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INSTITUTE OF RETAIL ECONOMICS

**TOWARDS A LIFE AFTER
RETAIL
THE RELATIONSHIP BETWEEN
HUMAN CAPITAL AND CAREER
OUTCOMES IN RETAIL**

HELENA NILSSON, MIKAELA BACKMAN & ÖZGE ÖNER

Towards a life after retail?

The relationship between human capital and career outcomes in retail

Helena Nilsson^{a,b,d}, Mikaela Backman^a and Özge Öner^{a,c}

The retail sector accounts for a large share of employment in many economies, and many young individuals regard the retail sector as a steppingstone in the labor market. As the retail sector comprises various types of employment and diverse tasks, those employed in the retail sector are able to transition across different roles. Retail firms, however, often experience high labor turnover, which is costly to firms. This paper addresses how the human capital of full-time retail employees relates to labor turnover. We study individuals working in the retail sector between 1990 and 2018 and analyze how their human capital is associated with their likelihood of remaining in the same establishment and/or in the retail sector at large. Results indicate that firm-specific human capital decreases the probability of quitting, while formal education has the opposite effect. Industry experience and specific retail education, however, decreases the probability of leaving an establishment.

Keywords: retail, human capital, experience, education, career outcomes, Sweden.

JEL-codes: J24, J62, L81.

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1. Introduction

The retail sector is a vital part of the Swedish economy, as it is in many mature economies. Approximately 250,000 individuals are employed in the retail sector in Sweden, constituting a significant share of the five million individuals in the labor force.¹ The retail sector's employment capacity is particularly important in promoting the integration of young (unemployed) individuals' entry into the Swedish labor market (Daunfeldt & Fergin-Wennberg, 2016; Daunfeldt & Hortlund, 2014). A disproportionately high percentage of employees in the retail sector are young individuals, in particular females. In 2013, 56 percent of all employees were younger than 34 (Andersson, Kazemi, & Wickelgren, 2016).² According to the Swedish Retail and Wholesale Council³, many of those who are currently employed started their career in either the retail sector or the wholesale sector, which is another strong signal of the importance of the sector as a whole.

The retail sector faces one major challenge — high labor turnover — as suggested by the statistics from the Swedish Retail and Wholesale Council, and as noted by various agencies. A report from the Confederation of Swedish Enterprise (Svenskt Näringsliv) (2015) finds that labor turnover in the retail and hospitality sectors are among the highest in Sweden, with a labor turnover of approximately 35 percent

¹ Data for 2015, gathered from <http://handelsradet.se/wp-content/uploads/2016/01/Snabbfakta-2015.pdf> and http://www.statistikdatabasen.scb.se/pxweb/en/ssd/START_AM_AM0401_AM0401A/NAKUBefolkning2Ar/table/tableViewLayout1/, accessed on November 11, 2019.

² In comparison with other industries, the hospitality industry is the only one that has a more skewed age distribution according to data from Statistics Sweden.

³ https://handelsradet.se/wp-content/uploads/2017/06/Handelns-betydelse-da-nu-och-i-framtiden_HER-rapport-2017.pdf, accessed October 22, 2020.

between 2014 and 2015. In the retail sector, approximately one-third of all employees exit their establishment on a yearly basis.⁴ From a societal point of view, labor turnover may be beneficial as it ensures a renewal of human capital and experience, which may benefit both for the establishments as well as the employees themselves. However, when the labor turnover rate is prohibitively high, the induced costs for the sector and for the individual establishments may exceed societal benefits. Companies spend significant resources on recruiting and training new employees⁵, an investment that does not yield much return if employees are prone to switch jobs at a high rate. Costs associated with recruiting and training employees in building the right skill set and competences is thus one of the significant challenges facing retailers (Booth & Hamer, 2007; Broadbridge, 2002). For new establishments and small businesses that have even less room for errors in recruitment (e.g., in the form of a mismatch), high labor turnover can be even more problematic. Moreover, a high level of labor turnover of staff with customer contact may lead to indirect costs in terms of customer dissatisfaction. Before departing from a job, unhappy employees may be less likely to exert effort in customer service, which creates costs in the form of foregone future purchases from dissatisfied consumers (Bettencourt & Brown, 1997). High labor turnover could also signal that employees find the workplace unsatisfactory, which will make it harder to recruit new workers.

The rapid changes taking place in the retail sector, such as automation and competition from e-commerce channels, are extensions of the structural changes in the

⁴ <https://handelssite.wordpress.com/2017/11/29/okad-delaktighet-minskar-personalomsattning/>, accessed October 22, 2020.

⁵ The cost associated with one labor turnover is approximately 542,700 SEK (52,400 Euros) according to <https://vision.se/Opinion/rapporter/2015/kostnader-for-personalomsattning/>, accessed October 22, 2020.

economy. Thus, competent personnel need both experience and knowledge of the industry to better identify and cope with the necessary changes at the establishment level. The ability of an establishment in retaining these employees thereby allow these establishments to maintain and perhaps, in the long term, enhance their competitiveness and resilience (Brush & Chaganti, 1999). Similar arguments can be found in the resource-based view of the firm, where employee competences are hard to imitate and thereby build the competitive edge of the firm. Thus, it is becoming increasingly important for retailers to attract and more importantly to retain employees with high human capital.

Factors explaining labor turnover in the retail sector have been well studied. However, there is a lack of studies that assess the relevance of factors that could be influenced by policy measures, such as different types of human capital, which is the focus in this paper. Of the conducted studies, many are case studies (Broadbridge, 2002, 2007; Hendrie, 2004; Salleh, Nair, & Harun, 2012), where the results might not be generalizable. Several studies are cross sectional (Booth & Hamer, 2007; Gable, Hollon, & Dangelo, 1984; Good, Page Jr, & Young, 1996; L. K. Good, G. F. Sisler, & J. W. Gentry, 1988; Huselid & Day, 1991; O'Leary & Deegan, 2005; Ramaseshan, 1997; Salleh et al., 2012; R. M. Schulz, W. J. Bigoness, & J. P. Gagnon, 1987), which does not include information about job transitions within the retail sector or across sectors. Moreover, the existing studies tend to be based on data that dates back to the early 2000's. With the rise of e-commerce, the retail sector has seen a drastic structural change in the past two decades and consequently, there is a need to analyze the supply of skills in the retail sector using more current data.

Instead of looking at the establishment's labor turnover and starting with the firm at its core, we take the individual employee as our departure point, which allows

us to follow his/her job transitions over time, while determining the importance of various types of human capital that may influence career trajectories. Unlike the U.S. market or the U.K. market, which are the subjects of most of the studies in the literature, Sweden has unique features. The Swedish labor market is characterized by notable rigidities such as the strong position of employees and a limited wage span, which affects both employees' and employers' flexibility in adjusting to changing market conditions. Employers face the constraint of having a lower involuntary turnover, and employees face the constraint of having fewer job opportunities. Thus, any associations found in the Swedish market is bound to be present in other markets with less rigidity and less employee rights. In other words, the Swedish case acts as a lower bound.

Our analysis contributes to the literature by providing evidence of the relevance of human capital in various career trajectories for retail employees at the establishment level.⁶ Focusing on the establishment rather than the firm level, which is often the case in previous studies, provides a more detailed picture of labor turnover within the industry. Specifically, we identify factors that influence those who quit an establishment but stay in the retail sector, and those who quit an establishment but move to a different sector. Our empirical framework displays the relevant education types, as well as past experiences that contribute to individuals' career trajectories. Such knowledge is paramount for employees, individual firms, and the sector as a whole.

We use detailed register data to follow all individuals above the age of 16 in Sweden over the period 1990 to 2018. We have access to detailed annual information

⁶ We make a distinction between the firm and the establishment level. Thus, establishments that are part of the same firm is treated as separate observations.

on individuals' employment status, the sector and the establishment they work for, and if they switch establishment and/or sector. By selecting individuals who were working in the retail sector in 2017, we analyze a potential change in 2018 by employing a set of logit estimations. Our binary dependent variable indicates if the employees in year $t+1$ (i) stay in their job or quit; (ii) whether they quit their job but take on a new job in the retail sector; or (iii) whether they quit their job and take on a new job in a different sector. Thus, we analyze inter-sector and intra-sector mobility. Not all types of employment turnover are necessarily negative. Both establishments and employees may be able to benefit from short-term contracts where, for example, employees work part time or temporarily while studying. To filter out the beneficial labor turnover from the harmful, we study the job separations and career trajectories of full-time employees in retail. Due to sunk costs and foregone future productivity, the loss of full-time workers is particularly costly to an establishment. Furthermore, in combination with Sweden's strict regulations protecting job security, we may further assume that the majority of job separations are initiated the employees.

Our results indicate that firm-specific human capital in the form of establishment tenure decreases the probability of quitting the establishment, while worker-specific human capital in the form of formal education increases the probability of quitting the establishment. Worker-specific human capital in the form of industry experience and retail education, however, decreases the probability of quitting the establishment. Of those who do quit an establishment, we find that establishment tenure decreases the probability of staying in the retail sector, while industry experience and retail education increase the probability of staying in the retail sector. These results suggest that in order to retain full-time employees in an establishment or in the retail sector, vocational training programs should be made

more attractive. Furthermore, at the establishment level, individuals should be given opportunities to develop their ability to perform more qualified tasks, as this seems to reduce the likelihood of a worker leaving the establishment and the retail sector. The rest of the paper is structured as follows: Section 2 presents an overview of previous studies addressing labor turnover. Section 3 describes the empirical design followed by an analysis of the results in Section 4. Section 5 concludes.

2 Human capital and labor turnover

The cost associated with labor turnover is mainly through decreased productivity, due to a loss of firm-specific human capital, increased recruiting expenditures, and lower future income stream (Batt, 2002; Bettencourt & Brown, 1997). According to Porter and Steers (1973), the underlying factors of labor turnover can be broadly nested under four categories: individual, working environment, organization, and type of tasks performed by the employee in the establishment. In this paper, we focus on the individual factors. Human capital — both firm specific and worker specific — is related to the probability that an employee decides to leave a firm (Becker, 2009; Parsons, 1972). Firm-specific human capital is valuable for the establishment specifically, in the form of on-the-job training and specialized learning by doing and cannot be transferred across firms. Worker-specific human capital is gained through formal education and industry experience and can be applied across firms.

Following studies on quit behavior (e.g. Galizzi & Lang, 1998; Lévy-Garboua, Montmarquette, & Simonnet, 2007; Weiss, 1984), we use the wealth maximization theory ; in each period, an individual either quits or stays at his/her job depending on the expected value of future benefits of staying, $E_{it}V_{it}$, relative to the expected value of pursuing other alternatives (OA), $E_{it}V_{it}^{OA}$, minus the cost of switching jobs, C_{it} . The individual will quit if:

$$E_{it}V_{it} - (E_{it}V_{it}^{OA} - C_{it}) < 0 \quad (1)$$

Which rewritten formulates,

$$C_{it} > (E_{it}V_{it}^{OA} - E_{it}V_{it}) \quad (2)$$

Thus,

$$Prob(Quit = 1) = Prob(E_{it}V_{it} \leq E_{it}V_{it}^{OA} - C_{it}) \quad (3)$$

A number of factors may have a positive effect on the expected value of remaining in the establishment ($E_{it}V_{it}$). Since firm-specific human capital is valued higher by an individual's current establishment than by other establishments, the individual has a higher incentive to remain in the workplace than to leave. Another argument, by Lévy-Garboua et al. (2007) is that as establishment tenure increases (i.e. firm specific human capital), a worker adapts and becomes used to certain traits of the job that are negative, which indicates that tenure may decrease the propensity to quit. Firm specific human capital, in terms of firm tenure, is found in previous studies to have a negative relationship with the propensity to quit (Arnold & Feldman, 1982; Mincer & Jovanovic, 1981; Robinson, 1972; Waters, Roach, & Waters, 1976). This is found also in studies of the retail sector, for instance in Arndt, Arnold, and Landry (2006). In this study the authors analyzed questionnaires from 313 pharmacy employees and found that tenure in the workplace was negatively correlated with turnover intention. Similar results are found in R. M. Schulz et al. (1987); Huselid and Day (1991); and Hendrie (2004).

Factors that may affect the expected value of seeking alternative opportunities, $E_{it}V_{it}^{OA}$, are worker-specific human capital in the form of formal education. Those with more formal education have more labor market opportunities and are therefore more likely to quit a job. However, as argued by Weiss (1984), formal education may also increase the propensity to stay due to "stick-to-itiveness." Another form of worker-specific human capital that has been found to increase the opportunities for alternative

employment opportunities is industry tenure (Mincer & Jovanovic, 1981). Becker (2009) argues that industry-specific human capital, in a manner analogous to firm-specific human capital, may increase the value of remaining in the industry. Thus, industry-specific human capital may increase the value of staying in the establishment as well as the value of finding alternative employment in a different establishment in the same sector. Gable et al. (1984) analyze managers in U.S. retail establishments, and find that previous experience in the same industry increases the probability of staying on at the establishment. Min (2007) finds similar results in a study on the wholesale sector.

Lastly, we have factors that affect the cost of quitting, C_{it} . These factors include marital status and family situation, which may affect the value that an individual ascribes to stability. However, studies of the retail sector by Good et al. (1996) and Linda K Good, Grovalynn F Sisler, and James W Gentry (1988) show that having a spouse or family increases the propensity to quit. Another factor that may affect the costs of quitting is loss of seniority in the organization (Mobley, 1977). In Maertz Jr and Campion (2004), individuals describe their motivation to stay on at a job to be due to moral behavior, where staying is associated with loyalty to the organization. The individual's cost of quitting is being perceived to be "fickle" or difficult by others. Hence this cost is individual specific. Consequently, the length of an individual's previous employment may be correlated with the perceived cost of quitting the current job.

3 Data, variables and empirical design

The data used in this paper is limited public access data from Statistics Sweden. The data consists of detailed information on all individuals over the age of 16 who are

residing in Sweden.⁷ The individual-level data includes ascribed characteristics such as gender, foreign background, and age, as well as achieved characteristics, such as educational and occupational choices. In addition to the individual-level data, Statistics Sweden also provides data on all active establishments — those that pay value added tax each year. Employees can be linked to their respective employers to create a large employee-employer matched dataset. The matched data allows us to get a better understanding of the micro-level mechanisms as we are to analyze individual workers as well as the shared characteristics of all workers employed at a particular establishment.

Establishments in the retail sector are identified using the standard industry classification codes (SIC).⁸ The dataset consists of all individuals over the age of 16 that in 2017 are employed full-time in the retail sector, and who in 2018: either remain employed in the same establishment, are unemployed or studying, are employed in the retail sector, are employed in a different sector or become an entrepreneur. To capture individuals who are employed full-time, we analyze only individuals with an annual wage that is above the annual minimum wage in the retail sector⁹, which is calculated to be 170,000 SEK (~16,000 EUR).

3.1 Variables

Dependent variables

⁷ Sweden has experienced a large inflow of refugees and immigrants, who are registered in the data once they get a residence permit.

⁸ Establishments in the retail sector have an SIC between 47,111 and 47,792 (excluding retail via internet), based on the SIC for 2007, which is constructed by Statistics Sweden.

⁹ In 2006, the minimum wage in the retail sector was 150,000SEK (~13,000EUR) (<https://arbetet.se/2006/10/27/tjnstemannafack-har-smsta-lgstalnera/>). Adjusted for inflation, this number corresponds to 170,000SEK (~16,000EUR) in 2017.

The aim is to assess how different types of human capital are related to labor turnover in the retail sector. To capture the change in labor market status, which is a proxy for labor turnover, we construct several binary dependent variables that records changes in status between 2017 and 2018. To make use of the longitudinal aspect of the data, we make use of information dating back to 1990 on the establishment and industry tenure of the individual. The first dependent variable is given the value of 1 if the employee, at time t , works at a retail establishment and in $t+1$ quits this job (*Quit*). We cannot make any assumptions regarding whether the job separation was voluntary or not. However, loss of full-time workers is particularly costly to the establishment due to sunk recruitment and introduction costs and foregone future productivity. In combination with the strict regulations protecting job security, we may assume that the majority of job separations are initiated by employees. We define a job separation as an employee leaving an establishment. Thus, when an employee is defined as quitting, he/she leaves the establishment but not necessarily the firm. The argument for basing the analysis on the establishment level is that the risk as well as the cost of losing an employee lies primarily at the establishment level, rather than at the firm level. Hence the analysis is also applicable to firms with multiple establishments. In the second step, we analyze whether an employee who has quit his/her job: (i) continues as an employee in the retail sector (*Stayed ind.*); (ii) switches to a different sector (*Changed ind.*); or (iii) becomes an entrepreneur (*Entrepreneur*). We also follow individuals who quit their jobs and become unemployed or become a full-time or part-time student (*Unemployed/studying*).

Individual human capital: Achieved characteristics

Achieved characteristics relate to establishment tenure, industry tenure, and level/type of education. Due to the construction of the data, we can capture the establishment tenure and industry tenure as continuous variables up to 26 years measured from 1990 to 2017 (*Est. tenure*; *Ind. tenure*). We can also identify individuals with more than 26 years of tenure. To capture these individuals, we create a dummy variable that equals 1 if the tenure is more than 26 years (*Est. tenure > 26 years*; *Ind. tenure > 26 years*). We measure the level of formal education categorized into six different levels (*Education*). We also include a dummy variable that indicates whether an individual has been enrolled in an upper secondary school trade education (*Retail education*). We use establishment tenure to proxy for firm-specific human capital and industry tenure and education to proxy for worker-specific human capital.

Individual control variables

One factor that may affect the value of staying in an establishment is the wage relative to others at the same level of occupation in the establishment. The “inequity theory” suggests that employees who perceive that they are unfairly compensated for their work relative to their colleagues may leave the organization (Adams, 1963). Consequently, perceived inequity in wages may lead to labor turnover (Telly, French, & Scott, 1971). Indications of this is found in Booth and Hamer (2007) find that the perception of “fair pay” is correlated with job satisfaction among retail employees. On the other hand, a below-average wage suggests that the expected value of remaining at the establishment is increasing. Therefore the wage could be negatively correlated with the propensity to quit, as shown in Galizzi and Lang (1998). We therefore include relative wage earnings in the establishment (*Relative earnings, est.*) which is calculated as the log of an individual’s annual wage minus the log of the average annual

wage of workers with the same occupational code. Thus, a wage below the average wage in the firm may indicate that the wage is expected to increase if the individual remains in the establishment, which should decrease the probability of quitting. However, a wage below the average wage in the region suggests that the expected value of employment elsewhere is higher than the expected value of the current job, which should increase the probability of quitting (Galizzi & Lang, 1998). Therefore, we include a variable that captures the individual's wage relative to the labor market region's average wage for the same occupational code (*Relative wage, LA-region*). We choose this variable to be at the regional level to reduce heterogeneity in living expenses, which may warrant higher wages. Finally, the absolute wage has also been found to matter for voluntary turnover (Motowidlo, 1983; O'Leary & Deegan, 2005). This pattern is also documented in the retail sector (Hendrie, 2004; Salleh et al., 2012; R. M. Schulz et al., 1987). Since absolute wage is part of the variables that capture relative wage, it is thus indirectly controlled for.

Another variable that may affect the value of remaining in the establishment is occupational category. In a study by Lamond, Zheng, and Tian-Foreman (2009) where survey data from a Chinese retail organization was used to determine factors that contributed to employee satisfaction, employee turnover and intention to leave, it was found that retail employees that work on the floor were more prone to be unsatisfied than employees on manager level. Therefore, we also include occupational level, as a binary variable equal to 1 if the individual holds some form of a managerial position in the establishment, and 0 otherwise (*Manager*).

One variable that have been found to affect the value of staying at a job across different industries is the level of complexity in the job. The degree of complexity in work tasks is negatively related to the propensity to quit (Weiss, 1984). Studies in the

retail sector have also found that the type of tasks performed by employees, in terms of how repetitive and how challenging they are, are important determinants of job satisfaction (O'Leary & Deegan, 2005; Salleh et al., 2012). To capture complexity of work tasks, we include an ordinal variable to measure occupational skill (*Occup. skill*). This variable contains four levels, which are classified according to the type of tasks performed, and whether the tasks require formal education, experience, or training. Level 1 is non-technical tasks, or tasks with minimum training that require only parts of primary school education. Level 2 requires secondary- and some post-secondary education, and includes, for instance, customer service, administration, and transport workers. Level 3 requires job-specific or practical post-secondary education and includes occupations such as operations managers in service industries or accountants. Level 4 requires at a minimum post-secondary education of at least three years, and includes professionals such as IT engineers, legal practitioners and managerial occupations with staff responsibility. These categories are based on international standardization by Statistics Sweden (2012).

We document individuals' family/relationship status: whether the individual is married or living in a partnership or cohabiting (*Married*); and whether the employee has children living at home (*Children*). These two variables may affect the costs of quitting a job. Furthermore, we control for age (*Age*) and the declining effect of age (*Age squared*), sex (*Male*), and foreign background (*Region of birth*).

Organizational control variables

Studies have found that perceived opportunities to advance within the establishment, which affect the expected value of remaining at a job, affect job satisfaction and turnover (Huselid & Day, 1991; McNeilly & Goldsmith, 1991). We therefore control for

the size of the establishment (*Est. size*), which may affect opportunities to advance. We also include a variable that indicates whether the establishment is independent or part of a chain (*Chain*). Finally, we control for the profitability of the firm by including a variable measuring the firm's operating profit divided by net turnover (*Marginal return*).

Regional control variables

To capture alternative opportunities in the region, we include a variable for the size of retail employment (full-time employees) in the labor market region (*Retail region*). We also include a dummy variable that indicates whether the municipality is located in a central region or not (*Central*), defined as urban and metropolitan municipalities, according to the definition by The Swedish Agency for Growth Policy Analysis (2014). Table 1 gives an overview of the variables used in the empirical estimations.

Table 1. Description of variables

Variables	
<i>Dependent variables (measured as the change from 2017 to 2018)</i>	
Quit	Binary variable: 1 if the person works in a retail establishment in year t but not in t+1; 0 otherwise
Quit, Next	Categorical variable: 1 if the person in t+1 is employed in a different establishment in a different industry (Quit, Changed ind) ; 2 if the person in t+1 is employed in a different establishment in the same industry (Quit, Stayed ind); 3 if the person in t+1 is working as entrepreneur (Quit, Entrepreneur); 4 if the person in t+1 is unemployed or studying with some or no information on his/her salary that year (Quit, Unemployed/studying)
Individual characteristics	
Human capital	
Est. tenure	Number of years the employee has worked in the same establishment.
Est. tenure over 26 years	Binary variable: 1 if the employee has worked 26 years or more in the same establishment; 0 otherwise
Ind. Tenure	Number of years the employee has worked in the retail industry, defined at the 2-digit SIC level
Ind. tenure over 26 years	Binary variable: 1 if the employee has worked 26 years or more in the retail industry; 0 otherwise
Education	Level of education aggregated at 7 levels: 1: Primary education, less than 9 years 2: Primary education, 9 years 3: Secondary education, maximum 3 years 4: Post-secondary education, less than 3 years 5: Post-secondary education, 3 years or more 6: Doctoral education
Retail education	Binary variable: 1 if the individual has had (as the highest level) an upper secondary school education with a main focus on trade; 0 otherwise
Control variables	
Occup. skill	Categorical variable: level 1 non-technical; level 2 requires secondary level of education (ex. customer service); level 3 requires post-secondary level of education (ex. accounting); level 4 requires post-secondary education of more than three years (ex. engineering)
Manager	Binary variable: 1 if the individual has an occupation that is at the managerial level; 0 otherwise
Relative earnings est.	Annual income/average wage for employees in the establishment with the same three-digit occupational level-code
Relative earnings LA-region	Annual income/average wage for employees in the labor market region with the same three-digit occupational level-code

Table 1 continued.

Variables	
Married	Binary variable: 1 if the employee is married or in a partnership; 0 otherwise
Children	Binary variable: 1 if the employee has at least one child under the age of 18 living at home; 0 otherwise
Age	Age of individual at time t
Age squared	Age squared
Male	Binary variable: 1 if employee is male; 0 if female
Region of birth	1 Swedish; 2 North America, Europe (excluding Sweden); 3 Africa; 4 Asia; 5 South America; 6 Oceania
Organizational characteristics	
Est. size	Number of employees in the establishment
Chain	Binary variable: 1 if the establishment is part of a chain; 0 otherwise
Marginal return	Operating profits divided by net turnover, at the firm level
Regional level	
Retail region	Number of fulltime employees in the retail sector in the labor market region of the establishment
Central	Binary variable: 1 if the establishment is located in a municipality in a central region

Table 2 shows the descriptive statistics for our dependent and independent variables. Between 2017 and 2018, 22 percent of employees in the retail sector left their job. This figure confirms the previous discussion where retailing is a sector with a high labor turnover with many employees leaving their establishment. Out of the employees that leave their jobs, we observe a lower share that continues within the same industry, where approximately 46 percent switch to a different sector and 39 percent remain in the retail sector. Only two percent become entrepreneurs, while 13 percent become unemployed or become students. What is important to keep in mind is that the alternative of the dependent variables that capture the step after leaving an employment *Quit, Changed ind.*; *Quit, Stayed ind.* and *Quit, Entrepreneur* and *Quit, Unemployed/studying*, is not opposite outcome. Hence the value 0 of *Quit, Changed ind.* may indicate that an individual either a) stayed in the industry, b) became an entrepreneur, or c) became unemployed or is studying.

Employees in the retail sector are on average middle-aged (close to 40) and are 60 percent female. Regarding establishment tenure over the last 26 years, employees have on average been at the same establishment for five years and two percent have remained at the same establishment for more than 26 years. Thus, we observe a large heterogeneity where we observe employees with a long history within the same establishment combined with employees with limited establishment-specific experience. Industry tenure is somewhat longer, averaging eight years, and with six percent who have been in the industry for over 26 years. The average level of education is at the secondary level, with 17 percent who have a secondary education focusing on retail. Close to three percent have an occupation that requires some elementary schooling. The majority of workers — 78 percent — have tasks that require secondary school education, while nine percent have occupations that require practical or technical post-secondary school education. Approximately nine percent require post graduate education of at least three years or more. Only three percent of workers in the retail sector are managers. On average, the relative wage is 2.6 percent below the average wage in the specific occupation in an establishment, and four percent below the average wage in the region. The fact that the average relative wages are negative suggest that the wage distributions are skewed to the right — a few high-earning individuals push up the average wage of a particular occupation.

Thirty-two percent of employees are married or cohabitating, and 16 percent have children. Approximately 14 percent of employees have a foreign background. The average employee works at a relatively large establishment, a bit over half of them work in a retail chain, which on average has a negative performance. Urban locations hire a majority of the employees, with 88 percent working in a central municipality in a region with 25,000 retail employees.

Table 2. Descriptive statistics. Individuals between the ages of 16 and 74 in 2018.

Variables	Obs.	Mean	Std. Dev.	Min.	Max.
Dependent variables					
Quit	192,515	0.217	0.412	0	1
Quit, next					
Stayed ind.	41,801	0.388	0.487	0	1
Changed ind.	41,801	0.461	0.499	0	1
Entrepreneur	41,801	0.020	0.141	0	1
Unemployed/studying	41,801	0.131	0.337	0	1
Individual characteristics					
Human capital					
Est. tenure	192,515	4.967	6.294	0	27
Est. tenure > 26 years (0,1)	192,515	0.022	0.145	0	1
Ind. tenure	192,515	8.124	7.982	0	27
Ind. tenure > 26 years (0,1)	192,515	0.065	0.247	0	1
Education					
1: Primary, < 9 years	191,594	0.009	0.095	0	1
2: Primary, 9 years	191,594	0.091	0.288	0	1
3: Secondary, ≤ 3 years	191,594	0.662	0.473	0	1
4: Post-secondary, ≤ 3 years	191,594	0.127	0.333	0	1
5: Post-secondary, ≥ 3 years	191,594	0.110	0.312	0	1
6: Doctoral	191,594	0.001	0.031	0	1
Retail education (0,1).	191,594	0.169	0.374	0	1
Control variables					
Occup. skill					
Level 1	179,035	0.027	0.161	0	1
Level 2	179,035	0.798	0.401	0	1
Level 3	179,035	0.090	0.286	0	1
Level 4	179,035	0.086	0.280	0	1

Table 2 continued.

Variables	Obs.	Mean	Std. Dev.	Min.	Max.
Manager	179,035	0.030	0.171	0	1
Relative earnings, est.	179,035	-0.026	0.236	-1.638	1.871
Relative earnings, LA-region	179,035	-0.041	0.283	-1.850	2.685
Married (0,1)	191,712	0.408	0.492	0	1
Children (0,1)	192,513	0.361	0.480	0	1
Age	192,515	37.266	12.078	16	72
Age squared	192,515	1534.659	960.678	256	5184
Male	192,515	0.399	0.490	0	1
Region of birth					
Swedish	192,500	0.863	0.344	0	1
North Am. Eur.	192,500	0.061	0.239	0	1
Africa	192,500	0.009	0.092	0	1
South America	192,500	0.008	0.087	0	1
Asia	192,500	0.060	0.237	0	1
Oceania	192,500	0.000	0.021	0	1
Organizational characteristics					
Est. size	192,515	74.900	178.355	1	1394
Chain	192,515	0.564	0.496	0	1
Marginal return	181,49	-0.074	8.734	-1189.8	37.167
Regional characteristics					
Retail region	192,515	24878.57	23620.24	37	58272
Central region	192,515	0.878	0.328	0	1

4 Empirical design

We model the factors affecting an individual's decision on whether to remain at a job in the retail sector. If an individual leaves his/her job, several outcomes are possible: (i) he/she remains in the retail sector; (ii) he/she switches to a different sector; (iii) he/she becomes an entrepreneur; and (iv) he/she becomes unemployed or becomes a student. However, as we only observe individuals working in the retail sector and individuals who quit their jobs, the outcome variables are truncated. Traditionally, one would use a Heckman (1976) bias correction model to make predictions on the whole population. However, in our case, the subsamples — individuals working in the retail sector, and individuals who quit their jobs — are our populations, on which we wish to generalize. Since we have no biases to correct for, we use traditional dichotomous

choice modelling. The following figure shows the different choices that we empirically assess.

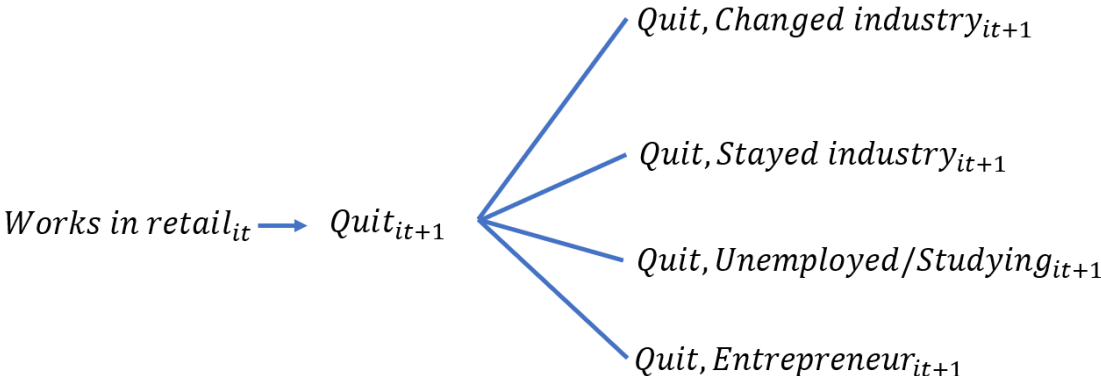


Figure 1. Outcome tree.

In the following text we describe the different outcomes and how they are empirically estimated.

4.1 Quit

As the dependent variable (remain at a job or quit) is binary, we conduct a logit estimation. The logit estimation captures the cumulative probability that an employee quits, and compare it to the probability of remaining at a job. The following equation shows the estimated logit model as described in Williams (2006):

$$P(Q_{it+1} = 1) = \frac{e^{\alpha + \beta_1 X_{it} + \beta_2 X_{ft} + \beta_3 X_{rt}}}{1 + e^{\alpha + \beta_1 X_{it} + \beta_2 X_{ft} + \beta_3 X_{rt}}} \tag{1}$$

where Q_{it+1} is the dependent variable that is equal to 1 if individual i in period $t+1$ decides to quit his/her job. The explanatory variables are factors that have been established by the literature to affect labor turnover in the retail sector, as explained in the previous section.

4.2 Path after quitting

For the second step we use a multinomial logit model:

$$(Y_{it+1} = K) = \frac{e^{\beta_{1K}X_{it} + \beta_{2K}X_{ft} + \beta_{3K}X_{rt}}}{\sum_1^K e^{\beta_{1K-1}X_{it} + \beta_{2,K-1}X_{ft} + \beta_{3,K-1}X_{rt}}} \quad (2)$$

where K is each of the four possible outcomes: (i) switch to a different sector; (ii) remain in the retail sector; (iii) become an entrepreneur; and (iv) become unemployed or become a student. X is a vector of explanatory variables as described in Table 1.¹⁰

5 Empirical Findings

The marginal effects for the logit regressions are reported in Table 3 while the corresponding results from the multinomial model are reported in Table 4 and 5. The odds ratios are found in the appendix, Tables A1 and A2. The logit estimation is separated into two columns; column 2 replaces the manager variable (which is a subgroup in level 4 of occupational skills) with a variable measuring the degree of occupational skill.

¹⁰ To verify the robustness of our results, we ran the same estimations using a dataset covering all retail employees in 2006–2007. The marginal effects can be found in Appendix B, Tables B1 and B2. Odds ratios are not included but are available upon request. We also estimated the models using linear probability models (LPM) on the dataset for 2017–2018; the results are robust and are available upon request.

Table 3. Marginal effects from the logit estimation. Column 1 presents the results with the manager variable and column 2 presents the results with a variable capturing the degree of occupational skills. Variables in bold are significant and robust to the alternative specifications.

Vars	(1) Quit	(2) Quit
Tenure est.	-0.0145*** (0.000432)	-0.0146*** (0.000431)
Tenure est. > 26 years ^a (0,1)	0.196*** (0.0336)	0.196*** (0.0332)
Tenure ind.	-0.00139*** (0.000279)	-0.00129*** (0.000279)
Tenure ind. > 26 years ^a (0,1)	0.0110 (0.00796)	0.0105 (0.00795)
Primary, 9 years ^a	0.0162 (0.0104)	0.0172* (0.0103)
Secondary, < 3 years ^a	0.0254** (0.0103)	0.0268*** (0.0101)
Post-secondary, < 3 years ^a	0.0394*** (0.0106)	0.0418*** (0.0104)
Post-secondary, > 3 years ^a	0.0470*** (0.0109)	0.0523*** (0.0106)
Doctoral	0.0688* (0.0357)	0.0777** (0.0363)
Retail education (0,1)	-0.00942*** (0.00279)	-0.00938*** (0.00279)
Occup. skill: Level 2 ^b	-	-0.0322*** (0.00964)
Occup. skill: Level 3	-	-0.0389*** (0.0104)
Occup. skill: Level 4	-	-0.0420*** (0.0111)

Table 3 continued.

Vars.	(1) Quit	(2) Quit
Manager (0,1)	-0.0187*** (0.00687)	-
Relative wage, est.	0.000309 (0.00814)	-0.000517 (0.00820)
Relative wage, LA-region	-0.0451*** (0.00703)	-0.0454*** (0.00710)
Age	-0.00584*** (0.000776)	-0.00572*** (0.000773)
Age squared	3.23e-05*** (9.92e-06)	3.10e-05*** (9.89e-06)
Male (0,1)	-0.00207 (0.00234)	-0.00214 (0.00233)
North Am. Eur. ^c	-0.0158*** (0.00423)	-0.0161*** (0.00421)
Africa	-0.00918 (0.0104)	-0.0102 (0.0104)
South America	-0.00635 (0.0103)	-0.00717 (0.0103)
Asia	-0.00867* (0.00449)	-0.00886** (0.00446)
Oceania	0.0265 (0.0428)	0.0260 (0.0428)
Married (0,1)	0.000853 (0.00221)	0.000923 (0.00221)
Children (0,1)	-0.00174 (0.00234)	-0.00161 (0.00234)
Chain (0,1)	0.0390*** (0.00340)	0.0394*** (0.00340)
Size of est.	-0.000113*** (1.33e-05)	-0.000112*** (1.35e-05)
Marginal return	-7.44e-05* (4.26e-05)	-7.27e-05* (4.31e-05)
Retail region	6.81e-07*** (6.83e-08)	6.77e-07*** (6.80e-08)
Central (0,1)	0.0149*** (0.00425)	0.0149*** (0.00425)
Obs	167,362	167,362

The establishment level is clustered. Heteroscedasticity-robust standard errors are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Base categories are: ^aPrimary education, less than 9 years, ^b Level 1, ^cSweden.

5.1 Quitting

Table 3, column 1, presents the results from the regression analysis for the probability of quitting a job. Establishment tenure has a negative effect on the likelihood of quitting a job. The dummy for 26 years of experience or more has a positive effect. The

positive estimate for the dummy for over 26 years is positive, this indicates that the effect is negative but decreasing. This relationship is in line with the theory as well as with empirical studies on labor turnover in the retail sector (Gable et al., 1984; Richard M Schulz, William J Bigoness, & Jean Paul Gagnon, 1987), but contradicts Hendrie (2004). Industry tenure also has a negative but somewhat weaker effect on the likelihood of quitting, which confirm the findings in previous studies such as Gable et al. (1984) and Min (2007).

Compared with the baseline category of having less than nine years of primary education, the likelihood of quitting increases with the level of education. Secondary education of up to three years increases the probability of quitting by 2.5 percent while having a doctoral degree increases the probability of quitting by 6.6 percent. This result is in line with the theory, where worker-specific human capital increases the expected value of leaving an employment. If an individual has a retail education, the probability of quitting decreases by close to one percent. Thus, a specific education within retail appears to increase the willingness to stay in the current retail employment. In column 2, the manager variable (which is a subgroup in level 4 of occupational skills) is replaced with a variable measuring the degree of occupational skill. The results are similar to column 1, but we now observe variations in the degree of occupational skill level. Compared to the lowest level of occupational skill, the likelihood of quitting is negative for all the higher occupational skills. In the robustness test, the third level of complexity is statistically insignificant; however, the others remain of similar magnitude and sign.

The likelihood of quitting a job decreases with age, albeit at a decreasing rate, for males and for non-Swedes. Family status and whether an individual has children living in the same household does not influence the likelihood of quitting a job.

Organizational characteristics in terms of the size of the establishment has weak but significantly negative effects on the likelihood of quitting, while the size of retail employment in the region increases the likelihood of quitting.

As the labor mobility decreases at higher ages, the alternative careers may be limited and thus the individual may be less willing to leave the employment. These results are in line with those found in other studies. Our finding that males have a higher likelihood of quitting confirm previous studies on employment turnover (Keith & McWilliams, 1995; Loprest, 1992). Moreover, many studies have verified that individuals with a foreign background experience job discrimination; (Grand & Szulkin, 2002) document the existence of such job discrimination in the Swedish labor market. Much of the recruitment in the Swedish market is done through informal networks (Wennberg, Lindberg, & Fergin, 2013), a procedure which has been found to disfavor individuals with a foreign background (Behtoui, 2008).

We find that individuals in dense areas are more likely to quit their jobs. As job matching tend to be better in larger cities, individuals may be more prone to quit a job in such an environment compared to the reference group – sparsely populated rural areas with low accessibility to urban areas. The size of the establishment where the individual works may be indicative of the opportunities that exist; the larger the establishment, the more alternatives there are within the establishment and thus the likelihood of quitting decreases with the size of the establishment. An establishment being part of a chain has a positive effect on the probability of quitting. This may be due to the fact that firms with multi-establishments have better internal labor markets (as indicated in Marsden, 1990), which would increase the probability of leaving the establishment, while still remaining in the firm. The variable that indicates profitability, *Marginal return*, is negative and significant, which is also in line with

expectations. The establishment-level relative wage is not a significant predictor of the likelihood of quitting; however, the regional relative wage has a negative and significant effect on the likelihood of quitting. If an individual has a wage that is higher than the regional average wage, the probability of quitting decreases. This result is in line with the wealth maximization hypothesis. Table 4 presents the marginal effects from estimating the multinomial logit of the paths after quitting a job.

Table 4a. Paths after quitting, Multinomial logit. Variables in bold are significant and robust to the alternative specifications.

Multinomial				
Vars.	(1) Stayed ind.	(2) Stayed ind.	(3) Changed ind.	(4) Changed ind.
Tenure est.	-0.0231*** (0.00126)	-0.0227*** (0.00127)	0.0190*** (0.00121)	0.0189*** (0.00122)
Tenure est. >26 years (0,1)	0.202*** (0.0641)	0.203*** (0.0638)	-0.196*** (0.0529)	-0.196*** (0.0535)
Tenure ind.	0.0212*** (0.000852)	0.0209*** (0.000853)	-0.0197*** (0.000878)	-0.0196*** (0.000881)
Tenure ind. >26 years (0,1)	-0.110*** (0.0274)	-0.110*** (0.0274)	0.0843*** (0.0277)	0.0825*** (0.0277)
Primary 9 years ^a	0.0681* (0.0384)	0.0599 (0.0393)	0.0227 (0.0386)	0.0202 (0.0388)
Secondary, <3 years	0.0755** (0.0375)	0.0633* (0.0383)	0.0230 (0.0380)	0.0222 (0.0382)
Post-secondary, <3 years	0.0417 (0.0381)	0.0229 (0.0389)	0.0646* (0.0386)	0.0661* (0.0388)
Post-secondary >3 years	0.0659* (0.0387)	0.0274 (0.0393)	0.0756* (0.0390)	0.0872** (0.0390)
Doctoral	0.261*** (0.0907)	0.197** (0.0940)	-0.110 (0.0906)	-0.0948 (0.0932)
Retail ed. (0,1)	0.0230*** (0.00822)	0.0220*** (0.00822)	0.00401 (0.00834)	0.00465 (0.00835)
Occup. skill: Level 2 ^b	-	0.107*** (0.0167)	-	-0.0821*** (0.0164)
Occup skill: Level 3	-	0.142*** (0.0208)	-	-0.0895*** (0.0201)
Occup skill: Level 4	-	0.181*** (0.0229)	-	-0.102*** (0.0218)

Table 4a continued.

Multinomial				
Vars.	(1) Stayed ind.	(2) Stayed ind.	(3) Changed ind.	(4) Changed ind.
Manager (0,1)	-0.0101 (0.0243)	-	0.0524** (0.0232)	-
Relative wage, est.	0.162*** (0.0236)	0.153*** (0.0235)	-0.113*** (0.0227)	-0.119*** (0.0228)
Relative wage, LA region	0.163*** (0.0207)	0.177*** (0.0207)	0.0602*** (0.0198)	0.0603*** (0.0200)
Age	-0.0132*** (0.00229)	-0.0144*** (0.00230)	0.0152*** (0.00220)	0.0157*** (0.00221)
Age-squared	0.000136*** (3.03e-05)	0.000145*** (3.04e-05)	-0.000190*** (2.90e-05)	-0.000195*** (2.91e-05)
Male (0,1)	-0.103*** (0.00677)	-0.106*** (0.00672)	0.0774*** (0.00641)	0.0792*** (0.00638)
North Am. Eur. ^c	0.0521*** (0.0132)	0.0542*** (0.0132)	-0.0649*** (0.0128)	-0.0662*** (0.0128)
Africa	0.0979*** (0.0307)	0.107*** (0.0304)	-0.123*** (0.0289)	-0.127*** (0.0286)
South America	0.0802*** (0.0302)	0.0848*** (0.0303)	-0.0783*** (0.0290)	-0.0803*** (0.0290)
Asia	0.0704*** (0.0130)	0.0746*** (0.0130)	-0.122*** (0.0125)	-0.124*** (0.0125)
Oceania	0.0532 (0.115)	0.0478 (0.115)	-0.239** (0.105)	-0.243** (0.103)
Married (0,1)	-0.00969 (0.00623)	-0.0113* (0.00624)	0.00455 (0.00628)	0.00573 (0.00628)
Children (0,1)	-0.00350 (0.00691)	-0.00566 (0.00688)	0.0289*** (0.00678)	0.0295*** (0.00677)
Chain (0,1)	0.168*** (0.00887)	0.166*** (0.00889)	-0.123*** (0.00815)	-0.122*** (0.00816)
Size of est.	-0.000344*** (7.42e-05)	-0.000369*** (7.25e-05)	0.000300*** (6.43e-05)	0.000310*** (6.34e-05)
Marginal return	0.0107** (0.00514)	0.0115** (0.00508)	-0.0102** (0.00404)	-0.0105*** (0.00406)
Retail region	8.45e-07*** (1.85e-07)	8.32e-07*** (1.85e-07)	-9.71e-07*** (1.72e-07)	-9.70e-07*** (1.73e-07)
Central (0,1)	0.0132 (0.0137)	0.0126 (0.0138)	-0.0220* (0.0129)	-0.0217* (0.0130)
Obs.	36,054	36,054	36,054	36,054

Table 4b. Paths after quitting, Multinomial logit. Variables in bold are significant and robust to the alternative specifications.

Multinomial				
	(5)	(6)	(7)	(8)
	Entrepreneur	Entrepreneur	Unemployed/ studying	Unemployed/ studying
Vars.				
Tenure est.	0.000242 (0.000197)	0.000278 (0.000197)	0.00379*** (0.000557)	0.00346*** (0.000550)
Tenure est. >26 years (0,1)	-0.00278 (0.00643)	-0.00259 (0.00642)	-0.00288 (0.0231)	-0.00476 (0.0227)
Tenure ind.	-0.000523*** (0.000164)	-0.000535*** (0.000162)	-0.000946** (0.000448)	-0.000783* (0.000446)
Tenure ind. >26 years (0,1)	0.0115*** (0.00432)	0.0111*** (0.00426)	0.0143 (0.0138)	0.0161 (0.0137)
Primary 9 years	0.00482 (0.00467)	0.00449 (0.00513)	-0.0956*** (0.0274)	-0.0846*** (0.0256)
Secondary, <3 years	0.00641 (0.00433)	0.00575 (0.00478)	-0.105*** (0.0269)	-0.0912*** (0.0252)
Post-secondary, <3 years	0.0101** (0.00457)	0.00851* (0.00499)	-0.116*** (0.0270)	-0.0976*** (0.0254)
Post-secondary >3 years	0.00954** (0.00459)	0.00657 (0.00500)	-0.151*** (0.0270)	-0.121*** (0.0255)
Doctoral	0.00322 (0.0124)	-0.000143 (0.0103)	-0.154*** (0.0444)	-0.102* (0.0581)
Retail ed. (0,1)	-0.00224 (0.00194)	-0.00231 (0.00193)	-0.0247*** (0.00479)	-0.0244*** (0.00473)
Occup. skill: Level 2 ^b	-	0.00495* (0.00279)	-	-0.0296*** (0.0104)
Occup skill: Level 3	-	0.0125*** (0.00363)	-	-0.0654*** (0.0114)
Occup skill: Level 4	-	0.0118*** (0.00378)	-	-0.0906*** (0.0112)

The establishment level is clustered. Heteroscedasticity-robust standard errors are in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1. Base categories are: ^aPrimary education, less than 9 years, ^bLevel 1, ^cSweden.

Table 4b continued

Multinomial				
	(5)	(6)	(7)	(8)
Vars.	Entrepreneur	Entrepreneur	Unemployed/ studying	Unemployed/ studying
Manager (0,1)	0.00602* (0.00363)	-	-0.0483*** (0.00772)	-
Relative wage, est.	0.00255 (0.00407)	0.00126 (0.00398)	-0.0514*** (0.0102)	-0.0353*** (0.0105)
Relative wage, LA-region	-0.0104*** (0.00333)	-0.00875*** (0.00324)	-0.213*** (0.00912)	-0.228*** (0.00927)
Age	0.00236*** (0.000434)	0.00222*** (0.000433)	-0.00430*** (0.00113)	-0.00358*** (0.00113)
Age-squared	-1.99e-05*** (5.55e-06)	-1.86e-05*** (5.51e-06)	7.44e-05*** (1.49e-05)	6.81e-05*** (1.48e-05)
Male (0,1)	0.00650*** (0.00119)	0.00611*** (0.00118)	0.0195*** (0.00321)	0.0210*** (0.00317)
North Am. Eur. ^c	-0.00574*** (0.00196)	-0.00541*** (0.00198)	0.0186** (0.00774)	0.0174** (0.00758)
Africa	-0.00459 (0.00470)	-0.00364 (0.00500)	0.0293 (0.0191)	0.0240 (0.0183)
South America	-0.00381 (0.00540)	-0.00312 (0.00561)	0.00186 (0.0172)	-0.00142 (0.0166)
Asia	0.00120 (0.00247)	0.00184 (0.00252)	0.0504*** (0.00839)	0.0475*** (0.00822)
Oceania	0.0204 (0.0358)	0.0192 (0.0350)	0.165 (0.110)	0.176* (0.105)
Married (0,1)	0.00206 (0.00128)	0.00194 (0.00128)	0.00308 (0.00345)	0.00365 (0.00341)
Children (0,1)	0.000851 (0.00137)	0.000639 (0.00137)	-0.0262*** (0.00388)	-0.0245*** (0.00382)
Chain (0,1)	-0.0105*** (0.00124)	-0.0107*** (0.00124)	-0.0345*** (0.00315)	-0.0330*** (0.00311)
Size of est.	7.71e-06** (3.47e-06)	5.69e-06 (3.48e-06)	3.61e-05*** (1.16e-05)	5.38e-05*** (1.18e-05)
Marginal return	-0.000277* (0.000151)	-0.000262 (0.000220)	-0.000214 (0.00124)	-0.000706 (0.00126)
Retail region	6.38e-08** (2.55e-08)	5.96e-08** (2.53e-08)	6.17e-08 (6.58e-08)	7.74e-08 (6.50e-08)
Central (0,1)	-0.00480** (0.00225)	-0.00508** (0.00226)	0.0136*** (0.00481)	0.0142*** (0.00472)
Obs.	36,054	36,054	36,054	36,054

The establishment level is clustered. Heteroscedasticity-robust standard errors are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Base categories are: ^aPrimary education, less than 9 years, ^b Level 1, ^cSweden.

5.2 Paths after quitting

Tables 4a and 4b show the results on determinants of paths after quitting.

Establishment tenure appears to decrease the likelihood of remaining in the retail

sector, at a declining rate, while industry tenure has the opposite effect. Establishment tenure reflects firm-specific human capital while industry tenure reflects industry-specific human capital, which is transferrable across firms. Consequently, industry tenure increases inter-firm and intra-industry mobility (Becker, 2009). A similar analogy as that to firm specific human capital may apply to industry specific human capital such as industry experience. Thus, that the industry specific human capital is valued more in the same industry compared to others, which then reduces the mobility of individuals between industries. Compared to the lowest level of education, those with higher levels of education are more likely to remain in the retail sector. However, the results do not hold for all levels of education in the robustness test. For the outcome variable of leaving the industry (*Changed ind.*), the effects of postsecondary education over more than 3 years were robust, however, and shows that compared to the lowest level of education, those with a postsecondary education are more prone to change sector. This is in line with our expectations as well as findings in previous studies (e.g. Carless & Arnup, 2011).

Those with a retail education are more likely to remain in the retail sector; however, there does not appear to be an effect on the likelihood of leaving the retail sector. Being a manager does not appear to affect the likelihood of remaining in the retail sector, and the results are robust. Relative wage, both within the establishment and in the region increases the likelihood of remaining in the retail sector. The model is estimated again, but this time with degree of occupational skill instead of the manager variable. Compared to the lowest degree of occupational skill, the likelihood of remaining in the retail sector increases with occupational skill. The opposite effect is found on the likelihood of leaving the retail sector.

No robust effects of tenure or education are found on entrepreneurship. The negative effects of education on the probability of becoming unemployed or becoming a student is however robust when considering postsecondary education and doctoral education. Being a manager decreases the probability of becoming unemployed or becoming a student. Compared to the lowest level of occupational skill, a higher level of occupational skill increases the probability of becoming an entrepreneur and decreases the probability of becoming unemployed.

The effects of age on the probability of staying in the industry mirror the effects on the probability of quitting a job. If an individual does quit his/her job, as his/her age increases, he/she is less likely to remain in the retail sector, and more likely to switch sectors or to become an entrepreneur, but less likely to become unemployed or to become a student. The effect of age on probability of entrepreneurship is logical; since older individuals have more human capital in terms of experience, they are better equipped to start their own business. These findings are in line with, for instance, Backman and Karlsson (2013). Relative to females, males are less likely to remain in the retail sector, while they are more likely to switch to a different sector, become entrepreneurs, or become unemployed or a student. These results are in line with studies showing that males are more mobile than females the labor market (Keith & McWilliams, 1995; Loprest, 1992), and are more prone to career changes than women, (Blau & Lunz, 1998; Carless & Arnup, 2011). Our finding that males are more likely than females to become entrepreneurs is also supported in previous literature (Simoes, Crespo, & Moreira, 2016). Non-Swedes are more likely than Swedes to remain in the retail sector or to become unemployed or a student. As argued earlier, as foreign-born individuals may have lower labor mobility than those born in Sweden, they may be less likely to switch industries. Having children increases the likelihood of leaving the retail

sector. Individuals working in a chain store or establishment are more likely to remain in the retail sector, and less likely to switch sectors, become an entrepreneur, or become unemployed or a student.

If the individual works in a chain store/establishment, he/she is more likely to remain in the sector, less likely to switch sectors, become an entrepreneur, or become unemployed or a student. The size of the establishment decreases the probability of remaining in the retail sector and increases the probability of switching sectors. The regional size of employment in retail increases the probability of remaining in the retail sector. The centrality of the municipality increases the probability of becoming unemployed or a student, while it decreases the tendency to switch sectors.

6 Conclusion

We study the retail sector in Sweden, which is important as it offers entry jobs into the labor market. However, labor turnover is very high and entails costs such as recruitment costs and foregone future revenues. We contribute to the literature on the factors affecting voluntary labor turnover by focusing on a unique Swedish setting and using the full population of employees in the retail sector.

To get a better understanding of labor turnover, we compare inter-industry mobility with intra-industry mobility. We define labor turnover as those who leave a full-time job with a retail establishment and either: (i) continue to a job in a different establishment in the retail sector; (ii) switch to a different sector; (iii) become an entrepreneur); or (iv) become unemployed or become a student. We test the influence of firm-specific human capital — in the form of establishment tenure — and worker-specific human capital — in the form of formal education and industry experience —

on the probability of quitting a job. We use a wealth maximization framework where the individual decides to quit if the expected value of remaining at his/her job is less than the expected value of seeking other alternatives. Theory predicts that firm-specific human capital decreases the probability of quitting a job because the relative value of this human capital is lower outside the firm where the worker is currently employed. On the other hand, worker-specific human capital increases the probability of quitting a job as this form of human capital is valued in other firms and other sectors.

We find that firm-specific human capital in the form of establishment tenure decreases the probability of quitting a job, while worker-specific human capital in the form of formal education increases the probability of quitting, which is in line with theory. Worker-specific human capital in the form of industry experience and specific retail education, however, decreases the probability of quitting a job. Of those that do quit their jobs, we find that establishment tenure decreases the probability of remaining in the retail sector while industry experience and retail education increase the probability of remaining in the retail sector.

Our findings suggest that vocational training programs should be made more attractive in order to reduce labor turnover in retail firms, and to retain workers in the retail sector. As individuals with more complex working tasks are less likely to quit their jobs and less likely to leave the retail sector, we argue that firms should invest in on-the-job training and other measures to help employees develop their skills set in order to retain their knowledge at the workplace and in the retail sector.

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References

- Adams, J. S. (1963). Towards an understanding of inequity. *The Journal of Abnormal and Social Psychology*, 67(5), 422.
- Andersson, T., Kazemi, A., & Wickelgren, M. (2016). Karriärvägar i detaljhandeln. *Handelsrådets Forskningsrapport, Nr 2016:3*.
- Arndt, A., Arnold, T. J., & Landry, T. D. (2006). The effects of polychronic-orientation upon retail employee satisfaction and turnover. *Journal of Retailing*, 82(4), 319-330.
- Arnold, H. J., & Feldman, D. C. (1982). A multivariate analysis of the determinants of job turnover. *Journal of Applied Psychology*, 67(3), 350-360.
- Backman, M., & Karlsson, C. (2013). *Determinants of entrepreneurship. Is it all about the individual or the region? : The Royal Institute of technology Centre of Excellence for Science and*
- Batt, R. (2002). Managing customer services: Human resource practices, quit rates, and sales growth. *Academy of Management Journal*, 45(3), 587-597.
- Becker, G. S. (2009). *Human capital: A theoretical and empirical analysis, with special reference to education*: University of Chicago press.
- Behtoui, A. (2008). Informal recruitment methods and disadvantages of immigrants in the Swedish labour market. *Journal of ethnic and migration studies*, 34(3), 411-430.
- Bettencourt, L. A., & Brown, S. W. (1997). Contact employees: Relationships among workplace fairness, job satisfaction and prosocial service behaviors. *Journal of Retailing*, 73(1), 39-61.
- Blau, G., & Lunz, M. (1998). Testing the incremental effect of professional commitment on intent to leave one's profession beyond the effects of external, personal, and work-related variables. *Journal of vocational behavior*, 52(2), 260-269.
- Booth, S., & Hamer, K. (2007). Labour turnover in the retail industry: Predicting the role of individual, organisational and environmental factors. *International Journal of Retail & Distribution Management*, 35(4), 289-307.
- Broadbridge, A. (2002). Rationalising retail employment: a view from the outside looking in. *International Journal of Retail & Distribution Management*, 30(11), 536-543.
- Broadbridge, A. (2007). Dominated by women: managed by men? The career development process of retail managers. *International Journal of Retail & Distribution Management*, 32(12), 956-974.
- Brush, C. G., & Chaganti, R. (1999). Businesses without glamour? an analysis of resources on performance by size and age in small service and retail firms. *Journal of Business Venturing*, 14(3), 233-257.
- Carless, S. A., & Arnup, J. L. (2011). A longitudinal study of the determinants and outcomes of career change. *Journal of vocational behavior*, 78(1), 80-91.
- Daunfeldt, S.-O., & Fergin-Wennberg, E. (2016). *Matchningsprocessen på den svenska arbetsmarknaden: vad kännetecknar de arbetslösa individer som inte kan behålla en anställning?* Retrieved from HUI Research AB:
- Daunfeldt, S.-O., & Hortlund, P. (2014). *Asymmetriska effekter av förändrade arbetsgivaravgifter för unga*. Retrieved from
- Gable, M., Hollon, C. J., & Dangelo, F. (1984). Predicting voluntary managerial trainee turnover in a large retailing organization from information on an employment application blank. *Journal of Retailing*, 60(4), 43-63.

- Galizzi, M., & Lang, K. (1998). Relative wages, wage growth, and quit behavior. *Journal of Labor Economics*, 16(2), 367-390.
- Good, L. K., Page Jr, T. J., & Young, C. E. (1996). Assessing hierarchical differences in job-related attitudes and turnover among retail managers. *Journal of the Academy of Marketing Science*, 24(2), 148-156.
- Good, L. K., Sisler, G. F., & Gentry, J. W. (1988). Antecedents of turnover intentions among retail management. *Journal of Retailing*, 64(3), 292-314.
- Good, L. K., Sisler, G. F., & Gentry, J. W. (1988). Antecedents of turnover intentions among retail management. *Journal of retailing*, 64(3), 295.
- Grand, C. I., & Szulkin, R. (2002). Permanent Disadvantage or Gradual Integration: Explaining the Immigrant–Native Earnings Gap in Sweden. *LABOUR*, 16(1), 37-64. doi:doi:10.1111/1467-9914.00186
- Heckman, J. J. (1976). The common structure of statistical models of truncation, sample selection and limited dependent variables and a simple estimator for such models. In *Annals of economic and social measurement, volume 5, number 4* (pp. 475-492): NBER.
- Hendrie, J. (2004). A review of a multiple retailer's labour turnover. *International Journal of Retail & Distribution Management*, 32(9), 434-441.
- Huselid, M. A., & Day, N. E. (1991). Organizational commitment, job involvement, and turnover: A substantive and methodological analysis. *Journal of Applied Psychology*, 76(3), 380-391.
- Keith, K., & McWilliams, A. (1995). The Wage Effects of Cumulative Job Mobility. *ILR Review*, 49(1), 121-137. doi:10.1177/001979399504900108
- Lamond, D., Zheng, C., & Tian-Foreman, W. A. (2009). Job satisfaction and turnover in the Chinese retail industry. *Chinese Management Studies*.
- Lévy-Garboua, L., Montmarquette, C., & Simonnet, V. (2007). Job satisfaction and quits. *Labour Economics*, 14(2), 251-268.
- Loprest, P. J. (1992). Gender Differences in Wage Growth and Job Mobility. *The American Economic Review*, 82(2), 526-532.
- Maertz Jr, C. P., & Campion, M. A. (2004). Profiles in quitting: Integrating process and content turnover theory. *Academy of Management journal*, 47(4), 566-582.
- Marsden, D. (1990). Institutions and labour mobility: occupational and internal labour markets in Britain, France, Italy and West Germany. In *Labour relations and economic performance* (pp. 414-438): Springer.
- McNeilly, K., & Goldsmith, R. E. (1991). The moderating effects of gender and performance on job satisfaction and intentions to leave in the sales force. *Journal of Business Research*, 22(3), 219-232.
- Min, H. (2007). Examining sources of warehouse employee turnover. *International Journal of Physical Distribution & Logistics Management*, 37(5), 375-388.
- Mincer, J., & Jovanovic, B. (1981). Labor mobility and wages. In *Studies in labor markets* (pp. 21-64): University of Chicago Press.
- Mobley, W. H. (1977). Intermediate linkages in the relationship between job satisfaction and employee turnover. *Journal of Applied Psychology*, 62(2), 237.
- Motowidlo, S. J. (1983). Predicting sales turnover from pay satisfaction and expectation. *Journal of Applied Psychology*, 68(3), 484-489.
- Näringsliv, S. (2015). Fakta om löner och arbetstider 2015. *Rapportserie för Svenskt Näringsliv*.
doi:https://www.svensktnaringsliv.se/migration_catalog/Rapporter_och_opionsmaterial/Rapporter/fakta-om-loner-och-arbetstider-

[2015pdf_619265.html/BINARY/Fakta%20om%20l%C3%B6ner%20och%20arbetstider%202015.pdf](https://www.scb.se/contentassets/c9d055b6f2114b62bd23c33602b56da5/ov9999_2012a01_br_x70br1201.pdf)

- O'Leary, S., & Deegan, J. (2005). Career progression of Irish tourism and hospitality management graduates. *International Journal of Contemporary Hospitality Management*, 17(5), 421-432.
- Parsons, D. O. (1972). Specific Human Capital: An Application to Quit Rates and Layoff Rates. *Journal of Political Economy*, 80(6), 1120-1143.
doi:10.2307/1830213
- Porter, L. W., & Steers, R. M. (1973). Organizational, work, and personal factors in employee turnover and absenteeism. *Psychological Bulletin*, 80(2), 151-176.
- Ramaseshan, B. (1997). Retail employee turnover: Effects of realistic job information and interviewer affect. *Journal of Retailing and Consumer Services*, 4(3), 193-199.
- Robinson, D. D. (1972). Prediction of clerical turnover in banks by means of a weighted application blank. *Journal of Applied Psychology*, 56(3), 282.
- Salleh, R., Nair, M. S., & Harun, H. (2012). Job satisfaction, organizational commitment, and turnover intention: A case study on employees of a retail company in Malaysia. *World Academy of Science, Engineering and Technology*, 72(12), 316-323.
- Schulz, R. M., Bigoness, W. J., & Gagnon, J. P. (1987). Determinants of turnover intentions among retail pharmacists. *Journal of Retailing*, 63(1), 89-98.
- Schulz, R. M., Bigoness, W. J., & Gagnon, J. P. (1987). Research Note: Determinants of Turnover Intentions Among Retail Pharmacists. *Journal of retailing*, 63(1).
- Simoës, N., Crespo, N., & Moreira, S. B. (2016). Individual determinants of self-employment entry: What do we really know? *Journal of economic surveys*, 30(4), 783-806.
- Statistics Sweden. (2012). *Swedish Standard Classification of Occupations 2012*. Retrieved from Statistics Sweden:
https://www.scb.se/contentassets/c9d055b6f2114b62bd23c33602b56da5/ov9999_2012a01_br_x70br1201.pdf
- Telly, C. S., French, W. L., & Scott, W. G. (1971). The relationship of inequity to turnover among hourly workers. *Administrative science quarterly*, 164-172.
- The Swedish Agency for Growth Policy Analysis. (2014). *Bättre statistik för bättre regional- och landsbygdspolitik [Improved Statistics for better regional- and rural policies]* (2014:4). Retrieved from Östersund:
- Waters, L., Roach, D., & Waters, C. W. (1976). Estimates of future tenure, satisfaction, and biographical variables as predictors of termination. *Personnel Psychology*.
- Weiss, A. (1984). Determinants of quit behavior. *Journal of Labor Economics*, 2(3), 371-387.
- Wennberg, K., Lindberg, H., & Fergin, E. (2013). Rekrytering och kompetensförsörjning i snabbväxande företag. *Ratio-Näringslivets forskningsinstitut*.
- Williams, R. (2006). Generalized ordered logit/partial proportional odds models for ordinal dependent variables. *The stata journal*, 6(1), 58-82.

Appendix A

Table A1. Odds ratios for all outcome variables in Table 3.

Vars	(1) Quit	(2) Quit
Tenure est.	-0.0965*** (0.00304)	-0.0970*** (0.00304)
Tenure est. >26 years (0,1)	1.007*** (0.144)	1.006*** (0.142)
Tenure ind.	-0.00922*** (0.00185)	-0.00857*** (0.00185)
Tenure ind. >26 years (0,1)	0.0732 (0.0528)	0.0701 (0.0528)
Primary 9 years ^a	0.118 (0.0789)	0.126 (0.0787)
Secondary, <3 years	0.181** (0.0778)	0.192** (0.0775)
Post-secondary, <3 years	0.272*** (0.0793)	0.290*** (0.0788)
Post-secondary >3 years	0.320*** (0.0813)	0.355*** (0.0800)
Doctoral	0.450** (0.211)	0.504** (0.210)
Retail ed. (0,1)	-0.0626*** (0.0185)	-0.0624*** (0.0185)
Occup. skill: Level 2 ^b	-	-0.200*** (0.0568)
Occup skill: Level 3	-	-0.245*** (0.0625)
Occup skill: Level 4	-	-0.267*** (0.0683)

Table A1 continued.

Vars	(1) Quit	(2) Quit
Manager (0,1)	-0.129*** (0.0495)	-
Relative wage, est.	0.00205 (0.0541)	-0.00344 (0.0545)
relative wage, LA-region	-0.300*** (0.0469)	-0.302*** (0.0474)
Age	-0.0388*** (0.00513)	-0.0380*** (0.00511)
Age-squared	0.000214*** (6.57e-05)	0.000206*** (6.56e-05)
Male (0,1)	-0.0138 (0.0155)	-0.0142 (0.0155)
North Am. Eur. ^c	-0.108*** (0.0298)	-0.110*** (0.0297)
Africa	-0.0618 (0.0717)	-0.0688 (0.0715)
South America	-0.0425 (0.0699)	-0.0481 (0.0700)
Asia	-0.0583* (0.0306)	-0.0596* (0.0305)
Oceania	0.166 (0.256)	0.164 (0.256)
Married (0,1)	0.00567 (0.0147)	0.00614 (0.0147)
Children (0,1)	-0.0116 (0.0156)	-0.0107 (0.0155)
Chain (0,1)	0.259*** (0.0227)	0.262*** (0.0227)
Size of est.	-0.000753*** (9.06e-05)	-0.000746*** (9.16e-05)
Marginal return	-0.000494* (0.000283)	-0.000483* (0.000286)
Retail region	4.52e-06*** (4.51e-07)	4.50e-06*** (4.50e-07)
Central (0,1)	0.101*** (0.0295)	0.102*** (0.0296)
Constant	-0.306** (0.121)	-0.140 (0.129)
Obs	167,632	167,362

The establishment level is clustered. Heteroscedasticity-robust standard errors are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Base categories are: ^aPrimary education, less than 9 years, ^b Level 1, ^cSweden.

Table A2a. Odds ratios for the models in Table 4. The outcome *Stayed in the industry* is the base category.

Multinomial logit		
Vars	(1) Changed ind.	(2) Changed ind.
Tenure est.	0.0966*** (0.00546)	0.0952*** (0.00548)
Tenure est. >26 years (0,1)	-0.933*** (0.288)	-0.928*** (0.288)
Tenure ind.	-0.0934*** (0.00378)	-0.0924*** (0.00378)
Tenure ind. >26 years (0,1)	0.447*** (0.121)	0.442*** (0.121)
Primary 9 years ^a	-0.135 (0.186)	-0.112 (0.186)
Secondary <3 years	-0.152 (0.183)	-0.116 (0.183)
Post-secondary, <3 years	0.0191 (0.186)	0.0759 (0.185)
Post-secondary >3 years	-0.0213 (0.188)	0.105 (0.187)
Doctoral	-0.862** (0.418)	-0.684 (0.422)
Retail ed (0,1)	-0.0482 (0.0359)	-0.0446 (0.0359)
Occup. skill: Level 2 ^b	-	-0.469*** (0.0813)
Occup skill: Level 3	-	-0.570*** (0.0963)
Occup skill: Level 4	-	-0.682*** (0.103)

Table A2a continued.

Multinomial logit		
Vars	(1) Changed ind.	(2) Changed ind.
Manager (0,1)	0.129 (0.104)	-
Relative wage, est.	-0.636*** (0.102)	-0.626*** (0.102)
Relative wage, LA-region	-0.277*** (0.0896)	-0.309*** (0.0896)
Age	0.0643*** (0.00985)	0.0682*** (0.00988)
Age-squared	-0.000733*** (0.000130)	-0.000764*** (0.000130)
Male (0,1)	0.417*** (0.0292)	0.427*** (0.0289)
North Am. Eur. ^c	-0.265*** (0.0565)	-0.272*** (0.0564)
Africa	-0.508*** (0.133)	-0.537*** (0.131)
South America	-0.358*** (0.127)	-0.372*** (0.127)
Asia	-0.449*** (0.0573)	-0.462*** (0.0574)
Oceania	-0.792 (0.582)	-0.795 (0.586)
Married (0,1)	0.0334 (0.0272)	0.0398 (0.0272)
Children (0,1)	0.0690** (0.0298)	0.0754** (0.0297)
Chain (0,1)	-0.672*** (0.0383)	-0.662*** (0.0384)
Size of est.	0.00148*** (0.000316)	0.00155*** (0.000311)
Marginal return	-0.0477** (0.0210)	-0.0501** (0.0209)
Retail region	-4.11e-06*** (7.97e-07)	-4.07e-06*** (8.00e-07)
Central (0,1)	-0.0780 (0.0594)	-0.0758 (0.0598)
Constant	-0.371 (0.256)	-0.0515 (0.263)
Obs	36,054	36,054

The establishment level is clustered. Heteroscedasticity-robust standard errors are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Base categories are: ^aPrimary education, less than 9 years, ^b Level 1, ^cSweden.

Table A2b. Odds ratios for the models in Table 5. The outcome variable *Stayed in the industry* is the base category.

Multinomial logit				
Vars	(1) Became entrepreneur	(2) Became entrepreneur	(3) Became unemployed/ studying	(4) Became unemployed/ studying
Tenure est.	0.0727*** (0.0136)	0.0741*** (0.0137)	0.0945*** (0.00724)	0.0907*** (0.00723)
Tenure est. >26 years (0,1)	-0.606 (0.558)	-0.593 (0.555)	-0.434 (0.306)	-0.455 (0.304)
Tenure ind.	-0.0864*** (0.0109)	-0.0867*** (0.0109)	-0.0616*** (0.00534)	-0.0594*** (0.00539)
Tenure ind. >26 years (0,1)	1.021*** (0.300)	1.002*** (0.298)	0.413** (0.165)	0.433*** (0.166)
Primary 9 years ^a	0.277 (0.563)	0.244 (0.563)	-0.781*** (0.209)	-0.729*** (0.209)
Secondary <3 years	0.374 (0.544)	0.325 (0.543)	-0.882*** (0.200)	-0.799*** (0.200)
Post-secondary, <3 years	0.684 (0.550)	0.597 (0.549)	-0.909*** (0.204)	-0.761*** (0.204)
Post-secondary >3 years	0.592 (0.553)	0.469 (0.554)	-1.414*** (0.210)	-1.053*** (0.210)
Doctoral	-0.245 (1.180)	-0.460 (1.183)	-1.867*** (0.692)	-1.192* (0.675)
Retail ed (0,1)	-0.203 (0.129)	-0.207 (0.129)	-0.303*** (0.0565)	-0.301*** (0.0566)
Occup. skill: Level 2 ^b	-	0.113 (0.314)	-	-0.553*** (0.110)
Occup skill: Level 3	-	0.449 (0.336)	-	-1.041*** (0.139)
Occup skill: Level 4	-	0.331 (0.340)	-	-1.555*** (0.160)

Table A2b continued.

Multinomial logit				
Vars	(1) Became entrepreneur	(2) Became entrepreneur	(3) Became unemployed/ studying	(4) Became unemployed/ studying
Manager (0,1)	0.359* (0.187)	-	-0.616*** (0.176)	-
Relative wage, est.	-0.232 (0.281)	-0.295 (0.280)	-0.910*** (0.134)	-0.735*** (0.137)
Relative wage LA region	-1.082*** (0.228)	-1.011*** (0.225)	-2.523*** (0.123)	-2.742*** (0.127)
Age	0.187*** (0.0302)	0.181*** (0.0302)	-0.0101 (0.0146)	-0.000816 (0.0146)
Age-squared	-0.00163*** (0.000382)	-0.00158*** (0.000382)	0.000405** (0.000193)	0.000331* (0.000194)
Male (0,1)	0.680*** (0.0831)	0.665*** (0.0829)	0.449*** (0.0422)	0.474*** (0.0419)
North Am. Eur. ^c	-0.581*** (0.190)	-0.560*** (0.190)	0.0529 (0.0839)	0.0400 (0.0837)
Africa	-0.568 (0.436)	-0.508 (0.436)	0.0441 (0.188)	-0.0140 (0.189)
South America	-0.463 (0.473)	-0.420 (0.472)	-0.165 (0.210)	-0.209 (0.212)
Asia	-0.0894 (0.156)	-0.0594 (0.156)	0.257*** (0.0779)	0.233*** (0.0780)
Oceania	0.710 (1.078)	0.693 (1.081)	0.871 (0.598)	0.935 (0.571)
Married (0,1)	0.159* (0.0889)	0.156* (0.0893)	0.0545 (0.0416)	0.0648 (0.0416)
Children (0,1)	0.0642 (0.0929)	0.0560 (0.0934)	-0.252*** (0.0474)	-0.233*** (0.0473)
Chain (0,1)	-1.098*** (0.0923)	-1.111*** (0.0936)	-0.758*** (0.0472)	-0.741*** (0.0472)
Size of est.	0.00135*** (0.000368)	0.00128*** (0.000375)	0.00121*** (0.000338)	0.00145*** (0.000296)
Marginal return	-0.0445*** (0.0160)	-0.0455*** (0.0114)	-0.0285 (0.0250)	-0.0354 (0.0254)
Retail region	2.09e-06 (1.90e-06)	1.88e-06 (1.90e-06)	-1.47e-06 (9.59e-07)	-1.27e-06 (9.52e-07)
Central (0,1)	-0.312** (0.130)	-0.327** (0.129)	0.110 (0.0730)	0.121 (0.0740)
Constant	-7.150*** (0.770)	-7.076*** (0.857)	-0.524 (0.328)	-0.310 (0.339)
Obs	36,054	36,054	36,054	36,054

The establishment level is clustered. Heteroscedasticity-robust standard errors are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Base categories are: ^aPrimary education, less than 9 years, ^b Level 1, ^cSweden.

Appendix B

Table B1. Marginal effects in 2006 and 2007. The dependent variable is *Quit*.

Vars	(1) Quit	(2) Quit
Tenure est.	-0.0139*** (0.000552)	-0.0139*** (0.000551)
Tenure est. >16 years (0,1)	0.0969*** (0.0129)	0.0970*** (0.0129)
Tenure ind.	-0.00240*** (0.000475)	-0.00228*** (0.000483)
Tenure ind. >16 yrs (0,1)	-0.000274 (0.00574)	-0.00158 (0.00574)
Primary 9 years ^a	0.0192** (0.00832)	0.0188** (0.00836)
Secondary, <3 years	0.0199** (0.00812)	0.0191** (0.00816)
Post-secondary, <3 years	0.0310*** (0.00850)	0.0283*** (0.00855)
Post-secondary >3 years	0.0510*** (0.00927)	0.0479*** (0.00935)
Doctoral	0.0836** (0.0409)	0.0804** (0.0409)
Retail ed. (0,1)	-0.00606** (0.00287)	-0.00558* (0.00287)
Occup. skill: Level 2 ^b	-	-0.0268*** (0.00939)
Occup skill: Level 3	-	-0.0140 (0.0110)
Occup skill: Level 4	-	-0.0223** (0.0105)

Table B1 continued.

Vars	(1) Quit	(2) Quit
Manager (0,1)	0.00658* (0.00369)	
Relative wage, est.	0.0102 (0.00890)	0.00959 (0.00901)
relative wage, LA-region	-0.0326*** (0.00708)	-0.0322*** (0.00732)
Age	-0.00423*** (0.000795)	-0.00427*** (0.000799)
Age-squared	1.82e-05* (1.07e-05)	1.82e-05* (1.08e-05)
Male (0,1)	0.0185*** (0.00242)	0.0186*** (0.00239)
North Am. Eur. ^c	-0.0180*** (0.00452)	-0.0179*** (0.00449)
Africa	-0.00560 (0.0166)	-0.00662 (0.0164)
South America	0.000319 (0.0117)	0.000157 (0.0116)
Asia	-0.0217*** (0.00526)	-0.0217*** (0.00520)
Oceania	0.0441 (0.0562)	0.0442 (0.0559)
Married (0,1)	0.000340 (0.00236)	0.000298 (0.00236)
Children (0,1)	-0.00867*** (0.00244)	-0.00861*** (0.00243)
Chain (0,1)	0.0577*** (0.00330)	0.0577*** (0.00327)
Size of est.	-0.000131*** (2.75e-05)	-0.000135*** (2.71e-05)
Marginal return	1.33e-06*** (1.25e-07)	1.34e-06*** (1.24e-07)
Retail region	0.0120*** (0.00460)	0.0118** (0.00459)
Obs	125,065	125,044

The establishment level is clustered. Heteroscedasticity-robust standard errors are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Base categories are: ^aPrimary education, less than 9 years, ^b Level 1, ^cSweden.

Table B2a. Marginal effects in 2006 and 2007. Multinomial logit.

Multinomial logit				
Vars	(1) Stayed ind.	(2) Stayed ind.	(3) Changed ind.	(4) Changed ind.
Tenure est.	-0.0296*** (0.00202)	-0.0296*** (0.00201)	0.0255*** (0.00194)	0.0256*** (0.00194)
Tenure est. >16 years (0,1)	0.149*** (0.0352)	0.154*** (0.0349)	-0.146*** (0.0311)	-0.149*** (0.0309)
Tenure ind.	0.0361*** (0.00155)	0.0363*** (0.00158)	-0.0360*** (0.00163)	-0.0362*** (0.00166)
Tenure ind. >16 years (0,1)	-0.0778*** (0.0234)	-0.0838*** (0.0233)	0.0955*** (0.0241)	0.0993*** (0.0241)
Primary 9 years ^a	0.0334 (0.0460)	0.0142 (0.0464)	-0.0332 (0.0450)	-0.0207 (0.0447)
Secondary, <3 years	0.0567 (0.0454)	0.0308 (0.0458)	-0.0294 (0.0444)	-0.0136 (0.0441)
Post-secondary, <3 years	0.0617 (0.0458)	0.0202 (0.0463)	-0.0185 (0.0451)	0.00753 (0.0449)
Post-secondary >3 years	-0.00178 (0.0465)	-0.0565 (0.0470)	0.0604 (0.0458)	0.0996** (0.0458)
Doctoral	0.0145 (0.145)	-0.0751 (0.142)	0.0847 (0.150)	0.179 (0.147)
Retail ed. (0,1)	0.0294*** (0.0111)	0.0311*** (0.0111)	-0.0197* (0.0111)	-0.0205* (0.0111)
Occup. skill: Level 2 ^b		0.0958*** (0.0229)		-0.0666*** (0.0231)
Occup skill: Level 3		0.199*** (0.0275)		-0.141*** (0.0273)
Occup skill: Level 4		0.217*** (0.0263)		-0.166*** (0.0260)

Table B2a continued

Multinomial logit				
Vars	(1) Stayed ind.	(2) Stayed ind.	(3) Changed ind.	(4) Changed ind.
Manager (0,1)	0.131*** (0.0138)	-	-0.106*** (0.0129)	-
Relative wage, est. relative wage, LA- region	0.0928*** (0.0305)	0.0870*** (0.0302)	-0.0498* (0.0294)	-0.0469 (0.0292)
Age	0.165*** (0.0230)	0.181*** (0.0230)	0.0231 (0.0218)	0.0133 (0.0221)
Age-squared	-0.00853*** (0.00302)	-0.0107*** (0.00304)	0.0144*** (0.00292)	0.0161*** (0.00295)
Male (0,1)	4.95e-05 (4.13e-05)	6.91e-05* (4.18e-05)	-0.000168*** (4.06e-05)	-0.000182*** (4.10e-05)
North Am. Eur. ^c	-0.146*** (0.00838)	-0.147*** (0.00839)	0.124*** (0.00813)	0.125*** (0.00814)
Africa	0.0388** (0.0190)	0.0443** (0.0190)	-0.0734*** (0.0178)	-0.0771*** (0.0177)
South America	-0.0781 (0.0630)	-0.0652 (0.0650)	-0.0418 (0.0601)	-0.0471 (0.0609)
Asia	0.0737* (0.0407)	0.0775* (0.0409)	-0.116*** (0.0379)	-0.118*** (0.0380)
Oceania	0.0284 (0.0217)	0.0341 (0.0217)	-0.114*** (0.0193)	-0.117*** (0.0192)
Married (0,1)	-0.274** (0.110)	-0.251** (0.128)	0.00586 (0.150)	0.00519 (0.150)
Children (0,1)	0.00801 (0.00923)	0.00790 (0.00923)	-0.0127 (0.00888)	-0.0124 (0.00888)
Chain (0,1)	-0.0148 (0.00957)	-0.0155 (0.00964)	0.0358*** (0.00946)	0.0361*** (0.00951)
Size of est.	0.208*** (0.00994)	0.207*** (0.00991)	-0.148*** (0.00937)	-0.147*** (0.00939)
Retail region	-0.000413** (0.000161)	-0.000464*** (0.000160)	0.000380** (0.000154)	0.000422*** (0.000155)
Central (0,1)	7.89e-07** (3.40e-07)	7.11e-07** (3.38e-07)	-3.11e-07 (3.32e-07)	-2.56e-07 (3.32e-07)
Obs	0.0439** (0.0176)	0.0434** (0.0179)	-0.0569*** (0.0184)	-0.0564*** (0.0186)
	21,790	21,781	21,790	21,781

The establishment level is clustered. Heteroscedasticity-robust standard errors are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Base categories are: ^aPrimary education, less than 9 years, ^b Level 1, ^cSweden.

Table B2b. Marginal effects in 2006 and 2007. Multinomial logit.

Multinomial logit				
Vars	(1) Became entrepreneur	(2) Became entrepreneur	(3) Became unemployed/ studying	(4) Became unemployed/ studying
Tenure est.	0.000973** *	0.000991***	0.00312***	0.00306***
	(0.000351)	(0.000342)	(0.000850)	(0.000840)
Tenure est. >26 years (0,1)	-0.00704 (0.00456)	-0.00708 (0.00443)	0.00472 (0.0153)	0.00173 (0.0148)
Tenure ind.	0.000109 (0.000331)	9.99e-05 (0.000321)	-0.000268 (0.000818)	-0.000196 (0.000805)
Tenure ind. >26 years (0,1)	-0.00701 (0.00464)	-0.00730 (0.00454)	-0.0106 (0.0108)	-0.00822 (0.0108)
Primary 9 years ^a	0.00310 (0.00739)	0.00334 (0.00762)	-0.00329 (0.0185)	0.00318 (0.0171)
Secondary, <3 years	0.00348 (0.00712)	0.00307 (0.00735)	-0.0308* (0.0179)	-0.0203 (0.0166)
Post-secondary, <3 years	0.000277 (0.00734)	-0.00167 (0.00752)	-0.0434** (0.0185)	-0.0261 (0.0175)
Post-secondary >3 years	0.00303 (0.00762)	-0.00103 (0.00772)	-0.0617*** (0.0188)	-0.0420** (0.0179)
Doctoral	0.0257 (0.0324)	0.00808 (0.0217)	-0.125*** (0.0180)	-0.112*** (0.0167)
Retail ed. (0,1)	-0.00289 (0.00264)	-0.00330 (0.00259)	-0.00674 (0.00571)	-0.00731 (0.00565)
Occup. skill: Level 2 ^b		0.00569 (0.00458)		-0.0349** (0.0167)
Occup skill: Level 3		0.0130** (0.00555)		-0.0709*** (0.0174)
Occup skill: Level 4		0.0249*** (0.00578)		-0.0761*** (0.0172)

Table B2b continued.

Multinomial logit				
Vars	(1) Became entrepreneur	(2) Became entrepreneur	(3) Became unemployed/ studying	(4) Became unemployed/ studying
Manager (0,1)	0.0107*** (0.00356)	-	-0.0355*** (0.00561)	-
Relative wage, est. relative wage, LA- region	0.0119 (0.00725)	0.00982 (0.00693)	-0.0549*** (0.0134)	-0.0499*** (0.0136)
Age	-0.0105** (0.00492)	-0.00671 (0.00458)	-0.177*** (0.0113)	-0.187*** (0.0117)
Age-squared	0.00477*** (0.000750)	0.00437*** (0.000734)	-0.0107*** (0.00135)	-0.00976*** (0.00136)
Male (0,1)	-4.72e-05*** (9.55e-06)	-4.33e-05*** (9.33e-06)	0.000166*** (1.71e-05)	0.000156*** (1.74e-05)
North Am. Eur. ^c	0.0131*** (0.00192)	0.0116*** (0.00190)	0.00854** (0.00413)	0.0102** (0.00414)
Africa	-0.00187 (0.00413)	-0.00104 (0.00417)	0.0365*** (0.0113)	0.0338*** (0.0111)
South America	0.0134 (0.0188)	0.0148 (0.0203)	0.107** (0.0469)	0.0975** (0.0458)
Asia	-0.0185*** (0.00562)	-0.0180*** (0.00566)	0.0603** (0.0277)	0.0585** (0.0270)
Oceania	0.00968 (0.00694)	0.0121* (0.00730)	0.0757*** (0.0150)	0.0707*** (0.0146)
Married (0,1)	-0.0239*** (0.00137)	-0.0234*** (0.00135)	0.292** (0.147)	0.269* (0.145)
Children (0,1)	0.00318 (0.00216)	0.00279 (0.00214)	0.00155 (0.00474)	0.00167 (0.00469)
Chain (0,1)	0.00583** (0.00227)	0.00555** (0.00224)	-0.0268*** (0.00504)	-0.0261*** (0.00499)
Size of est.	-0.0236*** (0.00216)	-0.0240*** (0.00215)	-0.0365*** (0.00426)	-0.0355*** (0.00420)
Retail region	-1.31e-07 (1.56e-05)	-7.02e-06 (1.55e-05)	3.26e-05 (2.61e-05)	4.92e-05** (2.44e-05)
Central (0,1)	-4.94e-08 (6.40e-08)	-6.18e-08 (6.32e-08)	-4.28e-07*** (1.41e-07)	-3.93e-07*** (1.37e-07)
Obs	-0.00168 (0.00323)	-0.00196 (0.00325)	0.0147** (0.00614)	0.0149** (0.00600)
	21,790	21,781	21,790	21,781

The establishment level is clustered. Heteroscedasticity-robust standard errors are in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1. Base categories are: ^aPrimary education, less than 9 years, ^b Level 1, ^cSweden.