

Article

# Voluntary Turnover: A Means of Reducing Perceived Job Insecurity? A Propensity Score Matching Procedure Applied on Swiss Data

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Academic Editor: Martin J. Bull

Received: 27 October 2015; Accepted: 22 January 2016; Published: 28 January 2016

**Abstract:** The investigation of job insecurity has been a growing field of research. However, little is known about the strategies employees adopt to reduce job insecurity. Former research has shown that employees who perceive high job insecurity tend to engage in voluntary turnover. Yet, we do not know whether such a strategy is successful in reducing perceived job insecurity. Based on the Swiss Household Panel (SHP), a general population survey in Switzerland, a propensity score matching procedure is applied to investigate whether voluntary turnover successfully reduces feelings of job insecurity for employees who previously perceived an above-average level of job insecurity. Assuming that individual and family conditions are important factors explaining the success of this strategy it is distinguished between men and women with high, equally shared, or low financial responsibilities and of different age and educational groups. The results show that voluntary turnover indeed reduces perceived job insecurity. Whereas the individual factors do not moderate this relationship, the level of financial responsibilities does: employees who equally share financial responsibilities with their partners are most successful in reducing perceived job insecurity through voluntary turnover. The use of a propensity score matching procedure has proven fruitful as the bias caused by differing pre-turnover characteristics can be reduced considerably.

**Keywords:** job insecurity; coping; voluntary turnover; family; Switzerland; Swiss Household Panel; propensity score matching

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## 1. Introduction

Public opinion polls regularly show that people are concerned about their country's economic conditions and fear unemployment [1]. As a consequence of the Great Recession of 2008, unemployment rates as well as feelings of job insecurity have increased in most European countries [2–4]. Even in Switzerland, where unemployment has been quite stable at a comparatively low level [5], fear of unemployment is high [6]. The present study focuses on perceived job insecurity in Switzerland and the employees' strategy of coping with it through voluntary turnover.

Perceiving a job to be insecure is harmful to employees because it decreases feelings of controllability and predictability in one's life [7]. It provokes considerable concern about the continuity of the actual situation and hampers planning for the future [8]. There are often objective causes such as mergers, downsizings, or the implementation of new technologies that cause job insecurity [9]. However, job insecurity also has a subjective dimension [7]. As research shows, the *subjective interpretation of the situation* also entails important adverse outcomes [7,10]. Employees who perceive high job insecurity see a threat to the provision of regular income through their employment [11] and feel powerless to sustain their current employment situation [7,12]. Some authors distinguish between a cognitive and an affective component of subjective job insecurity [13,14]. The first refers to the individual's evaluation of

the likelihood of an undesired change such as job loss [14]. In contrast, the latter refers to the individual's emotional reaction to the perceived likelihood of the undesired change translating into fear and worries about job loss or unemployment [13,14]. The present study focuses on the cognitive component of the subjective dimension: perceived job insecurity conceptualized as the perceived risk of becoming unemployed in the near future.

It is well documented that job insecurity leads to a lowering of physical and mental well-being [7,8,15,16]. Less well documented are the strategies individuals adopt to cope with uncertainty and the ways these depend on individual and contextual factors [17], *i.e.*, the resources and constraints resulting from work- and family-related characteristics [18,19].

This article deals with one strategy for coping with perceived job insecurity, namely voluntary turnover. Few studies have followed up on the effects of voluntary turnover and examined whether employees feel more secure after turnover [20–22]. The present study pursues two aims. First, it investigates whether workers who voluntarily leave a job they perceive as highly insecure subsequently perceive less insecurity with a new employer. The strategy is considered successful if voluntary turnover leads to a decrease of perceived job insecurity in the year following it. Second, the question is answered as to whether the success of the strategy is influenced by individual and family-related contextual factors, *i.e.*, gender, age, educational level, extent of financial responsibility for the family, and experience of economic hardship.

## 2. State of the Art

Research has shown that high subjective job insecurity reduces satisfaction with the job and affects work attitudes [10]. There is a broad consensus that job insecurity enforces turnover *intentions* [10,23,24]. However, it is less clear whether job insecurity also increases the employee's probability of actually experiencing voluntary turnover (see e.g., [25,26]). Cornelißen [26] shows that although job insecurity enforces turnover intentions, the probability of actually experiencing voluntary turnover is not affected. He hypothesizes that if job insecurity is high the opportunities to change are scarce. His study is in line with some research from Adkins, Werbel, and Farh [25] focusing on university employees in times of a major funding crisis. The authors show that employees who perceive high job insecurity are particularly likely to report high turnover intentions and increased job search activities. Yet, they are not more likely than their colleagues who perceive low job insecurity to actually experience voluntary turnover [25]. In contrast to these studies we have demonstrated in our previous research that individuals in dual-earner couples tend to engage in voluntary turnover when they perceive high job insecurity. In order to secure more stable employment for them they choose to change to a new employer [27]. This is in line with Blau [24] and Swaen *et al.* [20] who also found higher probabilities of actual turnover for employees who perceive high levels of job insecurity.

### 2.1. Individual, Work- and Family-Related Factors Influencing Perceived Job Insecurity

The literature shows that the perception of job insecurity is related to a series of individual factors. However, findings are often inconsistent. Whereas some studies find women to perceive higher levels of job insecurity [28,29] others identify men to be more concerned [30]. Regarding age, there are studies that find older employees to perceive particularly high levels of job insecurity [29]. Others describe a middle-aged group, *i.e.*, individuals who are most likely to have children to provide for, to perceive high levels of job insecurity [8,31]. Furthermore, employees with a low educational level and manual workers report higher levels of job insecurity [29,32] as it is also the case for employees in poor health [32]. Although the findings are sometimes contradictory, it becomes apparent that some individuals are more concerned by job insecurity than others: those who have a rather weak position on the labor market generally perceive higher levels of job insecurity. Among other things this is due to their evaluation of their chances to find equivalent employment. Research has for instance shown that low educated, younger and older workers, as well as employees in poor health are less confident to find equivalent

employment in case of job loss [33,34]. According to Anderson and Pontusson [34] these individual factors influence the value of an employee for his/her employer and determine the worker's employability.

Besides these individual characteristics there are also work-related contextual factors that influence the employees' perception of job insecurity. Research shows that employees with a fixed-term contract perceive higher levels of job insecurity compared to permanent employees [8,32]. Feelings of job insecurity also often emerge in times of high unemployment [33] and in the context of restructuring processes, downsizings, mergers, or privatizations which are often followed by mass redundancies [31]. In general, employees working in the private sector perceive higher levels of job insecurity [32]. Yet the perception of job insecurity can also be the result of relational conflicts: particularly victims of workplace bullying fear job loss because they ascribe a high power to their bullies [35,36]. Obviously the current job situation is an important factor explaining the individuals' perception of job insecurity. The less stable and the more threatening the work environment, the higher fear of job loss and perceived job insecurity [34].

Charles and James [37] show also that family-related factors influence the perception of job insecurity. Whereas singles worry moderately about job insecurity, their sense of responsibility and desire for financial stability increases drastically once they have a partner, children, and a house. Though parents would consider scaling down their living standards if it were only for them, they do not consider it an option for their children and so seek a stable financial situation for their family [38]. These studies suggest that employees who have a high level of financial responsibility feel a particularly strong pressure to maintain or regain a high level of job security because they are more sensitive to potential threats as a consequence of their responsibility for other family members. Employees with high financial responsibility have also been identified as having a particularly high preference for secure jobs [39]. Furthermore, individuals who already experience economic hardship tend to perceive higher levels of job insecurity [28].

## 2.2. An Unresolved Question

The literature review gives insight into individual and contextual predictors of job insecurity and has shown that employees who perceive high job insecurity have high turnover intentions [23,25,26] and high probabilities of subsequent voluntary turnover [20,24]. Yet, little is known about the employees' perception of job insecurity after re-employment following voluntary turnover. A few studies show that individuals who engage in voluntary turnover are better off after the change in terms of working life, physical and emotional well-being, work-related attitudes, and job security [20,21]. Yet, we do not know whether all employees, independent of their individual characteristics and their family situation, can reduce their perceived level of job insecurity through voluntary turnover. In what follows, two questions will be addressed: do workers who voluntarily leave their current job experience lower insecurity in subsequent jobs, and if so is this true for all employees independent of individual characteristics (gender, age, and educational level) and the pressures resulting from their level of financial responsibilities and experienced economic hardship? To do so, perceived job insecurity is measured for the former employment before voluntary turnover occurred and after voluntary turnover, *i.e.*, referring to the new employment. This allows assessing changes in perceived job insecurity following voluntary turnover.

## 3. Theoretical Argument

### 3.1. Individual Factors Explaining Job Insecurity

From the literature review, it can be deduced that voluntary turnover is a coping strategy that insecure employees adopt to reduce perceived job insecurity [18,40]. Therefore employees who perceived a high level of job insecurity and experienced voluntary turnover are expected to report lower levels of perceived job insecurity in a new job. The following hypothesis is formulated:

Hypothesis 1: Voluntary turnover reduces perceived job insecurity.

However, in order to be able to engage in voluntary turnover and to reduce perceived job insecurity, employees need to be attractive to employers and competitive for vacant, good quality jobs that provide high job security. Yet it can be assumed that employees differ in their competitive- and attractiveness. Therefore, some groups may succeed in changing employer but will not experience a decrease in perceived levels of job insecurity. This assumption gets support from segmentation theory that assumes a dual labor market which consists of a primary sector that is characterized by good working conditions, career opportunities, high wages, and a high level of social protection [41]. This sector is complemented by a secondary sector characterized by low-skill jobs, poorer working conditions, little or no social protection and thus a high level of job insecurity. Between these two sectors are barriers constraining transitions from the secondary to the primary sector [41,42]. According to this theory, employees with poor working conditions such as a high level of job insecurity, fixed-term contracts, low wages, and little or no coverage by social security are assumed to have difficulties in finding jobs that provide good working conditions [41]. Consequently, employees experiencing high job insecurity may continue to feel insecure even after voluntary turnover. Whether they will succeed in moving to an employer that provides more job security is supposed to be related to their individual characteristics and their employability. Employees who are attractive to other employers may be successful in reducing perceived job insecurity through voluntary turnover even if they perceived high levels of job insecurity with their previous employer.

Research shows that there is some evidence for a dual labor market in Switzerland with women to be somewhat more concerned by the segmenting aspects of the labor market [43,44]. In general, women in Switzerland have weaker positions on the labor market and more often occupy low-paid, atypical, and insecure jobs [45,46]. From this it can be deduced that women are less successful than men in reducing perceived job insecurity through voluntary turnover.

Hypothesis 2: Women are less likely than men to report reduced levels of perceived job insecurity after voluntary turnover.

In addition to gender the employees' age and educational level is believed to matter for the success of voluntary turnover to reduce perceived job insecurity. With regards to age young employees are assumed to have a weak position on the labor market due to incomplete training and little work experience [46]. In contrast, employees in their 30s and 40s usually have a good position due to completed training, considerable experience in their field and high willingness to comply with the employers' expectations because they often have families and therefore high financial responsibilities [47]. Employees in their 50s and 60s face some difficulties. They are not only confronted with the stereotype of being less productive compared to younger employees but they are also more expensive [48]: wages are usually dependent on the number of years of service and the social costs for the employer are also higher. Due to their weaker position on the labor market the younger and the older employees are expected to be less competitive and therefore less likely to change into good quality jobs that provide high levels of job security.

Hypothesis 3: Younger and older employees are less likely than middle-aged employees to report reduced levels of perceived job insecurity after voluntary turnover.

Finally, the employees' educational level influences his/her position on the labor market and the perceived level of job insecurity [49]. Individuals with a medium or a high educational level have a wider spectrum of choice among available jobs since they can also take up a job that requires fewer skills than he or she could offer [29]. Compared to employees with a low educational level, they are more competitive for good quality jobs and therefore they are expected to be more successful in reducing perceived job insecurity through voluntary turnover.

Hypothesis 4: Middle and highly educated employees are more likely than employees with a low educational level to report reduced levels of perceived job insecurity after voluntary turnover.

Along with the educational attainment the individuals' socio-economic position influences, the perception of job insecurity: employees in higher status jobs usually have educational and financial resources that help them improve their situation [29]. Finally, poor health is assumed to increase perceived job insecurity as employees in poor health generally have a reduced productivity and are more often absent from work which weakens their position within an organization [50]. Therefore the individuals' socio-economic position and their health status should be controlled for in the analyses.

### 3.2. Contextual Factors Explaining Job Insecurity

In addition to the individual factors, contextual factors that are assumed to influence perceived job insecurity should be considered. It can be distinguished between work-related and family-related factors. Whereas the former have already received considerable attention (see e.g., [32,34]) much less is known about the latter [17]. Therefore the present paper will focus on the family-related factors. Yet the most important work-related factors known from existing literature will be considered in the empirical section.

A crucial family-related factor is the employee's financial responsibility for the family's economic well-being [38]. It can be distinguished between main breadwinners with the primary responsibility to provide for the family, individuals who equally share financial responsibilities within a couple and secondary earners who contribute some additional income to the breadwinner's earnings and usually have the main responsibility for family work [51,52]. When it comes to work decisions such as turnover, the individuals' work and family roles come into play. Greenhaus and Powell [53] assume that individuals with high financial responsibilities will take decisions that secure or even increase the family's financial resources whereas individuals with a predominant role as a carer will take decisions that favor family work and assure child care. As a consequence employees with high financial responsibilities are assumed to have high preferences for jobs that provide high job security [30,54,55] and therefore to be particularly likely to decrease perceived job insecurity in case of voluntary turnover. In addition, turnover is not only a chance to improve working conditions but is also a risky decision since the chance of a deterioration in working conditions is high as usually little is known about the future work place [56]. Therefore, it can be expected that individuals with high financial responsibilities will not engage in voluntary turnover unless they feel confident of increasing their job security.

Hypothesis 5: Individuals with high financial responsibilities are more likely than employees with equally shared or low financial responsibilities to report reduced levels of perceived job insecurity after voluntary turnover.

Furthermore, married employees are expected to perceive lower levels of job insecurity due to their lower dependency on the job as their partner can provide for and support them [29]. In contrast, the presence of children in the family increases dependency on the job [29]. In a qualitative study, parents declared that they would scale down their own standard of living but that they did not want to impose this on their children [38]. From this it can be deduced that children act as an incentive for their parents to increase the economic well-being of the family and decrease job insecurity. In addition, families who already face economic hardship are more vulnerable to job loss because they do not have financial reserves to fall back on. Without such reserves, dependency on the job and fear of unemployment are high [28]. DiPrete and McManus [57] identified turnover to be one of the most effective means to push families out of economic hardship. Therefore, employees who already face economic hardship may be more likely to experience voluntary turnover. However, economic hardship could also be the consequence of an employee's weak position on the labor market (e.g., [58]). Consequently, it can be expected that employees who experience economic hardship are indeed more likely to experience voluntary turnover but less likely to reduce job insecurity through turnover.

Hypothesis 6: Individuals who experience high economic hardship are less likely than employees with low economic hardship to report reduced levels of perceived job insecurity after voluntary turnover.

## 4. Data and Analyses

### 4.1. Sample

The present research is based on data from the Swiss Household Panel (SHP). The SHP is a longitudinal household survey which aims to assess living conditions and to observe social change in Switzerland. It covers a multitude of topics such as employment, health, housing, and division of work.

Funded by the Swiss National Science Foundation, it started in 1999 with 7799 individuals in 5074 households interviewed in the first wave. All members of the households of 14 years of age or more are interviewed annually by computer-assisted telephone interview. In 2004 and 2013 a refreshment sample was drawn by the Swiss Federal Statistical Office (2004: 3654 participating individuals in 2538 households; 2013: 6090 individuals in 3989 households).

For the analysis, the years 2004 to 2014 from the original and the first refreshment sample<sup>1</sup> are used. The sample is restricted to individuals with valid information about all the variables included in the analysis. Concerning turnover, the respondents were asked the following question: "Since [month, year], have you changed jobs or employers?" Individuals who indicated that they changed employers or both jobs and employers, were considered changers, those who only changed jobs but remained with their current employer or changed neither jobs nor employers were considered stayers. Then the respondents were asked why they changed jobs and/or employers. These reasons were classified according to the existing literature. Turnover was considered involuntary when the individual reported one of the following reasons: end of a temporary contract, closure of their own or a family business, dismissal [59]. Amongst the individuals who voluntarily changed their employer, 48% did it in the first instance simply to take up a better job, 4% indicated family reasons (care for children or follow the partner), and 48% indicated other reasons that were not further specified. In order not to confound employees who experienced involuntary turnover with those who experienced voluntary or no turnover involuntary changers were excluded from the analyses.

The sample is further restricted to individuals of 18 years of age or more, but younger than the official age of retirement which is at 64 for women and 65 for men. Individuals younger than 25, in formal education, and living with at least one parent were excluded from the analyses as young individuals who are taken care of by their parents should be ruled out here. For the analysis, all years were pooled which means that each individual could have up to 11 time points of observation and could therefore potentially experience repeated voluntary turnover. Yet, in order to be able to assess changes in the level of perceived job insecurity before and after voluntary turnover, all individuals had to have participated in at least two consecutive waves (time point  $t_{-1}$  and  $t_0$ ) and needed to be in paid work at each time point. If voluntary turnover occurred between  $t_{-1}$  and  $t_0$  it was assessed at  $t_0$ . To assure that the independent variables refer to periods before turnover lagged information ( $t_{-1}$ ) is used for all the independent variables.

The focus of the present study is on voluntary turnover as a strategy to reduce perceived job insecurity. Yet the SHP does not allow assessing the exact reason for voluntary turnover. Therefore, the sample was restricted to individuals who perceived an above-average level of job insecurity at time  $t_{-1}$  (i.e.,  $>2$  on the scale from 0 to 10, 0 meaning no job insecurity). This allows focusing on employees who were actually in need of a strategy to cope with job insecurity.

The final sample over the eleven years of observation consisted of 1551 women with 3728 observations and 1501 men with 3990 observations. For descriptive statistics see Table 1 below.

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<sup>1</sup> Before 2004 not all variables of interest were available. The second refreshment sample could not be used since this subsample filled in a life calendar in the first wave and therefore the requested variables are not yet available.

**Table 1.** Descriptive statistics before PSM is applied, based on observations and separated by employees without and with voluntary turnover. Data is not weighted.

Variables	Scale	Without Turnover M(SD)/% <sup>a</sup>	With Voluntary Turnover M(SD)/%
<i>Work-related contextual factors at t<sub>-1</sub></i>			
Job insecurity (0 = low; 10 = high)	0–10	4.8 (1.7)	5.5 (2.2)
Type of contract			
Permanent contract	0/1	85.1	74.2
Fixed-term contract	0/1	7.3	18.4
Unknown	0/1	7.6	7.4
Restructuring of company			
No ongoing restructuring	0/1	55.4	56.2
Ongoing restructuring	0/1	41.9	41.0
Unknown	0/1	2.7	2.8
Private sector	0/1	73.9	77.8
Regional unemployment rate	2.3–7.0	4.2 (1.1)	4.2 (1.0)
Working atmosphere (10 = completely satisfied)	0–10	8.1 (1.5)	7.6 (1.9)
Job satisfaction (10 = completely satisfied)	0–10	7.6 (1.4)	7.0 (1.8)
Work status (1 = self-employed/business owner)	0/1	13.1	9.7
On probation	0/1	0	28.9
<i>Family-related contextual factors at t<sub>-1</sub></i>			
With minor child (0 = no; 1 = yes)	0/1	41.0	34.5
Married (0 = no; 1 = yes)	0/1	56.8	37.9
Economic hardship (0 = low; 10 = high)	0–10	2.9 (2.0)	3.2 (2.3)
Financial responsibility			
Main breadwinner	0/1	62.3	66.7
Equal earner	0/1	15.7	14.4
Secondary earner	0/1	22.0	18.9
<i>Individual factors at t<sub>-1</sub></i>			
Gender (1 = male)	0/1	51.7	51.5
Age group			
Young workers (18–25 years)	0/1	6.2	22.1
Middle-aged workers (26–49 years)	0/1	65.1	67.4
Older workers (50–65 years)	0/1	28.7	10.5
Educational level			
Low educational level	0/1	8.5	8.5
Medium educational level	0/1	50.6	48.9
High educational level	0/1	40.9	42.6
ESEC European socio-economic classification			
1 Large employers, high managers/professionals	0/1	19.4	20.2
2 Lower managers/professionals, higher supervisors/technicians	0/1	22.8	22.6
3 Intermediate occupations	0/1	21.7	21.5
4 Small employer and self-employed (non-agriculture)	0/1	3.3	1.7
5 Small employer and self-employed (agriculture)	0/1	0.5	0.4
6 Lower supervisors and technicians	0/1	2.8	1.7
7 Lower sales, services and clericals	0/1	12.3	12.3
8 Lower technical occupations	0/1	8.6	10.2
9 Routine occupations	0/1	7.6	8.1
10 unknown	0/1	1.0	1.3
Poor health	0/1	14.4	12.0
Observations		6945	773

<sup>a</sup> For continuous variables, means and standard deviations are reported; for dummy variables the share of category 1 is reported.

#### 4.2. Measures

**Perceived job insecurity:** Job insecurity was measured on an 11-point scale: “How do you evaluate the risk of becoming personally unemployed in the next 12 months, if 0 means ‘no risk at all’ and 10 ‘a real risk’?”

**Voluntary turnover:** Changers who reported voluntary turnover as described in Section 4.1. were coded 1, stayers were coded 0.

**Age groups and gender:** Participants are subsumed in three age groups. Young employees are between 18 and 25 years old; middle-aged employees are between 26 and 49 and older employees are 50 years of age or more. Furthermore, gender was included with men coded 1.

**Educational level:** In accordance with the Federal Statistical Office we distinguish between low (lower secondary level), medium (upper secondary level) and high (tertiary) educational level [60].

**Socio-economic position:** To assess the employee’s socio-economic position the European socio-economic classification ESEC is used which is based on the International Standard Classification of Occupations (ISCO), the individual’s status as an employee, employer, or self-employed, supervisory tasks and firm size [61]. As for some respondents the ESEC could not be constructed, an additional residual group was added with an unknown ESEC coded 10. As the sample only consists of a low number of small employers and self-employed in agriculture, the regression coefficients would be inaccurate. Therefore, these individuals (category 5) were assigned to the residual group.

**Poor health:** Employees who responded that they felt “well” or “very well” were coded 0 (in good health); otherwise they were coded 1 for poor health (“so, so”, “not very well” or “not well at all”).

**Type of contract:** It can be distinguished between employees with a permanent, fixed-term, or unknown type of contract.

**Ongoing restructuring processes:** Ongoing restructuring processes in the employee’s organization were assessed with a question asking whether the employing organization is currently undergoing restructuring, reorganization, or privatization. Due to the filtering of the questionnaire not all employees reported whether the company was undergoing restructuring. Therefore an additional category “unknown” was coded.

**Sector:** Employees working in a public organization were coded 0 and those working in a private organization were coded 1.

**Regional unemployment rate:** To control for the regional unemployment rate, annual unemployment rates of the major regions of Switzerland (Lake Geneva, Mittelland, Northwestern Switzerland, Zurich, Eastern Switzerland, Central Switzerland and Ticino) provided by the Swiss Federal Statistical Office were introduced. As such, the unemployment rate of the individual’s region of residence was added for each year.

**Working atmosphere and job satisfaction:** Working atmosphere and job satisfaction were assessed with the following question: “On a scale from 0 ‘not at all satisfied’ to 10 ‘completely satisfied’ can you indicate your degree of satisfaction for each of the following points?” For the working atmosphere it was followed by: “The atmosphere between you and your work colleagues.” For job satisfaction it was followed by: “Your job in general”.

**Work status:** Employed individuals were coded 0, self-employed and business owners were coded 1.

**Probation:** Employees who joined their current employer less than three month ago were coded 1 and considered on probation.

**Minor children:** Employees with minor children were coded 1. Individuals who did not cohabit with their children but have to pay alimony for their children outside of the household were considered as belonging to the group with minor children.

**Marital status:** Employees were coded 1 if they were married and 0 otherwise.

**Economic hardship:** Economic hardship was measured on a scale from 0 to 10. The question was formulated as follows: “How do you manage on your household’s current income, 0 means ‘with great

difficulty' and 10 'very easily'?" The variable was recoded with a high value indicating a high level of economic hardship.

**Financial responsibilities:** It can be distinguished between individuals with high financial responsibilities (main breadwinners), individuals with equally shared responsibilities (equal earners), and individuals with low financial responsibilities (secondary earners). In order to deal with missing values imputed income variables that are made available by the SHP researchers were used [62]. The level of financial responsibilities was assessed as follows: individuals without a cohabiting partner or a partner who was not in paid work were considered main breadwinners by definition. If individuals lived with an employed partner, the income of both partners was considered and the share of total income was calculated. Individuals with a share of income of 60% or more were considered the main breadwinners and individuals with a share of 40% or less were classified as secondary earners. If the share of total income was higher than 40% and lower than 60%, financial responsibilities were considered to be equally shared.

In order to control for period effects, year-dummies were included.

### 4.3. Methods

A Propensity Score Matching (PSM) procedure developed by Rosenbaum and Rubin [63] was applied to estimate causal treatment effects. Voluntary turnover is considered to be an observable treatment that allows for the estimation of the effect of voluntary turnover on perceived job insecurity. Yet, as voluntary turnover is not randomly distributed in the working population, a mere focus on the changers and stayers may cause a selection bias<sup>2</sup>.

In fact, we are interested in the question of what would have happened to the changers if they would not have experienced voluntary turnover (counterfactual outcome)<sup>3</sup>. As it is not possible to observe both outcomes on the same individual at the same time, we approximate the counterfactual outcome by the mean values of stayers. To do this a control group is created among the stayers that is as similar as possible to the changers with the main difference that they did not experience voluntary turnover. To evaluate the amount of similarity between individuals, propensity scores are estimated, *i.e.*, the probability of voluntary turnover given observed X variables. The X variables that are included in the model are gathered from the existing turnover literature (see e.g., [65,66]) and widely correspond to the variables included in the OLS regression that follows the propensity score matching.

The PSM procedure starts with the estimation of the propensity scores by applying a logistic regression with voluntary turnover as the dependent variable. In a second step, different matching procedures such as the nearest neighbor, caliper, radius, kernel, and local linear regression algorithms are tested (for a comprehensive introduction see Caliendo and Kopeinig [67]). Usually, only the observations on the common support (intersection of propensity scores of stayers and changers) are retained [68]. On the basis of the propensity score matching the so-called *average treatment effect on the treated (ATT)* can be estimated, *i.e.*, the effect of treatment  $T = 1$  (voluntary turnover) on perceived job insecurity for changers [67]:

$$eff_{ATT} = E(eff|T = 1) = E[Y(1)|T = 1] - E[Y(0)|T = 1],$$

with  $E[Y(1)|T = 1]$  as the observed effect for those experiencing voluntary turnover and  $E[Y(0)|T = 1]$  as the unobserved counterfactual for those experiencing voluntary turnover.  $Y(1)$  denotes the level of perceived job insecurity for individuals who experienced voluntary turnover and  $Y(0)$  for those who did not.

<sup>2</sup> In addition, the phenomenon known as *regression to the mean* may become apparent. Observations that are on the extremes of a scale will have a tendency to move towards the mean as there are fewer possibilities to move towards the end of the scale [64]. However the PSM can deal with this issue as the treatment and the control groups are similar on the pre-treatment characteristics. As a consequence they also have the same tendency to the mean. Therefore, differences between the treatment and the control group reflect the real effect caused by the treatment.

<sup>3</sup> Here it is not possible to draw any conclusions about employees who experienced *involuntary* turnover. Yet, as the pre-treatment characteristics are controlled for through the propensity score matching, the exclusion of involuntary changers does not induce a bias.

In a third step, an OLS regression is applied on the matched sample in order to estimate the propensity score matching estimator ( $eff_{ATT}^{PSM}$ ), i.e., the effect of voluntary turnover on perceived job insecurity when controlling for the characteristics that are assumed to influence the perception of job insecurity  $P(X)$  [67]:

$$eff_{ATT}^{PSM} = E_{P(X)|T=1} (E [Y (1)|T = 1, P (X)] - E [Y (0)|T = 0, P (X)])$$

As we are mainly interested in changes of perceived job insecurity, the *difference* of job insecurity between  $t_0$  and  $t_{-1}$  is used as the dependent variable. To take account of time, lagged information was used for the independent variables ( $t_{-1}$ ). Furthermore, individual cross-sectional weights for each year were used to correct for attrition biases and as a means of increasing representativeness of the sample. In order to counter correlated error terms within individuals robust standard errors are estimated [69].

As it has been hypothesized that the success of the strategy of voluntary turnover to reduce perceived job insecurity depends on individual and family-related characteristics, interaction terms are included to test for possible moderating effects. The interaction terms are obtained by multiplying the variable *voluntary turnover* with the variables of interest (gender, age groups, educational level, amount of financial responsibility, and experience of economic hardship).

The ATT and the OLS regression models are finally based on the matched sample obtained by the kernel matching algorithm. The kernel algorithm revealed to be the one that was most efficient in balancing pre-treatment characteristics. In addition, the kernel algorithm takes into account a high share of available information since several observations in the non-treatment group can be matched with the observations in the treatment group. With this algorithm, the matches in the control group are weighted according to their closeness to the treatment observations [68].

## 5. Results

Although Pseudo  $R^2$  of 0.122 is relatively low, the matching procedure performed well in that it reduces the bias for most of the variables included in the model (see also Tables A1 and A2 in the Appendix). Although the bias increased for some variables, the difference between the treatment (with voluntary turnover) and the control group (without voluntary turnover) remains statistically insignificant. Yet, for some variables, the differences between the treatment and the control group remain statistically significant. One observation was excluded from the analyses as it was off the common support.

Table 2 shows that employees who experienced voluntary turnover between  $t_{-1}$  and  $t_0$  report a *decrease* of perceived job insecurity of 2.32 units. Employees in the control group, i.e., not experiencing voluntary turnover, report a smaller decrease of 1.27 units before the matching is applied. After the matching the two groups are more similar on the pre-treatment variables and as a consequence the means in changes of perceived job insecurity are also more similar with  $-1.57$  units for stayers. From this we can conclude that the propensity score matching indeed is a fruitful procedure to estimate changes in perceived job insecurity resulting from voluntary turnover that are obviously overstated when the matching procedure is not applied.

**Table 2.** Mean of changes in perceived job insecurity before and after matching.

Sample	Treated	Controls	Standard Error	T-Statistic
Unmatched	-2.32	-1.27	0.10	-10.19
ATT	-2.32	-1.57	0.13	-5.99

As we are interested in the ATT when controlling for the other relevant variables for the prediction of changes in perceived job insecurity, multiple OLS regressions are run on the matched sample. Model 1 in Table 3 shows that, with an ATT of  $-0.580$ , voluntary turnover significantly reduces perceived job insecurity. Therefore Hypothesis 1 that expected changers who perceived an above-average level of job insecurity to report lower levels of perceived job insecurity after voluntary turnover can be maintained.

**Table 3.** OLS regression predicting changes in perceived job insecurity (negative values indicating a decrease); weighted sample matched on propensity scores.

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	Coefficient	S.E.										
<i>Work-related factors at t<sub>-1</sub></i>												
Voluntary turnover <sup>a</sup> (between t <sub>-1</sub> and t <sub>0</sub> )	-0.580 **	(0.190)	-0.733 **	(0.255)	-0.552 *	(0.228)	0.076	(0.508)	-0.489 *	(0.219)	-1.063 ***	(0.289)
Fixed-term contract	-1.178 ***	(0.247)	-1.188 ***	(0.248)	-1.177 ***	(0.247)	-1.146 ***	(0.247)	-1.174 ***	(0.248)	-1.153 ***	(0.245)
Unknown type of contract	-1.481 ***	(0.415)	-1.465 ***	(0.411)	-1.471 ***	(0.416)	-1.479 ***	(0.418)	-1.506 ***	(0.414)	-1.487 ***	(0.421)
Ongoing reorganization	-0.379 *	(0.183)	-0.382 *	(0.183)	-0.380 *	(0.183)	-0.393 *	(0.185)	-0.375 *	(0.182)	-0.407 *	(0.181)
Unknown reorganization	-0.445	(0.416)	-0.460	(0.412)	-0.452	(0.417)	-0.442	(0.421)	-0.445	(0.413)	-0.447	(0.416)
Private sector	0.220	(0.185)	0.215	(0.185)	0.222	(0.185)	0.224	(0.184)	0.211	(0.185)	0.211	(0.185)
Regional unemployment rates	0.141	(0.084)	0.142	(0.084)	0.142	(0.085)	0.137	(0.085)	0.142	(0.084)	0.133	(0.083)
Work atmosphere	-0.014	(0.057)	-0.016	(0.057)	-0.016	(0.057)	-0.009	(0.056)	-0.014	(0.056)	-0.014	(0.056)
Job satisfaction	0.123 *	(0.055)	0.124 *	(0.056)	0.124 *	(0.055)	0.116 *	(0.056)	0.121 *	(0.055)	0.115 *	(0.055)
Work status	0.244	(0.303)	0.244	(0.302)	0.241	(0.302)	0.246	(0.304)	0.275	(0.301)	0.267	(0.304)
On probation at t <sub>0</sub>	0.168	(0.286)	0.167	(0.286)	0.168	(0.286)	0.170	(0.287)	0.178	(0.287)	0.177	(0.285)
<i>Family-related factors at t<sub>-1</sub></i>												
Child	-0.497 *	(0.204)	-0.496 *	(0.204)	-0.493 *	(0.203)	-0.514 *	(0.204)	-0.525 **	(0.203)	-0.517 *	(0.206)
Married	0.377	(0.204)	0.374	(0.204)	0.373	(0.202)	0.386	(0.203)	0.379	(0.202)	0.396	(0.204)
Economic hardship	0.065	(0.048)	0.063	(0.048)	0.066	(0.047)	0.067	(0.047)	0.064	(0.047)	-0.016	(0.033)
Equal earner	-0.263	(0.208)	-0.264	(0.209)	-0.263	(0.208)	-0.270	(0.208)	0.165	(0.159)	-0.260	(0.210)
Secondary earner	0.220	(0.258)	0.219	(0.259)	0.219	(0.258)	0.200	(0.257)	0.143	(0.257)	0.207	(0.257)
<i>Individual factors at t<sub>-1</sub></i>												
Male	0.475 **	(0.177)	0.345 *	(0.175)	0.473 **	(0.176)	0.471 **	(0.177)	0.473 **	(0.177)	0.449 *	(0.178)
Young workers (18–25)	-0.153	(0.232)	-0.150	(0.233)	-0.179	(0.257)	-0.173	(0.235)	-0.169	(0.233)	-0.163	(0.233)
Older workers (50–65)	-0.359	(0.199)	-0.358	(0.200)	-0.221	(0.146)	-0.347	(0.199)	-0.364	(0.199)	-0.382	(0.203)
Medium educational level	0.100	(0.282)	0.094	(0.282)	0.109	(0.282)	0.486	(0.250)	0.099	(0.277)	0.088	(0.278)
High educational level	0.184	(0.303)	0.183	(0.304)	0.195	(0.303)	0.515	(0.289)	0.190	(0.300)	0.176	(0.301)
ESEC cat. 1	-0.003	(0.240)	0.000	(0.239)	-0.007	(0.240)	-0.018	(0.239)	-0.008	(0.239)	-0.006	(0.237)
ESEC cat. 3	-0.130	(0.277)	-0.121	(0.275)	-0.134	(0.277)	-0.141	(0.277)	-0.141	(0.275)	-0.125	(0.273)
ESEC cat. 4	0.085	(0.497)	0.085	(0.494)	0.086	(0.502)	0.071	(0.493)	0.066	(0.491)	0.117	(0.492)
ESEC cat. 6	-0.655	(0.419)	-0.654	(0.420)	-0.656	(0.424)	-0.667	(0.422)	-0.648	(0.411)	-0.635	(0.419)
ESEC cat. 7	0.282	(0.313)	0.294	(0.311)	0.283	(0.312)	0.269	(0.309)	0.269	(0.310)	0.306	(0.307)
ESEC cat. 8	-0.476	(0.339)	-0.475	(0.339)	-0.482	(0.340)	-0.482	(0.340)	-0.472	(0.339)	-0.456	(0.332)
ESEC cat. 9	-0.180	(0.390)	-0.178	(0.390)	-0.191	(0.388)	-0.200	(0.391)	-0.163	(0.388)	-0.155	(0.385)
ESEC cat. 10	-0.124	(0.501)	-0.132	(0.506)	-0.117	(0.503)	-0.131	(0.501)	-0.111	(0.506)	-0.136	(0.490)
Poor health	-0.110	(0.229)	-0.115	(0.229)	-0.109	(0.228)	-0.113	(0.229)	-0.101	(0.228)	-0.123	(0.231)

Table 3. Cont.

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	Coefficient	S.E.										
<i>Interaction terms</i>												
Turnover x male			0.267	(0.311)								
Turnover x young workers					0.046	(0.383)						
Turnover x older workers					−0.380	(0.438)						
Turnover x medium education							−0.784	(0.550)				
Turnover x high education							−0.679	(0.564)				
Turnover x equal earner									−0.924 *	(0.399)		
Turnover x secondary earner									0.174	(0.458)		
Turnover x economic hardship											0.143	(0.082)
Year-dummies	controlled											
Constant	−3.502 ***	(0.832)	−3.401 ***	(0.818)	−3.507 ***	(0.841)	−3.774 ***	(0.801)	−3.507 ***	(0.831)	−3.126 ***	(0.800)
Observations	7591		7591		7591		7591		7591		7591	
R-squared	0.080		0.080		0.080		0.081		0.082		0.082	

Note: Robust standard errors are reported in parentheses. \*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$ ; <sup>a</sup> Reference categories are: no turnover, permanent contract, no ongoing reorganization, public sector, employed (not self-employed/business owner), not currently on probation, no child, not married, main breadwinner, female, middle-aged workers (26–49 years), low educational level, ESEC cat. 2 (lower managers/professionals and higher supervisors/technicians), good health.

To test Hypothesis 2, assuming women to be less likely than men to report reduced job insecurity after voluntary turnover, an interaction term is included in Model 2 in Table 3. As the interaction term is not statistically significant, Hypothesis 2 is rejected.

Hypothesis 3 was tested by means of two interaction terms: one for young and one for older employees experiencing voluntary turnover. As neither of them is significant (see Model 3 in Table 3) Hypothesis 3 that expected young and older employees to be less likely than middle-aged employees to successfully reduce perceived job insecurity when experiencing voluntary turnover is also rejected.

Furthermore, an interaction term is included for both medium and highly educated changers. The coefficients for the interaction terms are relatively high and the direct effect of voluntary turnover which now refers to the employees with low educational level is close to 0. However, the interaction terms are statistically insignificant (see Model 4 in Table 3). This leads to a rejection of Hypothesis 4 that assumed employees with medium and high educational levels to be more successful in reducing perceived job insecurity when experiencing voluntary turnover compared to low educated employees.

Model 5 in Table 3 shows that the level of financial responsibility plays a significant role for the reduction of perceived job insecurity when experiencing voluntary turnover: the interaction term for changers with equally shared financial responsibilities is negative and statistically significant. This means that employees who share financial responsibilities equally with their partners are most successful in reducing perceived job insecurity through voluntary turnover. However, the observed effect is not consistent with Hypothesis 5 that expected main breadwinners to be more successful. Therefore, Hypothesis 5 is rejected. An explanation for equal earners to be most successful in reducing perceived job insecurity through voluntary turnover may be found in the composition of this group. Specifically, it becomes apparent that in this group women, on average, have a higher educational level than women in the other groups. Whereas only 33% of female main breadwinners and 31% of female secondary earners have a high educational level this share is of 55% for female equal earners. For men, the distribution of the educational level is more equal amongst main breadwinners, equal and secondary earners (the average educational level being highest amongst secondary earners). The high share of female equal earners with a high educational level may explain the result. These unexpected findings will be discussed in more detail in the discussion section.

Finally, an interaction term for voluntary turnover and economic hardship is included in Model 6 in Table 3 to test Hypothesis 6 expecting individuals who experience economic hardship to be less likely to report reduced levels of job insecurity after voluntary turnover. The interaction term is positive but not statistically significant on the 5%-level ( $p = 0.082$ ). Yet, attention should be drawn to the main effect of voluntary turnover which now refers to changers who reported no economic hardship before turnover. It has nearly doubled in size when compared to the model without interaction terms. Although the interaction term is not statistically significant, there is a tendency towards changers without economic hardship to be particularly likely to reduce perceived job insecurity when experiencing voluntary turnover.

Furthermore, Table 3 reveals that individual as well as work- and family-related factors explain changes in perceived job insecurity. In comparison to permanent employees, those with a fixed-term contract or an unknown type of contract tend to experience a decrease of perceived job insecurity. Also, employees working for a company that is currently undergoing some form of reorganization tend to experience a decrease in perceived job insecurity. Furthermore, men and employees who report high levels of job satisfaction experience increases in perceived job insecurity. Concerning the other family-related factors, only children turned out to induce changes in the perception of job insecurity: employees with children tend to report decreasing levels of perceived job insecurity<sup>4</sup>. Marital status

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<sup>4</sup> In order to rule out that the presence of minor children influences the effect of voluntary turnover on perceived job insecurity, an interaction term for voluntary turnover and the presence of minor children was included. It is not statistically significant and as this model does not allow further conclusions it is not reported here.

does not lead to changes in perceived levels of job insecurity. As the focus of the present study is on the family-related factors, these results will be discussed in more detail in the next section.

## 6. Discussion

The present study first addressed the question of whether voluntary turnover is a successful strategy for reducing perceived job insecurity. To answer this question, employees who perceived an above-average level of job insecurity are considered. Employees who experienced voluntary turnover were compared to a control group of employees who stayed with their current employer. Furthermore, this study investigated whether the success of the strategy of voluntary turnover depends on individual and family-related factors. Some employees (women, younger and older employees, and employees with a low educational level) were assumed to have a weaker position on the labor market and therefore to be less likely to find more job security with another employer. It has been hypothesized that employees with high financial responsibilities are less ready to take risks and more careful when taking career decisions such as turnover. Therefore, they were expected to be more likely to reduce perceived job insecurity through voluntary turnover. As most of the studies dealing with job insecurity focus on individual and work-related factors, the present study makes some new contributions to the state of knowledge by taking into account the family context of the employees. For reasons of self-selection into voluntary turnover, a propensity score matching procedure was applied with the aim to control for characteristics that predict voluntary turnover. This approach proved useful as it reduced the selection bias and controlled for pre-treatment characteristics. Three main findings can be highlighted.

First, the present study could demonstrate that employees who perceive an above-average level of job insecurity, and subsequently experience voluntary turnover, perceive a reduced level of job insecurity after turnover. This result is in line with some studies that have been conducted in the Netherlands showing that turnover translates into an increase in quality of working life and work-related attitudes as well as decreasing levels of job insecurity [20,21].

Second, the present study demonstrates that although the Swiss labor market shows some evidence of segmentation [43,44], all employees who perceive high levels of job insecurity have the chance to reduce job insecurity through voluntary turnover. It has been hypothesized that employees who are generally attractive to employers and supposed to be little constrained by barriers between segments of the labor markets such as highly educated, middle-aged men [42,47] will report lower levels of perceived job insecurity after voluntary turnover. Yet, individual factors such as gender, age, and educational level do not influence the success of voluntary turnover to reduce perceived job insecurity.

Third, the family context influences the perception of job insecurity and to some degree it matters for the success of voluntary turnover to reduce perceived job insecurity. In general, employees who have at least one minor child to provide for tend to report decreasing levels of job insecurity. From this it can be deduced that children are an incentive for employees to reduce perceived job insecurity. However, the presence of minor children does not moderate the relationship between voluntary turnover and changes in perceived job insecurity. The parents' decreasing levels of job insecurity may therefore be the result of other strategies than voluntary turnover. Therefore, future research should explore other strategies to deal with high job insecurity such as for instance investment in human capital or affiliation to a trade union [17,70]. The present study shows that employees who experience high economic hardship are more likely to engage in voluntary turnover (see Table A1). This result can be interpreted as evidence for economic hardship functioning as an incentive to change the current situation. This is in line with previous research showing that turnover is a means to improve the financial situation of the family [57]. However, employees who experience high economic hardship do not significantly differ in their subsequent perception of job insecurity from employees with low economic hardship. Yet a tendency becomes apparent for employees who do not experience economic hardship to be more successful in reducing perceived job insecurity through turnover. As it has been

hypothesized, economic hardship may be the result of an employee's weak position on the labor market. The pressure resulting from economic hardship may increase the employee's chances to succeed in changing jobs as has been discussed in the literature [57], but his/her chances to be stuck in jobs that provide little job security are also high.

Furthermore, the present study shows that the level of an employee's financial responsibility matters for the reduction of perceived job insecurity through voluntary turnover, employees who equally share financial responsibilities within their couple being most successful. Yet the findings are unexpected as main breadwinners were expected to be most likely to be successful in reducing perceived job insecurity through voluntary turnover. For these unexpected results, two possible explanations can be put forward. First, dual-earner couples in Switzerland usually depend on both incomes and therefore the pressures resulting from financial responsibilities may also be high in couples who share these responsibilities equally [71]. Additionally, women who equally share financial responsibilities with their spouses differ from female main breadwinners and female secondary earners. For instance, they have a higher average educational level. As a consequence, equal earners may have better labor market prospects [34] and may therefore be more likely to reduce perceived job insecurity through voluntary turnover. Future research should shed light on these novel results.

The present study has some shortcomings: first, a single-item measure was used to assess perceived job insecurity. Therefore, it is not possible to consider different facets of the construct. Yet, Wanous, Reichers, and Hudy [72] have demonstrated that single-item measures are an acceptable alternative if time constraints do not allow the use of multi-item measures. Second, although the methodological approach has proven to be fruitful for the estimation of the effect of voluntary turnover on changes in perceived job insecurity, Pseudo  $R^2$  for the estimation of the propensity scores is relatively low and the reduction of the bias is moderate for some variables. Third, due to the research design of the present study, some employees could not be considered: employees who experience involuntary turnover as well as employees who experience an extended period of unemployment that persists at the time of the second observation. Future research should address these issues.

From the present study, some practical implications can be deduced. With the aim to increase their employees' performance and compliance some employers tend to foster a climate of insecurity [73,74]. In order to avoid dismissal, employees are supposed to be particularly willing to comply with their employer's expectations. Yet research only shows little evidence for this supposition [23,75]. Rather employees who perceive high levels of job insecurity tend to leave the organization. The present study shows that they are right to do so as the chances are high that these employees will feel more secure after voluntary turnover. On the one hand, it is advisable for employers to promote a climate of security and stability. On the other hand, employees who perceive high levels of job insecurity are well advised to seek job security with another employer as chances are high to reduce job insecurity through turnover.

## 7. Conclusions

The literature has shown that feelings of job insecurity influence the physical and mental well-being of the concerned employees and also their work attitudes. Nonetheless we still know little about how the situation of employees evolves over time and who successfully copes with perceived job insecurity. The present study makes an important contribution in that it shows that employees can actively change their detrimental situation and increase job security through voluntary turnover. It has also proven important to consider the family situation of the employees in order to identify constraints and facilitations resulting from it. Future research should put more emphasis on the strategies individuals and families adopt to cope with insecure work.

**Acknowledgments:** This study has been realized using the data collected by the Swiss Household Panel (SHP), which is based at the Swiss Centre of Expertise in the Social Sciences FORS. The project is financed by the Swiss National Science Foundation. Special thanks go to Monica Budowski and the participants and experts from the doctoral program *Prowel: Social Problems and Welfare* for their valuable advice.

**Conflicts of Interest:** The author declares no conflict of interest.

## Appendix

**Table A1.** Logistic regression estimating the propensity scores for voluntary turnover. Odds ratios are reported, data not weighted.

	O.R.	S.E.
<i>Work-related factors at t<sub>-1</sub></i>		
Perceived job insecurity <sup>a</sup>	1.204 ***	(0.025)
Fixed-term contract	1.780 ***	(0.224)
Unknown type of contract	1.359	(0.278)
Ongoing reorganization	0.764 **	(0.067)
Unknown reorganization	0.990	(0.216)
Private sector	1.526 ***	(0.159)
Regional unemployment rates	0.880 **	(0.035)
Work atmosphere	0.892 ***	(0.022)
Job satisfaction	0.850 ***	(0.023)
Work status	0.713 *	(0.122)
<i>Family-related factors at t<sub>-1</sub></i>		
Child	0.931	(0.099)
Married	0.651 ***	(0.071)
Economic hardship	1.072 ***	(0.022)
Equal earner	1.069	(0.127)
Secondary earner	1.294 *	(0.170)
<i>Individual factors at t<sub>-1</sub></i>		
Male	1.121	(0.110)
Young workers (18–25 years)	2.947 ***	(0.380)
Older workers (50–65 years)	0.384 ***	(0.051)
Medium educational level	1.400 *	(0.222)
High educational level	1.766 ***	(0.305)
ESEC cat. 1	1.001	(0.124)
ESEC cat. 3	0.897	(0.111)
ESEC cat. 4	0.642	(0.222)
ESEC cat. 6	0.553	(0.176)
ESEC cat. 7	0.821	(0.123)
ESEC cat. 8	0.730	(0.122)
ESEC cat. 9	0.786	(0.138)
ESEC cat. 10	0.977	(0.320)
Poor health	0.861	(0.104)
Year-dummies	controlled	
Constant	0.291 **	(0.121)
Observations	7718	
Pseudo R <sup>2</sup>	0.122	

Notes: Standard errors are reported in parentheses; \*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$ ; <sup>a</sup> Reference categories are: no turnover, permanent contract, no ongoing reorganization, public sector, employed (not self-employed/business owner), no child, not married, main breadwinner, female, middle-aged workers (26–49 years), low educational level, ESEC cat. 2 (lower managers/professionals and higher supervisors/technicians), good health.

**Table A2.** Means of predictor variables for voluntary turnover measured before and after matching; bias reduction and t-statistics.

Variable at Time $t_{-1}$	Mean Treated	Mean Control (Before)	Mean Matched (After)	Bias Reduction <sup>a</sup>	t-Statistic	$p >  t $
Perceived job insecurity	5.53	4.83	5.32	70.2	1.98	0.048
Fixed-term contract	0.18	0.07	0.15	72.3	1.64	0.102
Unknown type of contract	0.07	0.08	0.08	-29.8	-0.28	0.783
Ongoing reorganization	0.34	0.40	0.36	68.2	-0.78	0.438
Unknown reorganization	0.05	0.03	0.04	70.3	0.48	0.634
ESEC cat. 2	0.20	0.19	0.20	5.7	0.02	0.987
ESEC cat. 3	0.21	0.22	0.21	-82.4	0.23	0.815
ESEC cat. 4	0.02	0.03	0.02	68.7	-0.71	0.479
ESEC cat. 6	0.02	0.03	0.02	70.0	-0.47	0.640
ESEC cat. 7	0.12	0.12	0.13	-832.0	-0.12	0.903
ESEC cat. 8	0.10	0.09	0.10	80.9	0.20	0.840
ESEC cat. 9	0.08	0.08	0.08	97.6	0.01	0.992
ESEC cat. 10 (unknown)	0.02	0.02	0.02	75.7	0.06	0.954
Private sector	0.78	0.74	0.77	74.3	0.46	0.645
Regional unemployment rate	4.17	4.25	4.19	77.8	-0.32	0.747
Working atmosphere	7.60	8.05	7.72	74.5	-1.22	0.223
Job satisfaction	7.02	7.64	7.20	71.3	-1.97	0.049
Work status	0.10	0.13	0.11	66.5	-0.73	0.467
Minor child	0.35	0.41	0.36	72.0	-0.75	0.456
Married	0.38	0.57	0.44	67.5	-2.46	0.014
Economic hardship	3.22	2.90	3.13	72.2	0.78	0.437
Equal earner	0.14	0.16	0.15	81.9	-0.13	0.893
Secondary earner	0.19	0.22	0.20	61.3	-0.59	0.554
Male	0.51	0.52	0.52	-100.1	-0.18	0.855
Young workers (18–25 years)	0.22	0.06	0.18	72.2	2.19	0.028
Older workers (50–65 years)	0.10	0.29	0.17	66.4	-3.52	0.000
Medium educational level	0.49	0.51	0.49	99.4	-0.00	0.997
High educational level	0.43	0.41	0.42	65.4	0.23	0.816
Poor health	0.13	0.14	0.13	86.6	-0.04	0.972
Year 2006	0.09	0.10	0.09	82.8	-0.13	0.894
Year 2007	0.11	0.09	0.11	80.3	0.22	0.828
Year 2008	0.11	0.07	0.10	81.3	0.42	0.671
Year 2009	0.08	0.09	0.08	79.3	-0.21	0.833
Year 2010	0.08	0.12	0.10	65.1	-0.93	0.352
Year 2011	0.13	0.11	0.12	65.1	0.55	0.579
Year 2012	0.12	0.11	0.11	35.4	0.36	0.719
Year 2013	0.10	0.11	0.11	55.3	-0.31	0.758
Year 2014	0.10	0.10	0.09	-131.3	0.22	0.827

<sup>a</sup> reduction in standardized bias.

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