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Overeducation as moderator for the link between job change and job satisfaction among immigrants and natives in Germany

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Abstract
Job satisfaction is a major driver of an individual's subjective well-being and thus affects public health, societal prosperity, and organisations, as dissatisfied employees are less productive and more likely to change jobs. However, changing jobs does not necessarily lead to higher job satisfaction in the long run. Previous studies have shown, instead, that changing jobs only increases job satisfaction for a short period of time before it gradually falls back to similar levels as before. This phenomenon is known as the 'honeymoon–hangover' pattern. In our study, we identify an important new moderator of the relation between job change and job satisfaction: the job–education match of job changes. Based on relative deprivation theory, we argue that job changes from being overeducated in a job lowers the likelihood of negative comparisons and thus increases the honeymoon period, lessens the hangover period, and increases long-term job satisfaction. We use data from the Socio-Economic Panel ranging from 1994–2018 and focus specifically on individual periods of employees before and after job changes ($n = 134{,}404$). Our results confirm that a change to a job that requires a matched education has a stronger and longer-lasting effect on job satisfaction, and that this effect is slightly lower for respondents born abroad.

Keywords Job satisfaction · Overeducation · Job changes · Honeymoon-hangover · Immigration

Introduction

Job satisfaction is a major driver of individual subjective well-being, as employees spent much of their daily waking hours in their workplace environment (e.g., Aycan & Berry, 1996; Bowling et al., 2010; Fujishiro & Hoppe, 2020). Job dissatisfaction thus negatively affects public health as well as societal prosperity. Furthermore, job satisfaction also matters at the level of organisations, as dissatisfied employees are less productive and are more likely to change jobs, thus leading to additional costs for organisations (e.g., Tziner & Birati, 1996).

One possible way for individuals to react to low levels of job satisfaction is to change jobs. However, job changes do not always lead to higher levels of individual job satisfaction in the long run. Previous studies have shown that in general, job changes mainly increase job satisfaction only for a short time, before it gradually falls back to similar levels as before (Boswell et al., 2005, 2009; Chadi & Hetschko, 2018; Luhmann et al., 2012; Zhou et al., 2020). Consequently, the phenomenon was deemed to show a honeymoon–hangover pattern (Boswell et al., 2005). Several factors were found to affect the pattern's characteristics, such as prior job satisfaction, personality traits, employment status, upward–downward social mobility, changing jobs by choice, as well as a perceived fulfilment of organisational commitments (e.g., Boswell et al., 2009; Chadi & Hetschko, 2018; van der Zwan et al., 2018; Zhou et al., 2020).

We argue that previous studies did not take another important factor into account that considerably affects the complex relationship between turnover and job satisfaction: the job–education match before and after the

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change.[1] Previous studies have already found that overeducation[2] – in other words, when the level of formal education is above the level required for the current occupation – is a stress that negatively affects, among other factors, individual well-being (Erdogan & Bauer, 2021). We propose that the type of job change, the job–education match before and after the change (matched education and/or overeducated), is important for job satisfaction. We specifically expect that changes from being overeducated for a job to a matched education job would lower the negative comparisons with other jobs and thus increase job satisfaction. In addition, we also consider immigrant status,[3] because overeducation is particularly common among immigrants (Aycan & Berry, 1996; Støren & Wiers-Jenssen, 2010) and therefore the relevance for the topic is especially high in this context. The higher occurrence of overeducation among immigrants is mostly caused by a lack of recognition of previous degrees and professional experience, initial language barriers and lower social capital, although discrimination in the labour market is also a factor (Aycan & Berry, 1996; Guerrero & Rothstein, 2012; Støren & Wiers-Jenssen, 2010; Veit & Thijsen, 2019). Overeducation is a stressor, because overeducated immigrants do not have the opportunity to use their full potential (Aycan & Berry, 1996; Chen et al., 2010; Wassermann et al., 2017). In this context, overeducation has been found to be an influential determinant of psychological health and well-being in vulnerable populations such as immigrants (Chen et al., 2010; Erdogan & Bauer, 2021; Wassermann & Hoppe, 2019).

Based on relative deprivation theory (Erdogan et al., 2012; Vaisey, 2006), we analyse if and how the type of job changes (within or between job–education match categories) affects the changes in job satisfaction over time. We argue that a job change that leads from being overeducated to an education-matched job lowers the likelihood of negative comparisons and thus increases the honeymoon period, lessens the hangover period, and increases long-term job satisfaction. We contribute to the literature in two meaningful ways: On the one hand, we are the first (to our knowledge) to analyse the effect on job satisfaction in general of the job–education match in job changes. On the other hand, we analyse the honeymoon hangover pattern for both natives and immigrants separately.

For our analysis, we draw on the Socio-Economic Panel (SOEP, 2018) that allows generalisations of results for the population in Germany (total $N = 31{,}806$, observations $n = 134{,}404$). Due to various extension samples, sufficient numbers of individuals with immigrant status are available for our analysis). We begin by introducing our theoretical framework before discussing previous studies. After providing an overview of the dataset and methods, we present the results of our analyses and discuss their implications for future studies.

Theoretical background

The linkage between job changes and job satisfaction: the honeymoon–hangover pattern

Job satisfaction is a major factor in life satisfaction, and it affects job motivation, job-related attitudes as well as the possibility for changing jobs (e.g., Abele et al., 2006; Bentein et al., 2005; Bowling et al., 2010; Fujishiro & Hoppe, 2020). Numerous studies thus address the drivers of job satisfaction. These drivers can be classified as situational, dispositional, or hybrid approaches, depending on whether working conditions, personality traits – or their interactions – are emphasised as determinants (Abele et al., 2006, for an overview see e.g., Judge et al., 2017; Judge et al., 2020).

In addition, studies have examined the extent to which job satisfaction changes over time after a job change (Bentein et al., 2005; Chadi & Hetschko, 2015, 2018; Kammeyer-Mueller et al., 2005; Zhou et al., 2020). Boswell et al. (2005) focused on the connection between job change and job satisfaction and found a curvilinear relationship which was called the honeymoon–hangover pattern: After a job change, job satisfaction typically peaks at first (the honeymoon period), before it gradually falls back to the baseline level (the hangover period).

Boswell et al. (2009) did not provide a theoretical framework for this phenomenon, but nevertheless attempted to explain the pattern by using the concepts of post-decision dissonance and rationalisation: Individuals who commit themselves to a new job show a tendency to view the consequences of their decision positively. They are also more likely to evaluate the job change more positively than they did prior to the decision (post-decision dissonance). Even when confronted with the unfavourable elements of the new job, they are likely to downplay their significance at first. This initial high weakens over time as a normalisation or rationalisation process sets in.

[1] However, we want to mention that Zhou et al. (2020) who focus on the moderating effect of upward and downward mobility on job satisfaction, capture a related concept. They do, however, not focus on the mismatch between levels of education and the current job but look on the change in necessary skills for the new position compared to the old one. In some cases, those going upwards might be overeducated individuals, but their operationalization does not distinguish between overeducation and upward mobility.

[2] Some authors use the terms over-qualification, underemployment, or education-occupation mismatch, e.g., Frank and Hou 2018; Kaiser et al. 2020; Vaisey 2006, depending on whether they focus on education or more broadly on other qualifications.

[3] In this study, we distinguish between natives and immigrants: All respondents who state that they were born in Germany are referred to as natives, and all respondents who were born abroad are referred to as immigrants.

Several factors were reported to affect the general pattern of the honeymoon–hangover phenomenon such as personal factors (e.g., job satisfaction before the change) or job-related factors (e.g., the voluntary decision to change jobs) (Chadi & Hetschko, 2018; Mäkikangas et al., 2016). In their analysis of personality traits and the nature of job change (upward–downward mobility), Zhou et al. (2020) showed that there can be also an interaction between the two sets of factors. There are mixed results on the general applicability of the pattern because earlier studies used rather selective samples. Based on German SOEP data, Chadi and Hetschko (2018) showed that the honeymoon–hangover pattern is robust, even when they controlled for life circumstances, parallel life events and job characteristics. However, when analysing the reasons for job changes, they found significant honeymoon as well as hangover effects only among those who changed their jobs voluntarily. Relying on data from the British Household Panel Survey, Zhou et al. (2020) also found a honeymoon–hangover pattern in Great Britain but showed that it is related to the nature of the job change: Only those who advanced professionally were found to have a significant honeymoon period, while those who did not advance professionally experienced a longer period of dissatisfaction. We thus argue that the type of job change should also play a role in how long the effects of job satisfaction last. This is discussed in the next section.

Moderators for the honeymoon–hangover pattern

Like job satisfaction, overeducation has been analysed in many previous studies, where it was identified as an important determinant of different outcomes. Overeducation was found to negatively affect health and psychological well-being (e.g., Frank & Hou, 2018; Wassermann & Hoppe, 2019) as well as job satisfaction and employment loyalty (e.g., Johnson et al., 2002; Khan & Morrow, 1991; Wang & Jing, 2018; Wassermann et al., 2017) and to increase job turnover intentions (e.g., Maynard et al., 2006). Overeducation is one possible form of underemployment (Feldman, 1996) and is often defined as a job situation in which an employee's level of formal education and work training/experience exceeds the requirements of the job[4] (see for an overview Erdogan & Bauer, 2021). This phenomenon can be studied from an objective as well as a subjective perspective: The former often relies on outsiders' assessments of occupational requirements, whereas for the latter, individuals themselves are asked to report the required levels of qualification for their job. Both concepts are closely related (e.g., Harari et al., 2017), although it is argued that a perceived overeducation has a greater effect on the possible outcomes (Johnson & Johnson, 2000; Wassermann et al., 2017; Yu et al., 2019). Several theoretical approaches are used to explain this relationship.

Most previous studies have relied on relative deprivation theory (Merton & Kitt, 1950; Stouffer et al., 1949) as a theoretical framework (e.g., Erdogan et al., 2012; W. R. Johnson et al., 2002; Vaisey, 2006) that has been widely used in sociology and psychology studies. According to this strand of theory, individuals evaluate their current situation by comparing it to some standard, either their own previous employment situation or, more commonly, the employment situation of other individuals (Frank & Hou, 2018). For such interpersonal comparisons, individuals often rely on reference groups (Kelley, 1952) that structure the social environment. Individuals compare themselves with others with whom they share a group membership. On-going negative interpersonal comparisons thus lead to negative outcomes (e.g., Erdogan & Bauer, 2021; Leach & Vliek, 2008; Wassermann & Hoppe, 2019). Comparison processes are especially prevalent among well-educated individuals because they have typically spent a long time in the formal education system and have thus acquired a sense of entitlement as to what kind of wage or social status should be appropriate for them (Vaisey, 2006). In our study, we focus on two specific moderators of the honeymoon-hangover pattern, job-education mismatches and whether immigrant status affect their consequences.

First, we investigate whether job-education mismatches affect job satisfaction. We propose that employment status – overeducated (OE) or matched education (ME) – before and after the job changes systematically affects job satisfaction. For our analyses, we take the job change from a matched education job to another matched education job (ME → ME) as the reference category against which we test the other types of job change effects. We are especially interested in the two categories that deviate from the status quo: the *advantageous* (OE → ME) and the *detrimental* (ME → OE) categories. We propose that, compared with the reference category, *advantageous* job changes (OE → ME) lower the likelihood of negative comparisons with other peers that are likely to have the same educational status. This lessened feeling of deprivation translates into less stress, anger and frustration and should thus lead to a prolonged honeymoon period and a lesser decline of job satisfaction in the hangover stage (e.g., Groleau & Smith, 2019). *Advantageous* job changes should thus lead to a greater increase in job satisfaction in the first period and a less-pronounced decline in job satisfaction in

[4] Our study is thus different from Zhou et al. (2020), as we do not look at occupational mobility but rather at the job–education mismatch. Consequently, people who are overeducated for their jobs could experience upward mobility but might still be overeducated, e.g., if a medical doctor changes jobs from cleaning staff to office secretary. Furthermore, those experiencing upward mobility might not be overeducated in many cases, when medium and high skill jobs, such as e.g., office managers, do not have predescribed degrees.

the second period (Hypothesis 1a). On the other hand, *detrimental* job changes (ME → OE) should be associated with a lower increase in the first period and a greater decrease in the second period as the negative comparison results leads to increased levels of stress, anger, and frustration that enhance the honeymoon-hangover pattern (Hypothesis 1b). We further propose that *mismatched* job changes (OE → OE) lead to a similar pattern as *matched* job changes as the extent of negative comparisons does not change but that the increase is less distinct at the beginning. However, as we assess changes in job satisfaction compared with the individual baseline, we propose there will be no difference in this category for the hangover period (Hypothesis 1c).

Second, we analyse whether immigrant status changes the effects of the job-education mismatch. We know from previous studies that overeducation is a common phenomenon among immigrants (Aycan & Berry, 1996; Wassermann et al., 2017). This is mostly caused by a lack of recognition of previous degrees and professional experience, initial language barriers and lower social capital (Aycan & Berry, 1996; Guerrero & Rothstein, 2012), although discrimination in the labour market is also a factor (Støren & Wiers-Jenssen, 2010; Veit & Thijsen, 2019). Overeducation is a stressor because overeducated immigrants do not have the opportunity to use their full potential (Aycan & Berry, 1996; Chen et al., 2010; Wassermann et al., 2017). In this context, overeducation has been found to be an influential determinant of psychological health and well-being in vulnerable populations such as immigrants (Chen et al., 2010; Erdogan & Bauer, 2021; Wassermann & Hoppe, 2019). Figure 1 shows overeducation in Germany for natives and immigrants from 1994 to 2018. We see that the share of overeducated jobs is always higher among immigrants than among those born in the country, although the specific difference fluctuates quite a bit.

Regarding the linkage between overeducation and job satisfaction, Frank and Hou (2018) found a weaker association between overeducation and job satisfaction among the immigrant population in Canada. Based on the theory of relative deprivation, they argued that since overeducation is a more common phenomenon of immigration, the weight of overeducated work situations would be reduced for interpersonal comparisons among immigrants, thus reducing the sense of relative deprivation. Since overeducation is more common among immigrants, it was assumed that it is also more likely to be perceived as socially acceptable than among natives (Frank & Hou, 2018; Erdogan & Bauer, 2021; Wang & Jing, 2018). However, arguing in a similar way, Wassermann et al. (2017) examined the degree of immigrants' host national identity as a moderator of the relationship between perceived overeducation and job satisfaction and found that high overeducation is always negatively associated with job satisfaction, especially for immigrants who identify strongly with the host society. Based on relative deprivation theory, it can be assumed, that comparisons and their corresponding results are largely affected by the reference group one choses. If (highly educated) immigrants use other immigrants, for whom employment below the educational level is generally more common, as a reference group for comparisons of employment status (see also Shen & Kogan, 2020), the negative results of comparisons could decrease. With respect to immigrant status, we thus assume that type of employment matters in the same direction for all employees, with a slightly lower effect size for immigrants (Hypothesis 2).

Data and methods

Data and transformation

We use data from the Socio-Economic Panel (SOEP, 2018), which is the largest and longest running multidisciplinary longitudinal study in Germany. The study includes approximately 30,000 respondents each year living in 15,000 households. The SOEP gives us a dynamic perspective on occupational mobility and includes a wide range of information on additional life circumstances that accompany job changes.

For our analyses, we use all available survey years, ranging from 1994 to 2018. The sample is restricted regarding age and only considers adult respondents of the working population between 18 and 65. To make the best use of the data's panel structure, we stratify the person–year panel structure further by job changes. This results in job change periods that include up to seven years before or after job changes and are nested within individuals. Using

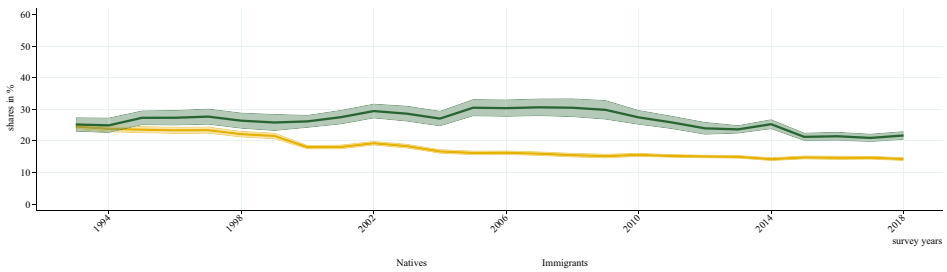

Fig. 1 Share of overeducated jobs by immigrant status in Germany over time. Source: German Socio-Economic Panel (SOEP), own calculations

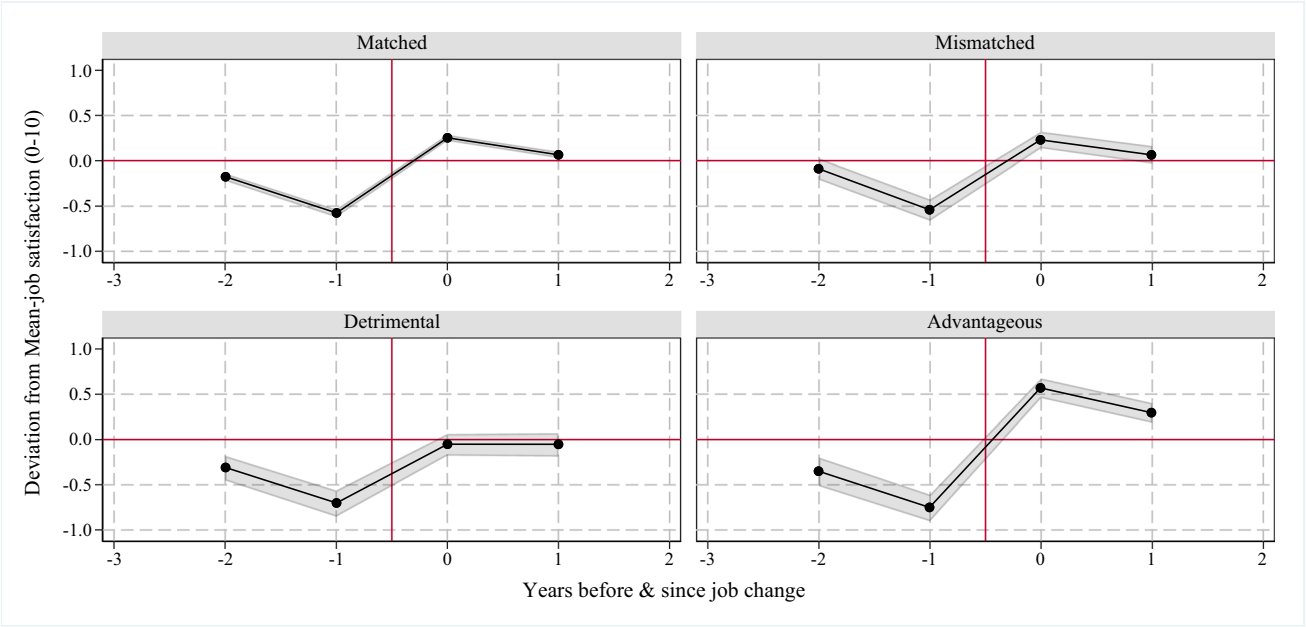

Fig. 2 Deviations from Mean Job Satisfaction (0–10) before and after job change. Note: marginal-effects plot, resulting from a two-way individual fixed-effects regression. Reading: job satisfaction (0–10) increases in the first year after job change (t0) by + 0.566 scale points as compared to reference periods regarding the *advantageous* category and by + 0.229 scale points regarding the *mismatched* category

this stratification, we also account for the possibility that years after a given job change can simultaneously represent time before the respective next job change and vice versa. Therefore, the transformation represents more realistically the dynamics of multiple job changes present in many biographies, as compared to only using one period of job change per individual. Due to this adjustment, it is also possible that single individuals contribute multiple types of job changes to the analysis.[5] Another change to the dataset concerns interim periods of unemployment. These periods are excluded from the analysis dataset to make the period before and after job changes comparable for all respondents on one scale. Instead, unemployment experiences are included in the models as a time-varying control variable (see Section "Control variables"). The code for the analyses can be found on OSF: https://osf.io/ft2ea/.

Job satisfaction as dependent variable

In the SOEP, job satisfaction is surveyed with a single question, 'How satisfied are you with your job?', on an 11-point rating scale with the values 0–10: 'completely dissatisfied' to 'completely satisfied'. Single questions measuring satisfaction are not as valid or reliable as instruments that capture the satisfaction construct with several items, but they have the advantage of being available in panel surveys such as the SOEP.[6]

Explanatory and moderator variables: job changes between statuses of overqualification

The major explanatory variable in the present study is job change (see Fig. 2). In addition to looking solely at the relationship between job changes and job satisfaction, our hypotheses from Section "Theoretical background" relate primarily to the expected effects of job changes, depending on the moderator overeducation. Thus, four types of job changes emerge that are coded to zero for reference periods and take on category values for observational windows shortly before and after job changes (Table 1):

[5] Every person will be tracked for up to five years before and up to four years after a job change. However, shorter periods are also possible, for example, a person may change their job at t (from an overqualified to a matched qualification job = *advantageous*) and at t+4 to another matched qualification job = *matched*. In this case, the first case will be treated as the *advantageous* category with the years before t0 counting as before the job change and the three years after t as after the job change. The second job change at t+4 is another start for a new job change observation that starts at t+1. This now counts as a before-the-job change and continues as long as the person does not change occupations.

[6] In addition, a meta-analysis of the relationship between single-item and scale measures concludes that'a single-item measure of overall job satisfaction is acceptable '(Wanous et al., 1997, p. 250).

Table 1 Types of job changes

		Before job change	
		Matched Education (ME)	Overeducated (OE)
After job change	Matched Education (ME)	Matched	Advantageous
	Overeducated (OE)	Detrimental	Mismatched

The moderator variable in the present study is the status of overeducation (OE). There are different methods to measure overeducation, whereby the measured level of overeducation is strongly determined by the respective measuring method (Boll & Leppin, 2014, p. 50). A distinction is made between (1) self-reported overeducation and (2) the realised-matches approaches, in which self-reported overeducation is a self-reported comparison of the educational qualifications acquired by the respondent with the educational qualifications required for the current job. In the realised-matches approach, a person is overeducated when their number of years of education is higher than the average number of years of education in the occupational comparison group (Boll & Leppin, 2014, p. 50). Most studies generally use measures of self-reported overeducation (Erdogan & Bauer, 2021, p. 3).

In this study, overeducation will be operationalised by comparing the formal educational level of the respondents with the educational level required for the job.[7] A person is defined as overeducated if the person states that they have completed a vocational training or hold a university degree, but when asked 'What kind of training is usually required for your job?' answer that no training is required. That means, the person works in a job that does not require vocational training or a university degree but holding such a degree. If a person had a university degree but vocational training was required for the job, we would not classify that person as overeducated in the definition we used. This is slightly different from previous approaches, e.g. Boll et al. (2016), who also included this mismatch. However, we do not have enough observations for some job changes especially among immigrants, so coding different types of overeducation would lead to estimation problems. We also did not want to group both types of overeducation together, i.e., working in a job for which no training/degree is needed (but having vocational training/a university degree), and working in a job for which vocational training is needed (but having a university degree), because we argue these two kinds have different implications and especially the first kind has a bigger impact on life and job satisfaction. Thus, we focus on situations where people work exclusively in jobs that do not require training, which is especially common among immigrants. Within this definition, the formal educational level of the respondents is compared with the subjective assessment of the educational level required for the current job. Therefore, generated variables of the SOEP *pgen* dataset are used to operationalise overeducation.

[7] Therefore, generated variables of the SOEP *pgen* dataset are used to operationalise overqualification. The level of training is operationalised by using the generated variables *pgpbbil01*, *pgpbbil02* and *pgpbbil03*; the level of required training by using *pgausb*.

Control variables

To control for possible time-varying confounders (Allison, 2009), we include blocks of control variables in our multivariate-analyses to cover individual events and developments that may happen simultaneously to job changes (Chadi & Hetschko, 2018). The first block concerns personal life circumstances and demographics. Therefore, we include a quadratic age term, information on children living in a respondent 's household, and indicator variables on marital status: married, divorced or widowed. Further, we include indicators of self-reported real-estate ownership and health status. These measures are based on self-reporting on health and overnight stays in hospital within the last year. The second block of time-varying controls concerns occupational circumstances. Changes in occupational satisfaction in the course of job changes may plausibly be affected by factors other than the ones theorised above. Therefore, we include information on gross hourly wages (in deciles) and information on currently worked extra hours. Furthermore, we include information on un-employment experiences to account for the circumstance in which any intermediate person-years of unemployment are dropped from our analyses.

Summary statistics

Table 2 shows the summary statistics for the analysis dataset. Overall, the analysis dataset includes about the same number of records before and after a job change, with a mean of -0.4 years, there is a small excess of records before job changes. Most job changes observed occur within occupations that are matched education jobs before and after the change (71.9%). 12.0 percent is accounted for by job changes within overeducation, 8.4 percent is accounted for by a move down from a matched education to overeducation, and 7.7 percent correspond to the reverse case of a move from overeducation to a matched education.

The analysis dataset comprises 14.9 percent of immigrated respondents and is broadly balanced with regards to gender (50.8% female). With an average age of 38.5 years,

Table 2 Summary statistics of analysis dataset

	Mean	Sd	Min	Max
Job satisfaction	6.955	2.101	0	10
Years before/since job change	-0.358	2.858	-7	6
Transition-Groups by Qualification				
Matched	0.719		0	1
Mismatched	0.120		0	1
Detrimental	0.084		0	1
Advantageous	0.077		0	1
Born abroad	0.149		0	1
Female	0.508		0	1
Age (in Years)	38.482	9.705	17	65
Children in household				
No children	0.501		0	1
One child	0.240		0	1
Several children	0.259		0	1
Married	0.607		0	1
Widowed	0.011		0	1
Homeownership	0.407		0	1
General health below 'good'	0.490		0	1
Had to visit a hospital last year	0.079		0	1
Company Size				
< 20	0.267		0	1
20–199	0.295		0	1
200–1999	0.210		0	1
> = 2000	0.228		0	1
Extra hours per week	2.346	3.737	0	40
Experience Unemployment (in Years)	0.757	1.777	0	28
Observations	134,404			

the analysis dataset largely corresponds to the age structure of the employed population in Germany as a whole.

Further variables on personal life circumstances comprise the proportion of respondents living in households with at least one child (49.9%); with marital status of being married (60.7%) or widowed (1.1%); homeownership (40.7%); a subjective health status below 'good', (49.0%) and the proportion of respondent-records indicating hospital visits last year (7.9%).

With regards to occupational circumstances, the records are relatively balanced in terms of company size, measured as the number of employees. An average of 2.4 extra hours of work per week is reported, and the average experience of unemployment shows as a comparatively low 0.8 years.[8]

[8] Note that this may be a consequence of our data cut-off, which requires that job changes, and thus the periods of employment, are present within the periods under consideration. Individuals with long periods of unemployment may thus be systematically underrepresented.

Methodological approach

As a first step, we report the relationship between job change and job satisfaction descriptively. Therefore, we use a mean analysis to describe how the four types of job changes are associated with different job satisfaction outcomes. To analyse the temporal effects of job changes, we followed Chadi and Hetschko (2018), Zhou et al. (2020) and created categories of time variables that track job satisfaction through the job change process. These categories identify up to two years before the job change (t-2 and t-1) as well as up to two years after the job change (t0 and t+1). The job changes thus occurred between t-1 and t0. In the next step, we make use of the SOEP's panel structure and implement two-way fixed-effects regressions, as this allows us to account for unobserved unit- and time-specific confounders. We use two-way fixed-effects regressions with personal, occupational, and time-fixed effects, including several control variables to analyse the intra-individual job satisfaction trajectory following each type of job change. By focusing on intra-individual variation over time, fixed-effects models eliminate the omitted variable bias with respect to time-constant heterogeneity that often affects the validity of causal inferences. We also include lag and lead variables for the different time periods before and after the job change. Finally, we examine whether the effects of overeducation are less for immigrants. To check our models' external validity, robustness checks are performed.

Empirical results

How does job change type affect job satisfaction over time?

Regarding the descriptive relationship between job change and job satisfaction, Fig. 2 depicts deviations from individual mean job satisfaction for the period two years before and two years after a job change using fixed-effects regression models before including further control variables. The job change occurs between t-1and t0. Results are presented separately by type of job change. For all four types of job change, we observe declines in job satisfaction from t-2 to t-1 prior to the job change. Previously, we assumed that those changing from an overeducated to a matched educated position (*advantageous*) would show a more pronounced increase in job satisfaction in the honeymoon period and a less-pronounced decrease in the hangover period. On the other hand, those declining from a matched education to an overeducated position (*detrimental*) should experience a lower increase and a faster return to the former status quo. Indeed, we find similar patterns in the data displayed in Fig. 2. We observe an increase in job satisfaction after the job change for all four types of job changes, which is most pronounced for the *advantageous* category. In

this category, individual job satisfaction in the second year after the change (t+1) was still almost one scale point above the year before the change (t-1) and is also still significantly above the individual's mean job satisfaction in reference periods. In contrast, less pronounced increases can be observed for the other three types in the first year after the change which is especially apparent for the *detrimental* category: job satisfaction increases slightly in this group compared to the year immediately before the job change but does not even reach significantly higher values compared to the reference period. In the second year after the change, job satisfaction decreases for all types of job changes except for the *detrimental* category.

Next, we analyse the general effect of a new job[9] using fixed-effects regression models including several control variables. For such an analyses, as Chadi and Hetschko (2018) discuss, the choice of reference periods is a critical decision when analysing life events using panel data, as they substantially affect the interpretation of the results. In our analyses, we chose up to five years before and after the observation period as reference. We decided on five years mainly due to comparability considerations between our four transition groups. As the average employment period lengths vary between those in the "matched"-groups and other groups, the choice of five years seems a suitable compromise to ensure comparable reference periods between groups. To further eliminate the possibility of confounding, we both shortened and lengthened the reference period in the Appendix.

The estimates are given in Table 3. The effect of job change on job satisfaction is highly significant, positive, and strong: On average, individual job satisfaction increases after a job change by almost one scale point compared to before the job change. Furthermore, the size of the effect remains almost the same for Model 1, 2 and 3. The strong increase in job satisfaction is thus independent of personal circumstances (such as marriage) or occupational circumstances (such as an increase in income). Last, we distinguish between the four types of job change and find that a new job has a significant effect on individual job satisfaction for all four types of job change. However, this effect is lowest for *detrimental* and the highest for *advantageous* job changes. However, this analysis does not let us distinguish more clearly between the different time periods to see when the increases and decreases in job satisfaction occur (Table 3).

Therefore, we include lag and lead variables for the different time periods before and after the job change and then run another fixed-effects regression with interaction terms of time, types of job change and immigrant status. We begin by presenting marginal effects following this regression in Fig. 3 and focus on the time periods by immigrant status, which leads to results irrespective of the types of job changes. The literature suggests a peak in job satisfaction directly after a job change followed by a continuing decline (Boswell et al., 2009; Chadi & Hetschko, 2018; Zhou et al., 2020). Indeed, we observe a considerable increase in job satisfaction in the first year after the job change (t0). In the second year after the change (t+1), the effect is still positive but less than half the size of the effect in the first year. As expected, job satisfaction was the lowest directly before the job change in the year directly before the change (t-1). Immigrants show fewer overall fluctuations in job satisfaction when they change jobs: the decline immediately prior to change (t-1) is significantly less pronounced ($p<0.05$), and the increase immediately after the change (t0) tends to be slightly weaker and is no longer significant ($p>0.05$) (see Fig. 3b).

Next, we consider the models' interactions between periods, the four types of job changes. These estimations are displayed in Fig. 4. Regarding the main effects over time within matched education (*matched*) job situations, we see a significant increase in the first year by 0.25 scale points and a much smaller increase by 0.1 scale points in the second year, thus matching the honeymoon–hangover pattern (see Fig. 4a). Similarly, such an increase in the first year can also be observed for cases where changes occur during an overeducated to an overeducated job change (*mismatched*).

The positive effect of having changed the workplace is highest for the *advantageous* job changes: both in year one and year two after the job change. This increase is significantly stronger as compared with the *matched* job changes (see Fig. 4b). In the case of *detrimental* changes, there is no increase in job satisfaction observable for periods after job change (see Fig. 4a). This represents a significant negative difference from the honeymoon effect that is usually observable in year one (see Fig. 4b). Regarding the second year after the job change (t+1), all groups that showed an initial increase in job satisfaction in t0 experience a hangover effect, i.e., a decrease in satisfaction levels. As already mentioned, this change is significantly less pronounced among the group that changed into a job with matched qualification levels (*advantageous*). Overall, H1a, H1b and H1c are therefore supported.

Finally, we also looked at the models' interactions by immigrant status. As compared to native respondents, immigrants benefit slightly less in job satisfaction during the first year after a job change. This is also true for groups changing from matched education jobs or when achieving a matched education level (see Fig. 4c). This finding is in line with the less-pronounced fluctuations in job satisfaction which were observed earlier during job changes among immigrants. Considering the groups that change jobs within overeducation (*mismatched*) and into overeducation (*detrimental*), patterns in job satisfaction are fairly similar between native and immigrant respondents, and no significant differences were observed.

[9] What is meant by this is that we disregard the dynamic consideration of individual years for a moment here and focus on the simple comparison before and after the job change, with the former coded as the reference.

Table 3 The general effect of job changes on individual job satisfaction, fixed-effects regression

	M (1)	M (2)	M (3)	M (4)
Event-Dummy: Years prior/since job change	0.000	0.000	0.000	
Years prior to job change (Ref.)	0.826***	0.831***	0.804***	
Years since job change				0.000
Matched				0.782***
Mismatched				0.745***
Detrimental				0.630***
Advantageous				1.267***
Year Dummies	Yes	Yes	Yes	Yes
Personal Circumstances		Yes	Yes	Yes
Occupational Circumstances			Yes	Yes
Observations	134,404	134,404	134,404	134,404
Observations (Cluster)	31,806	31,806	31,806	31,806
R^2_{within}	0.030	0.041	0.045	0.046
$R^2_{between}$	0.000	0.000	0.000	0.000
Rho	0.632	0.723	0.750	0.750

Dependent variable: job satisfaction (0–10)

The cases are restricted to those without missing values for core variables

*** $p < 0.001$

Robustness checks

To further strengthen the validity of the statistical statements, robustness checks were performed. Initially, we chose five years as reference period. In Fig. 5 in the Appendix, we consider whether a shorter period of up to three years changes the substantive interpretation of our results; in Fig. 6, we increase the reference period to up to seven years. In both cases, the marginal effects change only slightly, and our main conclusions remain the same.

In Fig. 7, we restrict the reference to up to five years before the observation period and exclude cases after the

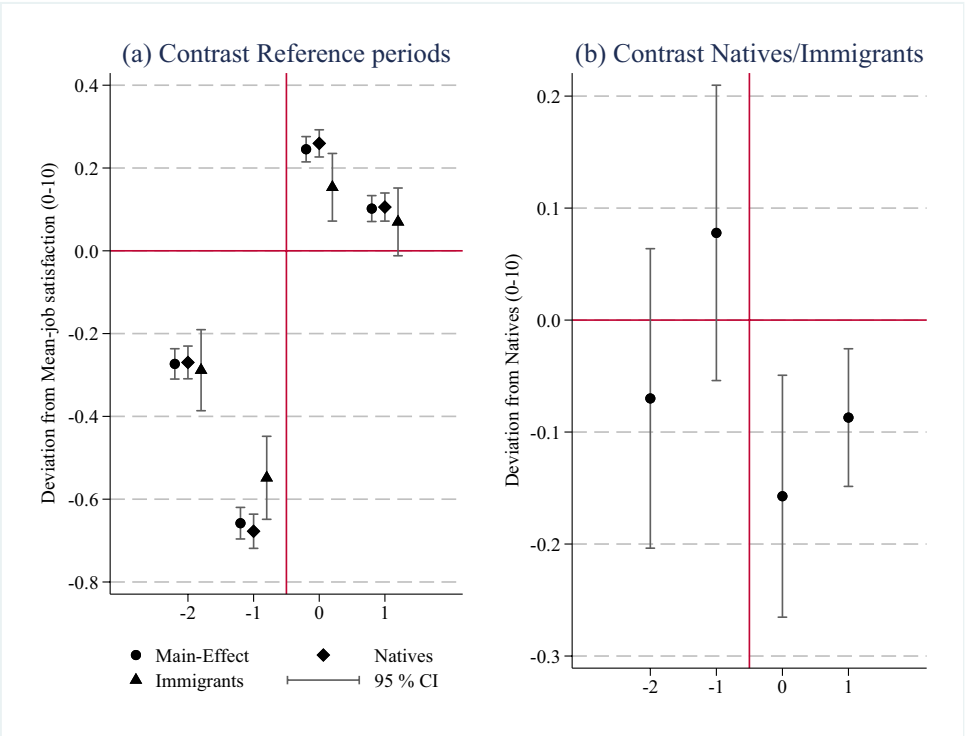

Fig. 3 Dynamic perspective of the effect of job change on job satisfaction. Note: marginal-effects plot, resulting from a two-way individual fixed-effects regression, controlling for various time-varying factors (see 3.4). Reading: job satisfaction (0–10) increases in the first year after job change (t0) by + 0.244 scale points overall as compared to reference periods before and after (**a**). This increase in the first year after the job change (t0) is significantly weaker by -0.151 scale points for immigrants compared to natives (**b**)

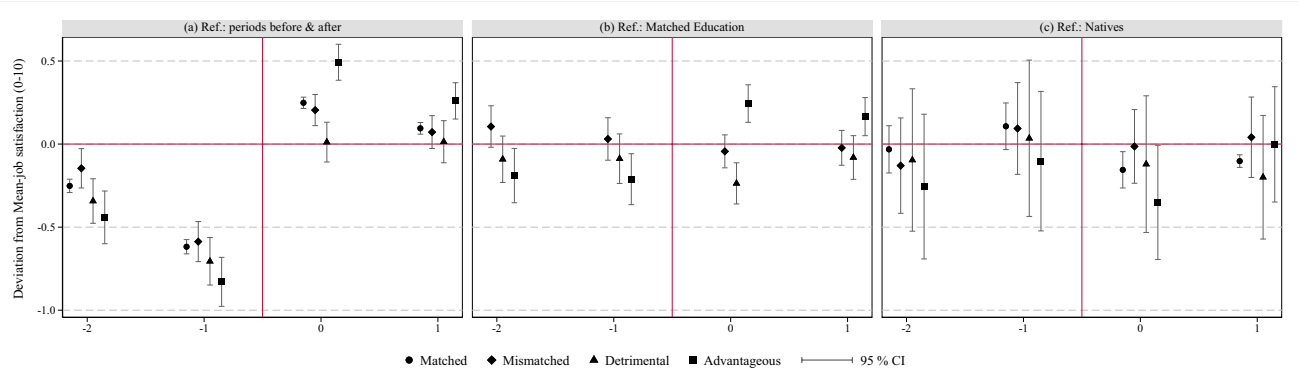

Fig. 4 Dynamic perspective on the effect of job changes on job satisfaction by type of job change, fixed-effect regression. Note: marginal-effects-plot, resulting from a two-way individual fixed-effects regression, controlling for various time-varying factors. Panel (**a**) shows individual satisfaction levels before and after the change as reference, denoted by the horizontal line. It displays the estimates for the specific years on the x axis, aggregated for the job change type groups. For example, those with an advantageous job change have a significant increase by + 0.493 scale points in job satisfaction directly after the change (t0), compared to their individual satisfaction levels before and after the change. Panel (**b**) displays estimates with matched job changes as reference so we can see whether coefficients are significantly different or not. Job satisfaction for those in the advantageous job change group significantly increases for t0 by + 0.244 scale points compared to the matched group. Panel (**c**) displays the group of natives as reference, job satisfaction for immigrants is significantly lower (-0.351 scale points) for those in advantageous job changes at t0

observation period from the analysis. A few interesting differences emerge compared to our main analysis: We obtain more negative deviations for most groups compared to a reference period before and after, when no other covariates are controlled. This may indicate that the affected groups show a generally longer-lasting decline in job satisfaction in the years following (t+1), which makes the observed values appear relatively more positive when used as a reference (as in the main analysis). This is supported by the observation that the negative deviations disappear, even reversing into slightly more positive deviations, when we consider the models with time-varying covariates such as years and age.

The *advantageous* group stands out in this regard because it shows more positive deviations relative to the main analysis even before including other covariates, which indicates that this group tends to be in a longer-lasting positive trend in job satisfaction. When the covariates are included, this effect is even amplified, resulting in a positive deviation of + 1.040 scale points in the first year after the job change compared to only + 0.493 scale points in the main analysis. The hangover effect in t+1also appears to be significantly less pronounced in the *advantageous* group, so that job satisfaction still has + 0.898 scale points compared to + 0.260 in the main analysis.

To show support for our assumption that the recognition of foreign degrees and lower language skills play an essential role for the group of foreign-born individuals in Germany, we looked at the share with which foreign-born individuals in our sample hold an educational or vocational degree completed abroad. This applies to 70.2 percent of these individuals. Those born abroad with a foreign degree were on average at least 21.5 years older than those born abroad with a degree acquired in Germany. Separate analyses for Fig. 3 only with foreign-born individuals that entered Germany aged at least 25 years show the robustness of our central findings. In particular, the significant-negative deviation in job satisfaction of foreign-born versus native-born individuals in the first year of job change (see panel (b)) is robust to the age of immigration. Furthermore, looking at German language skills (which was only included in few waves) shows a gap between the native population and those foreign-born with regard to language comprehension.

Discussion

The intention of this article is to add to the literature an analysis of how overeducation and immigrant status affect the relationship between job change and job satisfaction. Previous studies reported a honeymoon–hangover pattern with a pronounced peak in satisfaction directly after the job change, and decreasing levels of satisfaction thereafter (Boswell et al., 2005, 2009; Chadi & Hetschko, 2018; Luhmann et al., 2012; Zhou et al., 2020). However, several factors, such as personality, job status or voluntary job change were found to moderate this pattern (Boswell et al., 2009; Chadi & Hetschko, 2018; van der Zwan et al., 2018; Zhou et al., 2020). We proposed that overeducation – the mismatch between a person's education and the educational requirements of the job – is an important factor for the long-term impact of job changes on job satisfaction. Not all job changes make people more satisfied. Indeed, this fact is moderated by the type of job change.

Based on the job–education match, we define four types of job changes: changes from matched-to-matched education (*matched*), overeducation-to-overeducation (*mismatched*), changes from matched education to overeducation (*detrimental*) and overeducation to matched education (*advantageous*).

The recent analyses showed that job dissatisfaction among all four types is high before the job change, and highest for those changing into matched education jobs. We find a classic honeymoon–hangover pattern for changes within matched education positions, with a peak increase in the first year and a notable decline in the second year. For changes in the overeducated category, we observe a lower first year peak, with no significant increase in the second year. For those whose job–education match decreases after the change, we find no significant increase in satisfaction after the change. This shows that not every job change makes people more satisfied, but rather that the type of job change, influences how they feel about their job. In contrast, those who move out of a job for which they are overeducated show the highest peaks of satisfaction in the first year and the smallest decline in the second year. Thus, moving from an overeducated job situation makes people more satisfied than others in the long run, as they feel their educational attainments are valued.

In our analysis, the patterns differ slightly between native and immigrant respondents since immigrants show fewer overall fluctuations in job satisfaction in the course of job change, causing their job satisfaction to increase less in the first and second year compared to natives. Regarding overeducation, we observe that this negative deviation is mainly driven by immigrants in the *advantageous* category and the *matched* category which tend to show negative deviations after job changes as compared to natives. Further, it can be assumed here that the length of stay in the host country can have a decisive influence on this effect, which is stronger for immigrants who have a longer length of stay. In this context, the results of Wassermann et al. (2017), who investigated the influence of the host national identity on the connection between job change and job satisfaction, can be mentioned again. However, due to the small number of cases in such categories, these analyses could not be carried out in our analysis. Moreover, it can be assumed that, especially in the initial period, and given the many difficulties in adjusting to life in a new country, the nature of a job change is not as important as the circumstances of a new workplace, such as supporting colleagues and an immigrant-friendly environment.

The overall finding of this study is that overeducation is an important moderator of the dynamic effect of job change on job satisfaction. Furthermore, in some cases immigrant status also affects the moderating impact of overeducation, although the differences between immigrants and those born in Germany are rarely statistically significant. The findings of our article give new insights into the dynamic patterns of job change and job satisfaction and integrate well into the literature. By using the British Household Panel Survey Zhou et al. (2020) already showed that increases in occupational class affect job satisfaction positively, whereas downward mobility leads to greater job dissatisfaction. We can show for Germany that the mismatch between occupation and education also has a significant impact on job satisfaction for natives and immigrants.

Nevertheless, our operationalisation of job–education mismatch was not as detailed, because we only considered individuals with a vocational qualification or a university degree, but who worked in a job where this qualification was not required. No further distinctions were made between job–education mismatch, especially in terms of the extent of the mismatch: a mismatch between 'no training required and having vocational training' might matter less than 'no training required and having a university degree'. As we excluded 'vocational training required and having a university degree' from being counted as a mismatch, our results on the effects of *advantageous* job changes apply to the more extreme mismatch, and it is not clear whether and to what extent they also apply to less severe mismatches. Furthermore, we ask the respondents about the kind of training/education usually required for their current job which adds a subjective component to the operationalization. The answer might be clear in some cases, where occupation entrance is heavily regulated (medicine, education) but less clear for some and thus biased by respondent perceptions. However, we had no possibility to verify the answers. It should also be noted that the distinction between natives and immigrants in our analysis is a simplification and is to be understood as a statistical category that says little about the different experiences of immigrants. In addition, it can be assumed that other migration-specific variables may have an impact on the phenomenon. For instance, we did not distinguish between immigrants according to their length of stay in Germany or the reason for their migration, both of which may also have an influence on the result.

Furthermore, we found evidence for the honeymoon–hangover pattern – with *advantageous* as the job type change – that makes the people changing jobs most satisfied in the long run, although it is far from clear what exactly contributes to this pattern. Our analysis showed how the type of job change relates to job satisfaction, but it does not tell us much about the correlates of the two most influential job change types, *advantageous* and *detrimental*. We can assume that psychological factors, such as feeling that one's educational attainment is valued, contributed to this pattern, but other characteristics of the workplace, such as having more autonomy, could also be related.

Despite these limitations, the results of this study provide evidence to show that the honeymoon–hangover pattern can be observed in the native and immigrant population in Germany, and that overeducation strongly affects this relationship.

Appendix

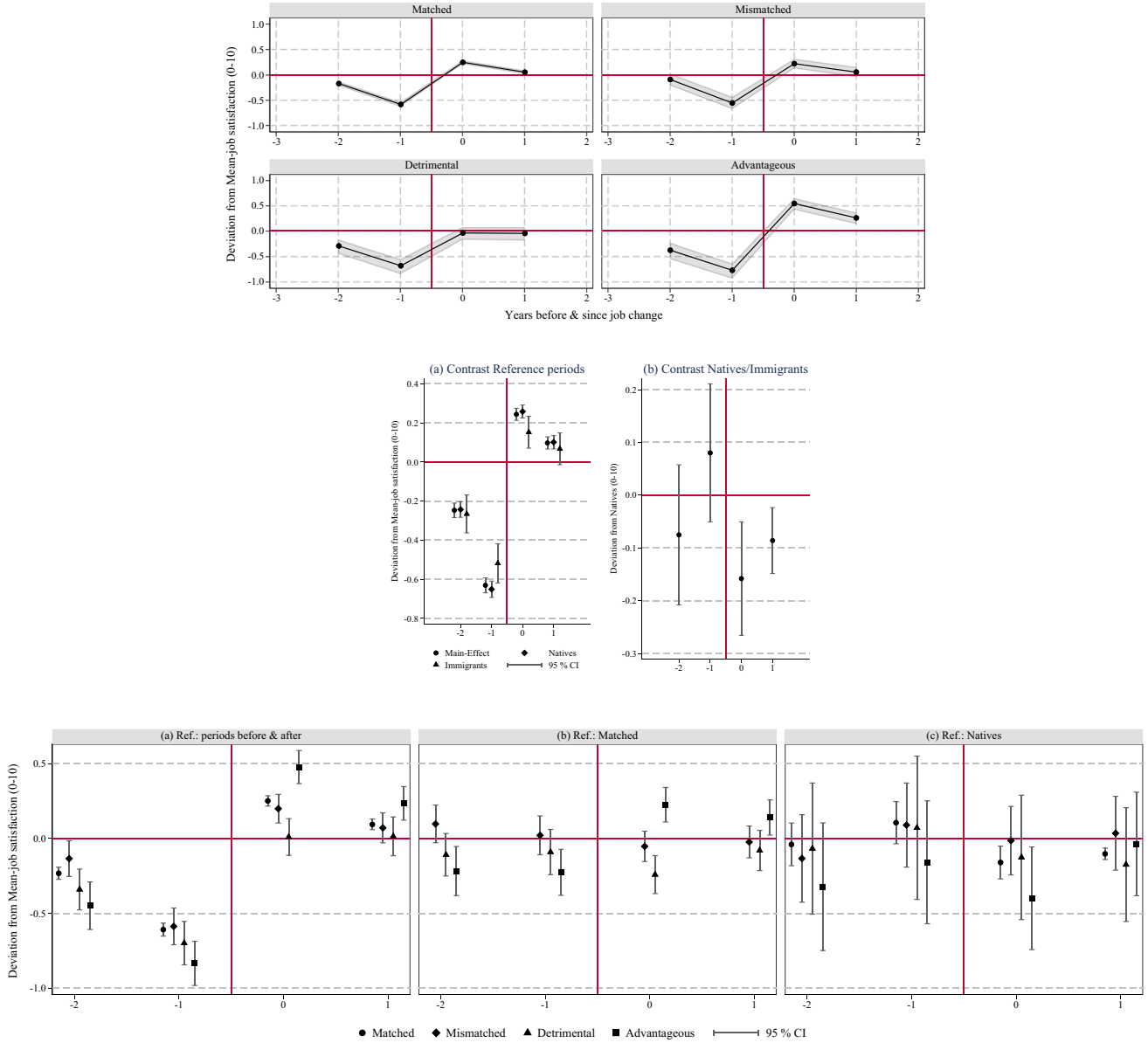

Fig. 5 Decreasing the reference periods to up to 3 years

Figure 5
Figure 6
Figure 7
Table 4
Table 5

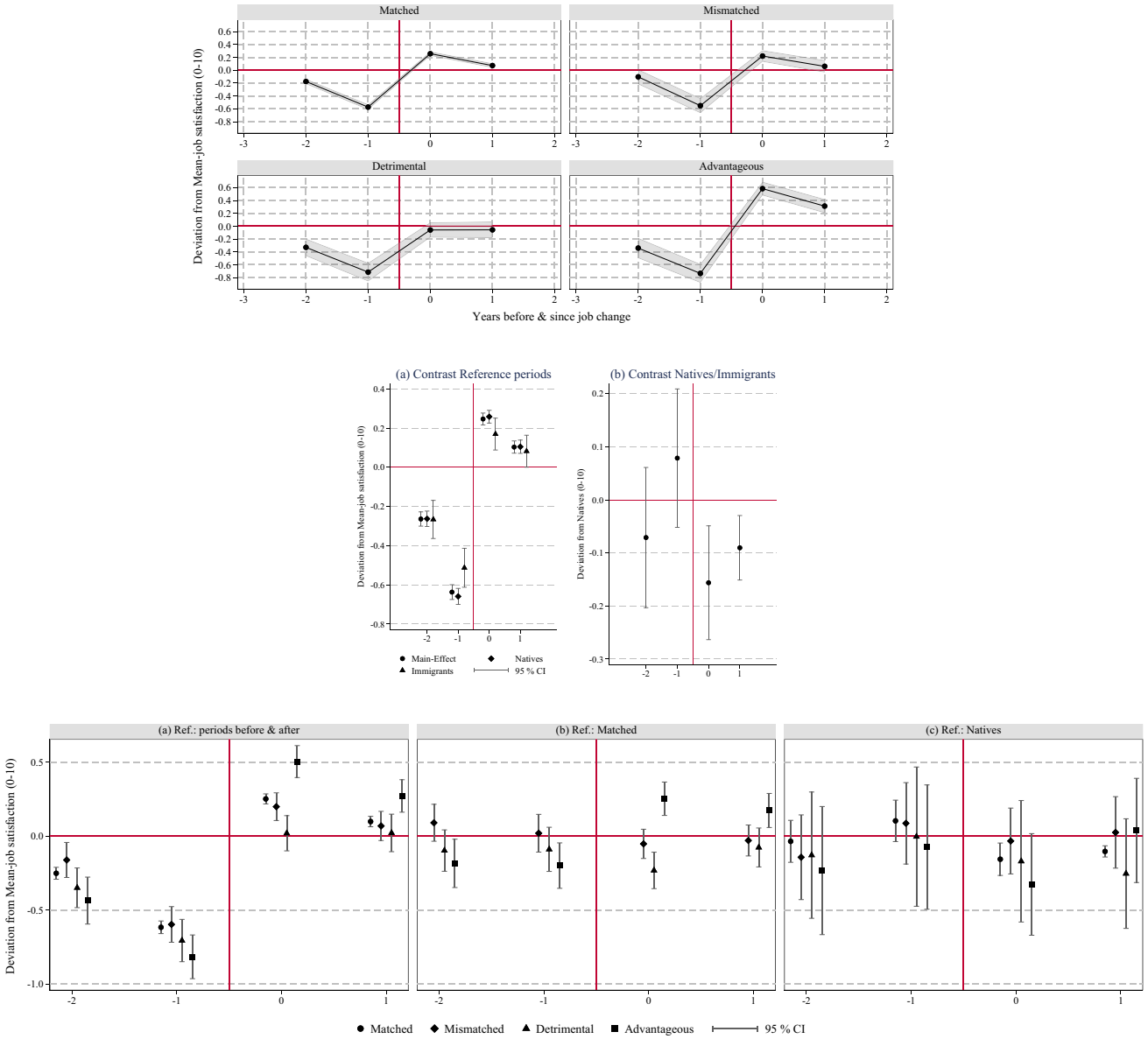

Fig. 6 Increasing the reference periods to up to 7 years

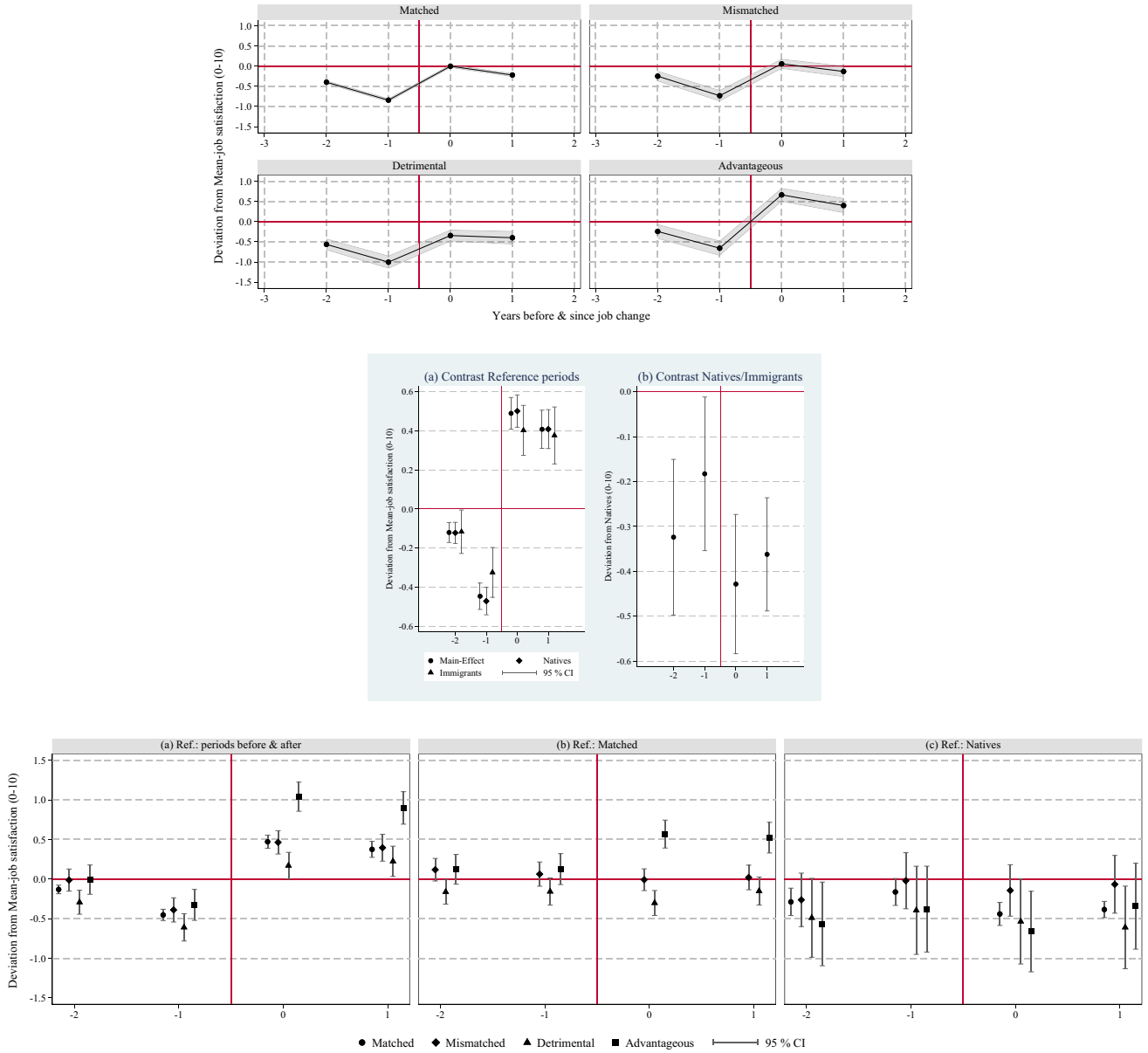

Fig. 7 Restrict reference periods to up to 5 years before observation window

Table 4 Summary statistics of analysis dataset by immigrant status

	Immigrants				Natives			
	mean	sd	min	max	mean	sd	min	max
Job satisfaction (1–10)	7.047	2.138	0	10	6.939	2.094	0	10
Years before and since the job change	-0.439	2.759	-7	6	-0.344	2.875	-7	6
Matched (=1)	0.672		0	1	0.728		0	1
Mismatched (=1)	0.193		0	1	0.107		0	1
Detrimental (=1)	0.065		0	1	0.087		0	1
Advantageous (=1)	0.070		0	1	0.078		0	1
Female (=1)	0.470		0	1	0.514		0	1
Age (in years)	38.632	9.637	18	65	38.458	9.714	18	65
No children (=1)	0.393		0	1	0.520		0	1
One child (=1)	0.260		0	1	0.236		0	1
Several children (=1)	0.347		0	1	0.244		0	1
Married (=1)	0.723		0	1	0.587		0	1
Widowed (=1)	0.015		0	1	0.010		0	1
Homeownership (=1)	0.255		0	1	0.433		0	1
General health below 'good' (=1)	0.522		0	1	0.484		0	1
Had to visit a hospital last year	0.076		0	1	0.079		0	1
Company Size <20	0.276		0	1	0.265		0	1
20–199	0.309		0	1	0.293		0	1
200–1999	0.223		0	1	0.208		0	1
>=2000	0.192		0	1	0.234		0	1
Extra hours	1.667	3.250	0	40	2.465	3.803	0	40
Exp. Unemployment (in Years)	0.978	2.054	0	27	0.719	1.721	0	28
Observations	19,997				114,407			

Table 5 Summary statistics of analysis dataset by types of job changes

	Matched		Mismatched		Detrimental		Advantageous	
	mean	sd	mean	sd	mean	sd	mean	sd
Job satisfaction (1–10)	7.031	2.033	6.693	2.285	6.728	2.259	6.899	2.200
Calendar year before or since the event	2004	9.189	2002.15	9.627	2001.037	9.332	2004.116	9.148
Born abroad (=1)	0.139	0.346	0.240	0.427	0.115	0.319	0.136	0.343
Female (=1)	0.500	0.500	0.541	0.498	0.476	0.499	0.557	0.497
Age (in Years)	38.310	9.499	40.007	10.090	38.083	10.746	38.178	9.558
No children (=1)	0.501	0.500	0.479	0.500	0.536	0.499	0.495	0.500
One child (=1)	0.236	0.424	0.263	0.440	0.237	0.426	0.245	0.430
Several children (=1)	0.263	0.441	0.258	0.438	0.227	0.419	0.260	0.438
Married (=1)	0.608	0.488	0.637	0.481	0.584	0.493	0.576	0.494
Widowed (=1)	0.009	0.093	0.022	0.146	0.012	0.109	0.015	0.121
Homeownership (=1)	0.422	0.494	0.327	0.469	0.392	0.488	0.404	0.491
General health below 'good' (=1)	0.466	0.499	0.582	0.493	0.566	0.496	0.488	0.500
Hospital visits last year	0.077	0.266	0.086	0.280	0.086	0.281	0.083	0.276
Company Size <20	0.255	0.436	0.290	0.454	0.312	0.463	0.295	0.456
20–199	0.289	0.453	0.329	0.470	0.297	0.457	0.300	0.458
200–1999	0.215	0.411	0.203	0.402	0.191	0.393	0.200	0.400
>=2000	0.241	0.428	0.178	0.383	0.200	0.400	0.205	0.403
Extra hours per week	2.526	3.795	1.707	3.492	1.928	3.482	2.117	3.673
Exp. Unemployment (in Years)	0.578	1.410	1.578	2.952	0.846	1.851	1.059	1.929
Observations	96,700		16,081		11,272		10,351	

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Data availability The data that support the findings of this study are available in the Research Data Center of the Socio-Economic Panel: Socio-Economic Panel (SOEP) (2018). Socio-economic panel (soep), data for years1984-201x, version 3y, soep, 2018. Socio-Economic Panel (SOEP). https://doi.org/10.5684/soep.core.v36eu

Declarations

Informed consent Informed consent was obtained from all individual participants included in the study.

Conflict of interest We wish to confirm that there are no known conflicts of interest associated with this publication and there has been no significant financial support for this work that could have influenced its outcome.

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