeking alternative employment with other *organizations* (Feldman & Ng, 2007; Ng et al., 2007) because they should easily find a new position; even if the new job does not fit their expectations, there should still be others available. In an improving labour market, employees should be more ready to take risks and explore different career options (Ng et al., 2007), resulting also in more extensive career transitions across *industrial or occupational* boundaries. Therefore, we assume that:

H3: An improvement in the labour market is positively related to the probability of (a) organizational, (b) industrial, and (c) occupational boundary crossings.

Methods

Sample and procedures

We conducted an online survey with alumni of 10 part-time management programmes (e.g., executive MBA programmes) in the German-speaking part of Switzerland. These programmes aim to qualify individuals with diverse occupational and educational backgrounds for management positions, thus enabling advancement in their students' careers. To take part in these programmes, individuals should have several years of work experience. Typically, the participants of these programmes belong to different age groups and work in various occupations (e.g., engineer, medical doctor) and industries (e.g., manufacturing, finance). Because the career paths of management programme graduates are usually quite dynamic (Dobrev & Merluzzi, 2018) and involve a relatively high level of mobility across industries and occupations (Colakoglu, 2011), we expected to observe a fair amount of career-related boundary crossings in this sample. This was a necessary precondition for establishing sufficient variance in our outcomes and testing our hypotheses.

The alumni organizations of the various programmes sent the potential participants an email with a link to the survey. In total, 1,024 individuals clicked on the link, and 610 (59.6%) individuals completed the questionnaire. For our final sample, we solely considered individuals who reported their age and gender and provided enough data to calculate a mean for the scales (Newman, 2014). Our final sample comprised 503 participants, yielding a response rate of 49.1%. The participants were predominantly male (87.7%) and were 43.3 years old on average ($SD = 7.8$). The majority of the participants held a university degree (84.7%; bachelor's degree: 49.7%, master's degree: 28.8%, PhD: 6.2%). The participants' average tenure at their current position was 3.8 years ($SD = 4.0$). At the time of data collection, the majority of the participants had a position in lower (23.8%), middle (28.8%), or upper (22.2%) management. They mostly worked full time (90.0%) and 61% of the sample were employed in large companies, defined as having at least 250 employees. The participants worked in more than 20 different industries, of which the most common were manufacturing (9.7%), services industry (9.5%), and finance and banking (9.1%).

Using the survey, we gathered information about the participants' career histories. They provided detailed information about their current job positions and up to 10 previous positions, including the start and end year of each position. On average, the participants reported 19.1 years of career history ($SD = 8.4$) with an average of 5.2 positions ($SD = 2.2$).

The economic context of Switzerland

In our study, we investigate the effect of yearly fluctuations in the labour market on career mobility within one country – namely, Switzerland. Therefore, it seems important to provide some information about the economic context of Switzerland. The Swiss economy is one of the most stable and competitive worldwide, with the third highest gross domestic product (GDP) per capita (OECD, 2018). The largest part of the Swiss GDP is generated by the service sector, in which the majority of the workforce (75%) is employed (International Labour Office, 2018a). Switzerland has one of the lowest unemployment rates in the world and a very strong labour market: during the last 20 years, the unemployment rate as calculated by the International Labour Office was consistently below 5% (International Labour Office, 2018b). Compared to other European countries, the Swiss labour market is highly flexible due to liberal employment laws that enable quick termination of work contracts by both employees and employers, with a notice period of 1 week to 3 months. This flexibility enables organizations to react quickly to economic fluctuations and provides employees with career mobility opportunities, thus making the Swiss labour market an interesting context for our study's purpose. Table 1 provides an overview about job statistics for Switzerland provided by the Organisation for Economic Cooperation and Development.

Measures

Predictors

Openness to experience. We measured openness to experience with the respective subscale of the Big Five Inventory (John,

Table 1. Job statistics for Switzerland and OECD countries.

	Switzerland	OECD countries ^a
Employment rate (males/females) in % of working age population	78.3 (84.0/72.5)	64.8 (72.9/56.7)
Employment rate by education level (below upper secondary/upper secondary/tertiary) in % of working age population	66.6/81.5/87.9	55.1/73.5/83.2
Part-time employment rate (males/females) in %	25.9 (9.5/45.4)	16.8 (9.2/26.4)
Proportion of temporary employment (males/females) in %	12.9 (12.6/13.3)	12.0 (11.5/12.5)
Unemployment rate in %	4.4	7.9
Average tenure in years	9.0	10.0
Average usual weekly hours worked on the main job	34.7	36.7

Note. All statistics refer to 2011 (i.e. the year in which we collected our data), and are retrieved from the OECD employment database (<http://www.oecd.org/employment/emp/onlineoecdemploymentdatabase.htm>).

^a Mean values for the 35 OECD member countries.

Donahue, & Kentle, 1991) as provided in the German version by Rammstedt and John (2005). A sample item is, "I see myself as someone who is curious about many different things". The subscale consists of five items and uses a five-point Likert-type scale ranging from 1 = *very inaccurate* to 5 = *very accurate*, and Cronbach's alpha was 0.67.

Level of education. We collected information about the participants' educational degrees to assess their level of education. Participants chose one out of five categories indicating educational degrees that can be earned in the Swiss educational system at different levels, ranging from vocational education to PhD degrees. In Switzerland, the bachelor's degree provides only basic education; many occupations list a master's or PhD degree as required or desirable. Thus, we defined a higher level of education as having a master's or PhD degree (0 = *neither master's degree nor PhD*; 1 = *master's degree or PhD*).

Changes in the labour market. We operationalized changes in the labour market with the unemployment rate, which is "the most informative labour market indicator reflecting the general performance of the labour market" (International Labour Office, 2016, p. 89). The unemployment rate, as provided by the Swiss State Secretariat for Economic Affairs, indicates the proportion of the labour force that is currently registered as unemployed and searching for a job. On average, the Swiss unemployment rate during the study period was 1.80% (SD = 1.66). To capture yearly changes in the labour market, we subtracted the unemployment rate of the focal year from that of the previous year. Positive change values indicate an increasing unemployment rate and a deteriorating labour market, whereas negative values indicate a decreasing unemployment rate and an improving labour market. The average yearly change in the unemployment rate over the study period was 0.06 percentage points (SD = 0.61).

Outcomes

We used the participants' career histories as a basis for coding the outcome variables.

Organizational boundary crossing. The participants provided the name of their organization for each reported position. Organizational boundary crossings were coded by comparing

participants' current organization with that of their previous position (0 = *no organizational boundary crossing*; 1 = *organizational boundary crossing*).

Industrial boundary crossing. For each of their positions, the participants chose their corresponding industry from a general classification of economic activities (NOGA; Swiss Federal Statistical Office, 2008) corresponding to the Swiss implementation of the United Nations' International Standard Industrial Classification (United Nations, 2008), which defines 21 industry codes (e.g., information and communication, manufacturing). We assessed the crossing of industrial boundaries by comparing the code of an individual's current position with that of his/her previous position (0 = *no industrial boundary crossing*; 1 = *industrial boundary crossing*).

Occupational boundary crossing. For each position held, the participants indicated their occupation (e.g., product manager). We assigned codes to the reported occupations by applying the International Standard Classification of Occupations (ISCO-08; International Labour Office, 2012). The ISCO-08 codes consist of four digits representing different levels of specification. Because we were interested in major transitions (e.g., from an academic profession to a supervisory function), we coded occupational boundary crossings by comparing the first digit of the ISCO-08 code of the current position with that of the previous position (0 = *no occupational boundary crossing*; 1 = *occupational boundary crossing*).

Control variables

There is evidence for a significant gender effect on career mobility, although the direction of the effect seems to depend on the type of mobility studied. For instance, Kattenbach et al. (2014) found that women were more likely to change jobs, especially within organizations, whereas Carless and Arnup (2011) observed a lower probability for occupation changes in women compared to men. Furthermore, older employees perceive themselves as being less employable than their younger counterparts (Wittekind et al., 2010) and report having fewer career opportunities (Van Veldhoven & Dorenbosch, 2008). Accordingly, previous studies have found that age is negatively related to occupational and organizational boundary crossings (Carless & Arnup, 2011; Kattenbach et al., 2014). Thus, consistent with previous studies investigating career mobility, we included gender and age as control variables. We asked participants to indicate their gender as male or female. Moreover, based on their indicated year of birth, we calculated participants' age in years for each year of their career history.

Data analysis

Because organizational, industrial, and occupational boundary crossings are nested in individuals and in transition years, our data have a multilevel structure that is not purely hierarchical. Rather, career transitions are *cross-classified* by individuals and years. Figure 1 illustrates this data structure with organizational boundary crossings simultaneously nested in individuals and years.

Cross-classified multilevel models are appropriate models for this data structure (e.g., Hill & Goldstein, 1998; Rasbash &

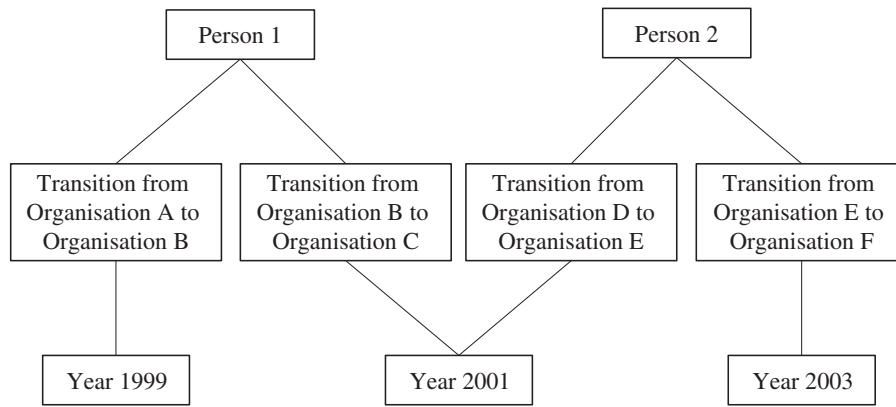


Figure 1. Example illustrating the data structure of organizational boundary crossings nested in individuals and years.

Goldstein, 1994). Researchers have previously applied such multilevel models in other contexts (see Sampson, Sharkey, & Raudenbush, 2008, for an example), and these models can also be applied to data with multiple measurement occasions (Hill & Goldstein, 1998; Hox, 2010). Given the structure of our data, the main advantage of the cross-classified multilevel model is that it considers individuals and years as two distinct nesting factors. That is, the cross-classified model takes into account that the outcome (e.g., crossing an organizational boundary) is independently nested in years and individuals.

We analysed three dichotomous outcome variables indicating organizational, industrial, or occupational boundary crossings, respectively. Thus, we used a multilevel generalized linear model that assumes a Bernoulli distributed outcome variable and uses a logit link function (Hox, 2010). Multilevel analyses were performed with the package lme4 (Bates, Maechler, Bolker, & Walker, 2015) in R. To enable comparability between the coefficients, we scaled all predictors prior to the analysis to a mean of 0 and a standard deviation of 1 (Hox, 2010; Menard, 2004) using grand mean centring (Enders & Tofighi, 2007). In our model, the outcome variables are located at Level 1 (i.e., boundary crossing) and predicted by Level 2-predictors related to the individual (i.e., gender, openness to experience, level of education) and to the year (i.e., changes in the unemployment rate), respectively. To control for age effects, we included the respective ages of the participants each year as a control variable at Level 1.

Altogether, our data comprise 9,638 data points nested in 503 individuals and 44 years. Of these, 9,483 data points

(97.9%) include valid information on organizational boundary crossings, 9,575 (99.3%) on industrial boundary crossings, and 9,509 (98.7%) on occupational boundary crossings. In 13.7% of the data points, the participants crossed an organizational boundary; in 7.1% of the data points, they crossed an industrial boundary; and in 8.0% of the data points, they crossed an occupational boundary.

Results

Table 2 shows the means, standard deviations, and correlations of the study variables.

In the following section, we present evidence regarding our hypotheses. We estimated three models for each of the three outcome variables. First, we calculated a null model as a baseline and Model 1, including the control variables. Next, in Model 2, we added individual-level predictors (i.e., openness to experience and level of education) as well as the year-level predictor (i.e., changes in the labour market) to test our hypotheses.

Table 3 shows our estimates for the prediction of organizational boundary crossing. In Model 1, age ($\beta = -0.18$, $p < 0.001$) and gender ($\beta = 0.09$, $p = 0.003$) were significantly related to the outcome; younger employees and women were more likely to cross organizational boundaries than older employees and men, respectively. In Model 2, we did not find a significant effect of openness to experience on the probability of crossing organizational boundaries ($\beta = 0.06$, $p = 0.052$). Thus, H1a received no support. As postulated in

Table 2. Descriptive statistics and correlations between study variables.

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
Openness	3.72	0.65	–					
Level of education ^a	0.35	–	0.05	–				
Gender ^b	0.12	–	0.10*	.12**	–			
Age	43.33	7.79	0.13**	–0.02	–0.01	–		
Organizational boundary crossing	0.14	0.09	0.11*	0.08	0.10*	–.08	–	
Industrial boundary crossing	0.08	0.08	0.03	0.05	0.03	–0.09*	0.55***	–
Occupational boundary crossing	0.09	0.08	–0.01	–0.00	–0.01	–0.27***	0.34***	0.18***

Note. $483 \leq N \leq 503$. For organisational, industrial, and occupational boundary crossings, the correlations are based on the aggregated person-level mean (0 = no boundary crossing, 1 = boundary crossing).

^a0 = Neither Master's degree nor PhD, 1 = Master's degree or PhD.

^b0 = Male, 1 = Female.

* $p < .05$; ** $p < .01$; *** $p < .001$

Table 3. Estimates for organizational boundary crossing.

	Null model					Model 1					Model 2				
	Est.	SE	<i>z</i>	<i>p</i>	OR	Est.	SE	<i>z</i>	<i>p</i>	OR	Est.	SE	<i>z</i>	<i>p</i>	OR
Intercept	-1.84	0.05	-38.82	<0.001	0.16	-1.87	0.04	-45.88	<0.001	0.15	-1.87	0.04	-49.18	<0.001	0.15
Level 1															
Age at transition						-0.18	0.03	-5.31	<0.001	0.83	-0.20	0.03	-5.82	<0.001	0.82
Level 2: subjects															
Gender ^a						0.09	0.03	3.00	0.003	1.09	0.08	0.03	2.52	0.012	1.08
Level of education ^b											0.07	0.03	2.36	0.019	1.08
Openness											0.06	0.03	1.94	0.052	1.06
Level 2: years															
Labour market change											-0.07	0.03	-2.02	0.043	0.93
Var. between subjects	0.06					0.05					0.04				
Var. between years	0.03					0.01					0.01				

Note. *N* = 9483 data points nested in 497 individuals and 44 years. *P* values are based on two-sided tests. Est. = Standardized estimate; OR = Odds ratio; Var. = Variance.

^a0 = Male, 1 = Female.

^b0 = Neither Master nor PhD, 1 = Master or PhD.

H2a, level of education was positively related to crossing organizational boundaries ($\beta = 0.07$, $p = 0.019$). Moreover, we found a significant effect of labour market change on the probability of organizational boundary crossing ($\beta = -0.07$, $p = 0.043$): individuals crossed organizational boundaries more frequently during time periods with declining unemployment rates than during less prosperous periods, which supports H3a.

Table 4 depicts our estimates for the prediction of industrial boundary crossing. Inspecting Model 1, we found that age was negatively related to industrial boundary crossing ($\beta = -0.22$, $p < 0.001$); as age increased, the probability of changing one's industry decreased. Gender was not related to the outcome ($\beta = 0.06$, $p = 0.191$). In Model 2, contrary to H1b, we found no significant relationship between openness to experience and industrial boundary crossing ($\beta = 0.03$, $p = 0.605$). Consistent with H2b, level of education had a significant and positive effect on industrial boundary crossing ($\beta = 0.11$, $p = 0.017$). We found no significant effect of labour market change ($\beta = -0.02$, $p = 0.705$), causing us to reject H3b.

Table 5 shows our estimates for occupational boundary crossing. Model 1 reveals that age was negatively related to the outcome ($\beta = -0.39$, $p < 0.001$); employees were less likely to change their occupations as their age increased. We found no gender differences in the probability of occupational boundary crossing ($\beta = 0.01$, $p = 0.752$). In Model 2, none of the predictors were found to be significantly related to

occupational boundary crossing (openness to experience: $\beta = -0.03$, $p = 0.521$; level of education: $\beta = 0.04$, $p = 0.271$; labour market change: $\beta = -0.05$, $p = 0.209$). Thus, we rejected Hypotheses 1c, 2c, and 3c.

Discussion

The aim of this study was to compare the effects of individual characteristics and the labour market on career mobility. Taking a boundary-focused perspective on career mobility, we investigated three predictors of crossing organizational, industrial, and occupational boundaries. We applied a cross-classified multilevel model to analyse the effects of two individual characteristics (openness to experience and level of education) and a contextual predictor (changes in the labour market) on career-related boundary crossing.

Our main result is that both individual and contextual factors influence career mobility. Regarding the effect of individual attributes on career mobility, we found that individuals with a higher level of education were more likely to make career transitions across organizational and industrial boundaries compared to those with a lower level of education, which supports Forrier et al.'s (2009) model of career mobility. Contrary to our expectations, which were based on Ng et al.'s (2007) theorizing, we did not find a significant effect of openness to experience on career-related boundary crossing.

Table 4. Estimates for industrial boundary crossing.

	Null model					Model 1					Model 2				
	Est.	SE	<i>z</i>	<i>p</i>	OR	Est.	SE	<i>z</i>	<i>p</i>	OR	Est.	SE	<i>z</i>	<i>p</i>	OR
Intercept	-2.67	0.07	-39.71	<0.001	0.07	-2.73	0.06	-43.02	<0.001	0.07	-2.73	0.06	-43.27	<0.001	0.07
Level 1															
Age at transition						-0.22	0.05	-4.75	<0.001	0.80	-0.23	0.05	-4.76	<0.001	0.80
Level 2: Subjects															
Gender ^a						0.06	0.05	1.31	0.191	1.06	0.05	0.05	0.98	0.325	1.05
Level of education ^b											0.11	0.05	2.38	0.017	1.12
Openness											0.03	0.05	0.52	0.605	1.03
Level 2: years															
Labour market change											-0.02	0.05	-0.38	0.705	0.98
Var. between subjects	0.33					0.32					0.30				
Var. between years	0.04					0.02					0.02				

Note. *N* = 9575 data points nested in 502 individuals and 44 years. *P* values are based on two-sided tests. Est. = Standardized estimate; OR = Odds ratio; Var. = Variance.

^a0 = Male, 1 = Female.

^b0 = Neither Master's degree nor PhD, 1 = Master's degree or PhD.

Table 5. Estimates for occupational boundary crossing.

	Null model					Model 1					Model 2				
	Est.	SE	z	p	OR	Est.	SE	z	p	OR	Est.	SE	z	p	OR
Intercept	-2.47	0.05	-49.05	<0.001	0.08	-2.52	0.05	-55.29	<0.001	0.08	-2.52	0.05	-55.29	<0.001	0.08
Level 1															
Age at transition						-0.39	0.04	-9.31	<0.001	0.67	-0.40	0.04	-9.38	<0.001	0.67
Level 2: Subjects															
Gender ^a						0.01	0.04	0.32	0.752	1.01	0.01	0.04	0.27	0.786	1.01
Level of education ^b											0.04	0.04	1.10	0.271	1.04
Openness											-0.03	0.04	-0.64	0.521	0.98
Level 2: years															
Labour market change											-0.05	0.04	-1.26	0.209	0.95
Var. between subjects	0.12					0.05					0.05				
Var. between years	0.01					0.00					0.00				

Note. $N = 9509$ data points nested in 500 individuals and 44 years. P values are based on two-sided tests. Est. = Standardized estimate; OR = Odds ratio; Var. = Variance.

^a0 = Male, 1 = Female.

^b0 = Neither Master's degree nor PhD, 1 = Master's degree or PhD.

Concerning the effect of the economic context, our analysis revealed that only organizational boundaries were more frequently crossed when the unemployment rate decreased. However, our estimates for the effect of the labour market on career mobility are likely conservative because we conducted our study in Switzerland, which has one of the most favourable and stable labour markets in the world (OECD, 2016). According to statistics provided by the International Labour Office (2018b), Switzerland's unemployment rate is one of the lowest worldwide and has been consistently below 5% in the last 20 years. This might have restricted the variance in our predictor and thus would have made it difficult to detect the effect of the labour market on career mobility in our study's context. Accordingly, our study should be replicated in countries with a less favourable and more volatile labour market to gain further empirical evidence about the influence of the labour market situation on crossing career-related boundaries.

In line with theoretical models of career mobility (Forrier et al., 2009; Ng et al., 2007), we conclude that whether individuals make a career transition or not likely depends on both individual and contextual factors. A comparison of the standardized coefficients shows furthermore that the effect sizes were similar for all significant predictors. Hence, individual and contextual factors seem to be equally relevant for the prediction of career-related boundary crossing.

A noteworthy finding is that contrary to our expectations and previous research (Carless & Arnup, 2011), we were not able to explain occupational boundary crossing. There are several possible explanations for this result. First, the power of our data analysis might be limited because occupational boundary crossings are extensive career transitions that occur rarely, which makes it difficult to detect the hypothesized effects on the dichotomous outcome variable (Osborne, 2017). Second, concerning the non-significant relationship between level of education and occupational boundary crossing, it is possible that a higher level of education not always results in manifold opportunities across occupations. A higher educational degree is often associated with acquiring specific knowledge and skills that qualify an individual to perform well in a certain occupation, which could limit one's career opportunities across different occupations. Moreover, even when

facing diverse career *opportunities*, individuals with higher levels of education might not be *willing* to cross occupational boundaries due to their investments in occupation-specific human capital (knowledge, skills, abilities, and experiences) that would need to be sacrificed when changing an occupation (Feldman & Ng, 2007; Sturman, Walsh, & Cheramie, 2008). Therefore, although a higher educational degree should generally relate positively to mobility because it increases individuals' career opportunities (Forrier et al., 2015), these relationships are probably more complex for occupational boundary crossings. Future research investigating occupational mobility might draw on theoretical models that specifically focus on explaining why employees change their occupation (Rhodes & Doering, 1983) and use qualitative methods to generate in-depth insights into the processes underlying occupational boundary crossings.

Consistent with previous studies (Carless & Arnup, 2011; Kattenbach et al., 2014), we found that the control variable of age had a negative effect on all forms of career mobility. Our findings with respect to the control variable of gender contradict previous research. We found that women were more likely to cross organizational boundaries, whereas Kattenbach et al. (2014) do not report a significant gender effect on inter-organizational transitions. Moreover, previous studies found that women showed less occupational mobility than men did (Carless & Arnup, 2011; Dlouhy & Biemann, 2018), but our analyses revealed no significant gender differences in crossing occupational or industrial boundaries. These diverging findings may be due to different operationalizations of career mobility or sample specificities and deserve further attention in future research.

Theoretical implications

The theoretical implications of our study for career research are threefold. First, our findings underscore the usefulness of taking a *boundary-focused* perspective on career mobility (Inkson et al., 2012). We found different patterns of results in our analysis of organizational, industrial, and occupational boundaries. Most notably, while we found significant effects on organizational and industrial boundary crossing, none of our predictors were related to occupational boundary

crossing. This implies that boundaries differ in specific characteristics – for example, in their permeability (Inkson et al., 2012) – and that it is reasonable to investigate them separately. Based on our study results, we agree with other authors (Gunz et al., 2000; Inkson et al., 2012; Rodrigues & Guest, 2010) who proposed that researchers using the boundaryless career concept should investigate a broader set of boundaries. We also believe that switching the focus to the investigation of the boundaries themselves might generate important research questions that add to the current understanding of contemporary careers (e.g., which specific processes lead to crossing certain boundaries?).

Second, our study contributes to empirically testing the theoretical models about career mobility we used as a basis for this study (Forrier et al., 2009; Ng et al., 2007). Our analysis revealed, at least for organizational and industrial boundary crossings, effects that are mostly consistent with the core theoretical propositions. We encourage future research to test additional assumptions of the models we did not cover in our study to generate insights about the most relevant predictors of career mobility. For instance, Ng et al. (2007) propose several other individual characteristics (e.g., values) and structural factors (e.g., organizational staffing policies) that might influence career mobility and deserve attention in future studies. The accumulated empirical evidence could be used to adjust the models and, ultimately, synthesise them into an overarching theoretical framework. Moreover, although both models imply that individual and contextual factors influence career mobility both directly and interactively, they do not provide concrete propositions about these interactive effects. We thus suggest improving the two models further by including concrete theoretical predictions about the interplay of individual characteristics and contextual factors.

Finally, our findings strengthen the position that researchers need to take into account the context individuals are embedded in when studying careers (Gunz, Mayrhofer, & Tolbert, 2011; Inkson et al., 2012; Mayrhofer et al., 2007). Most studies that investigate boundaryless (Arthur & Rousseau, 1996) or protean careers (Hall, 1996) have focused on individual agency and neglected possible contextual determinants of careers. Yet, according to our results, individual and contextual predictors are both relevant for the prediction of career mobility. We thus encourage researchers to acknowledge and directly investigate the influence of the context in which individuals are embedded. Johns (2006) provides recommendations how researchers can take context into account. For instance, because individuals are embedded in multiple contexts at different degrees of proximity to them (Mayrhofer et al., 2007), thinking about context usually involves multiple levels of analysis. Thus, researchers should acknowledge the potentially nested nature of their data and consider formulating hypotheses about cross-level effects (Johns, 2006). Moreover, researchers should provide more detailed information about the context in which their data were collected, answering the questions of “who was studied, where were they studied, when were they studied, and why were they studied?” (Johns, 2006, p. 403). Thus, we believe that for the conceptualization of contemporary careers, it is

crucial to recognize and directly investigate the effect context can have on careers.

Practical implications

Additionally, our study has practical implications for employees, career counsellors, and organizations. For employees, previous research has shown that different types of career mobility can result in desirable outcomes, such as career advancement (Chen et al., 2011), higher salaries (Chudzikowski, 2012), and increased job and career satisfaction (Latzke, Kattenbach, Schneidhofer, Schramm, & Mayrhofer, 2016; Rigotti et al., 2014). Our results suggest that it is crucial for employees to invest resources in education, because a higher level of education is related to greater career opportunities and enables the crossing of career-related boundaries which, in turn, can have a positive effect on individuals’ employability and enable further advantageous career transitions (Forrier et al., 2015). Nevertheless, structural factors such as fluctuations in the labour market might still constrain individual career mobility. Thus, our findings strengthen the recommendation for employees to align the timing of their career-related behaviour with fluctuations in the labour market, especially by undertaking further education in times when the labour market does not offer many attractive job alternatives. The differing pattern of results for organizational, industrial, and occupational boundary crossings also indicates that employees might need to prepare differently for distinct types of career mobility. The relevance of investing resources in education and simultaneously paying attention to changes in the labour market situation might be especially relevant for crossing organizational boundaries. In contrast, for crossing occupational boundaries, our findings suggest that the general performance of the labour market and the hierarchical level of one’s educational degree are not decisive. It is possible that employees who aim to have career opportunities across different occupational fields should instead invest in general knowledge and skills that are applicable across different occupations and industries as well as observe the availability of jobs in specific occupations. These considerations are also relevant for career counsellors when advising their clients in career planning. For instance, when clients aim to make advantageous career transitions across organizational boundaries, career counsellors should pay attention to both the labour market situation and their clients’ education, whereas personality might not be a relevant factor.

For organizations, our results strengthen the importance of investing resources in career management programmes. Career development is a central aspect of employee retention management because the evaluation of internal career opportunities fundamentally affects employees’ decisions to stay with or leave their current employers (De Vos & Meganck, 2008). Moreover, organizations that invest in their employees’ development of competence are probably more successful in retaining employees, because the resulting increase in employees’ internal employability can reduce their job search behaviour on the external labour market (De Vos, Forrier, Van Der Heijden, & De Cuyper, 2017). Investments in employees’ internal employability and intra-organizational career

opportunities might especially pay off in times of a favourable external labour market, when talented employees have many attractive job alternatives available and are more likely to cross organizational boundaries.

Limitations and suggestions for future research

Our study has several limitations. First, our information about career transitions might be restricted by retrospective bias, because the accuracy of recalling autobiographical events decreases over time (Spreng & Levine, 2006). However, we believe that the retrospective bias in our data is insubstantial because a career history consists of major life events that are well established in autobiographical memory. Nevertheless, future research could employ longitudinal designs, panel data (e.g., Biemann et al., 2012; Kattenbach et al., 2014), or archival data (e.g., Dokko, Wilk, & Rothbard, 2009) to eliminate the influence of retrospective bias and, consequently, assess career histories more reliably.

Second, we used a sample of white-collar workers with relatively high educational degrees that were predominantly male. Thus, the generalizability of our findings might be limited to this group of employees. We focused on management programme alumni, based on the assumption that boundary crossing is more likely for this group. Compared with highly educated individuals pursuing managerial careers, less educated workers might be more highly affected by structural constraints such as an unfavourable labour market (DiPrete & Nonnemaker, 1997). Thus, we encourage future research to analyse the impact of individual characteristics and contextual factors on career mobility in other samples, such as with blue-collar workers.

Furthermore, our analysis is limited to the labour market as the contextual determinant of career mobility. Mayrhofer et al. (2007) provide a model that describes four contextual factors with increasing distance to the individual that influence career patterns. In addition to the context of work, including the labour market, these factors comprise the context of origin, society, and culture, as well as the global context. Our study enabled us to compare the effect of individual characteristics and yearly fluctuations in the labour market situation on career-related boundary crossing within one country (Switzerland). Future research might use multi-country studies to compare the effect of the economic context on career mobility across several countries with varying degrees of stability regarding their labour market situation. Furthermore, this type of study would allow for the addressing of additional contextual factors at different degrees of proximity to the individual that influence his/her career choices, including country-level or cultural variables (Johns, 2006).

Lastly, our study does not take into account the motivational or decisional mechanisms underlying career mobility, because a comprehensive test of such processes was beyond the scope of this article. In their theoretical model, Forrier et al. (2009) propose that an individual's movement capital relates to career mobility not only through individual opportunities for mobility but also through the individual's *willingness* to move (i.e., the motivation to make a career transition). Likewise, Ng et al. (2007) propose that motivational and

decisional factors, such as the *desirability* of mobility or *readiness* to make a career transition, affect actual career mobility. To enable rigorous testing of these propositions, we encourage future research to conduct longitudinal studies that allow for the following of individuals over a longer time period through the processes leading to career mobility.

Conclusion

Our study contributes to the identification of individual and contextual determinants of career mobility. We found that individuals with a higher level of education were more likely to cross organizational and industrial boundaries, and that individuals crossed organizational boundaries more frequently in times of an improving labour market. Future research should incorporate samples with a higher proportion of less-educated employees to further investigate the relative influence of individual and contextual determinants on career mobility. Moreover, we encourage future research to address further career-related boundaries and include additional individual and contextual determinants in the prediction of career-related boundary crossings.

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