



INSTITUTE OF RETAIL ECONOMICS

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

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**Towards a life after retail?**  
**The relationship between human capital and career**  
**outcomes in retail**

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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 2002 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, industry experience and retail specific education decreases the probability of quitting, while formal education has the opposite effect. Moreover, we find that industry experience and retail education increase the probability of staying in the retail sector.

**Keywords:** retail, human capital, turnover, panel data, Sweden, employer-employee matched data

**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.<sup>1</sup> 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).<sup>2</sup> According to the Swedish Retail and Wholesale Council<sup>3</sup>, 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 between 2014 and 2015. In the retail sector, approximately one-third

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<sup>1</sup> 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/](http://www.statistikdatabasen.scb.se/pxweb/en/ssd/START_AM_AM0401_AM0401A/NAKUBefolkning2Ar/table/tableViewLayout1/), accessed on November 11, 2019.

<sup>2</sup> 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.

<sup>3</sup> [https://handelsradet.se/wp-content/uploads/2017/06/Handelns-betydelse-da-nu-och-i-framtiden\\_HER-rapport-2017.pdf](https://handelsradet.se/wp-content/uploads/2017/06/Handelns-betydelse-da-nu-och-i-framtiden_HER-rapport-2017.pdf), Accessed October 22, 2020.

of all employees exit their establishment on a yearly basis.<sup>4</sup> 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 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 employees<sup>5</sup>, 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 - the latter which has intensified during

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

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

the Covid-19 pandemic - are extensions of the structural changes in the economy. These structural changes increase the importance of competent personnel in several aspects. As argued by Mende and Noble (2019), retail staff at the frontline are becoming more important from both the supply side and demand side. For instance, with increased access to product information, consumers' knowledge of a product prior to retail contact creates additional demand on the competence of the front-line personnel (Hochstein, Bolander, Goldsmith, Plouffe, 2019; Hochstein, Bolander, Christenson, Pratt, & Reynolds, 2021). Furthermore, the current pandemic requires a reconfiguration of traditional off-line consumer interactions to safer digital interactions (Roggeveen & Sethuraman, 2020), which increases the pressure on the competencies of retail employees. 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; Good, G. F. Sisler, & Gentry, 1988; Huselid & Day, 1991; O'Leary & Deegan, 2005; Ramaseshan, 1997; Salleh et al., 2012; Schulz, Bigoness, & 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.<sup>6</sup> 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 2002 to 2018. We have access to detailed annual information 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 time  $t$ , we analyze a potential change in  $t+1$  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

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<sup>6</sup> 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.

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 by 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 data and section 4 describes the empirical design. Section 5 presents and discusses the empirical findings and section 6 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, 1964; 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 (1964) 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.<sup>7</sup> 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

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

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).<sup>8</sup> The dataset consists of all individuals over the age of 16 that in time  $t$  are employed full-time in the retail sector, and who in time  $t+1$ : 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 sector<sup>9</sup>, which in 2006 was calculated to be 170,000 SEK (~16,000 EUR), and for each preceding and subsequent year was adjusted with the annual average of the consumer price index. In the sample we have included all individuals that have worked at least one year fulltime in retail between the years 2002-2018.

### 3.1. Variables

*Dependent variables:* 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 one year to the

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<sup>8</sup> Establishments in the retail sector have an SIC between 47,111 and 47,792, based on the SIC for 2007, which is constructed by Statistics Sweden.

<sup>9</sup> In 2006, the minimum wage in the retail sector was 170,000SEK (~17,000 EUR) Retrieved from <https://arbetet.se/2006/10/27/tjnstemannafack-har-smsta-lgstalnerna/>. Accessed 2020-11-12.

next. 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*). In the literature on voluntary job separation, intention to quit is sometimes a preferred predictor of turnover over actual turnover behavior (e.g. Bertelli, 2007; Pitts, Marvel, & Fernandez, 2011). In our data we can only observe the actual job turnover behavior, and while we cannot know whether this was in fact voluntary, turnover of fulltime employees - our studied population - is particularly costly to an establishment due to sunk recruitment and introduction costs and foregone future productivity. In combination with the strict regulations protecting job security, we may therefore 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 (*Left 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*). We do not include job separations that coincided with the closure/ merger or acquisition of an establishment, the death or retirement of an individual.

*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 17 years measured from 2002 to 2018 (*Est. tenure*; *Ind. tenure*). We cannot discern if individuals have 17 years of tenure or more than 17 years due to the length of the panel. Therefore we create a dummy variable that equals 1 if the tenure is more than 16 years (*Est. tenure > 16 years*; *Ind. tenure > 16 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 ed.*). In Sweden, a vocational preparatory education such as that offered at Swedish upper secondary level schools involves a combination of vocational education with practical on the job training (as of 2010, 15 weeks of vocational training is a guaranteed minimum (Ministry of Education, 2010)). As such one may view it as an occupational investment by the individual. Studies have found that occupational investment increases the opportunity cost of changing career (e.g. Zimmerman, Swider, & Arthur, 2020), therefore, it may decrease propensity to quit. However, as it increases the mobility within a specific career in the same manner that education increases the mobility on the labor market in general, it may have a positive correlation with quitting. Thus, the expected effect of retail education on probability to quit is inconclusive. 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), where 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; Schulz et al., 1987). Since absolute wage is part of the variables that capture relative wage, it is thus indirectly controlled for.

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 (2001; 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 by including a categorical variable for ages below 25 years, between 25 and 40 years and over



40 years (*Age cat.*), sex (*Female*), and foreign background (*Region of birth*), which consists of six categories.

*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 categorical variable that indicates whether the workplace is located in a municipality that is defined as being varying degrees of centrally located (*Centrality*, six categories) 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

<b>Dependent variables</b>	
<b>Quit</b>	Binary variable: 1 if the person works in a retail establishment in year t but not in t+1; 0 otherwise
<b>Quit, Next</b>	Categorical variable: 1 if the person in t+1 is employed in a different establishment in a different industry ( <b>Quit, Left ind.</b> ) ; 2 if the person in t+1 is employed in a different establishment in the same industry ( <b>Quit, Stayed ind.</b> ); 3 if the person in t+1 is working as entrepreneur ( <b>Quit, Entrepreneur</b> ); 4 if the person in t+1 is unemployed or studying with some or no information on his/her salary that year ( <b>Quit, Unemployed/studying</b> )
<b>Individual characteristics: Human capital</b>	
<b>Est. tenure</b>	Number of years the employee has worked in the same establishment.
<b>Est. tenure over 16 years</b>	Binary variable: 1 if the employee has worked 16 years or more in the same establishment; 0 otherwise
<b>Ind. Tenure</b>	Number of years the employee has worked in the retail industry, defined at the 2-digit SIC level
<b>Ind. tenure over 16 years</b>	Binary variable: 1 if the employee has worked 16 years or more in the retail industry; 0 otherwise
<b>Education</b>	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
<b>Retail education</b>	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
<b>Control variables</b>	
<b>Occup. skill</b>	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).
<b>Manager</b>	Binary variable: 1 if the individual has an occupation that is at the managerial level; 0 otherwise
<b>Relative earnings est.</b>	Annual income/average wage for employees in the establishment with the same three-digit occupational level-code
<b>Relative earnings LA-region</b>	Annual income/average wage for employees in the labor market region with the same three-digit occupational level-code

**Table 1** continued

<b>Variables</b>	
<b>Married</b>	Binary variable: 1 if the employee is married or in a partnership; 0 otherwise
<b>Children</b>	Binary variable: 1 if the employee has at least one child under the age of 18 living at home; 0 otherwise
<b>Age cat.</b>	Categorical variable. Equal to 1 if individual is below 25 years of age. Equal to 2 if individual is between 25 and 40 years of age. Equal to 3 if individual is over 40.
<b>Female</b>	Binary variable: 1 if employee is female; 0 if male
<b>Region of birth</b>	1 Swedish; 2 North America, Europe (excluding Sweden); 3 Africa; 4 Asia; 5 South America; 6 Oceania
<b>Organizational characteristics</b>	
<b>Est. size</b>	Number of employees in the establishment
<b>Chain</b>	Binary variable: 1 if the establishment is part of a chain; 0 otherwise
<b>Marginal return</b>	Operating profits divided by net turnover, at the firm level
<b>Regional level</b>	
<b>Retail region</b>	Number of fulltime employees in the retail sector in the labor market region of the establishment
<b>Centrality</b>	Categorical variable for type of municipality that workplace is located on: Equal to 1: Rural and very remote and sparsely populated. Equal to 2: Rural and remote and sparsely populated. Equal to 3: Rural and close to larger city. Equal to 4: Urban and remote. Equal to 5: Urban and close to larger city. Equal to 6: Metropolitan. According to definitions by The Swedish Agency for Growth Policy Analysis (2014).

Table 2 shows the descriptive statistics for our dependent and independent variables. Between 2002 and 2018, 23 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 30 percent switch to a different sector and 57 percent remain in the retail sector. Only four percent become entrepreneurs, while 9 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, Left ind.*; *Quit, Stayed ind.* and *Quit, Entrepreneur* and *Quit, Unemployed/studying*, is not opposite outcomes. Hence the value 0 of *Quit, Left ind.* may indicate that an individual either a) stayed in the industry, b) became an entrepreneur, or c) became unemployed or began studying.

Employees in the retail sector are on average over 40 years of age, close to 60 percent are female. Regarding establishment tenure over the last 17 years, employees have on average been at the same establishment for five years and 3.5 percent have remained at the same establishment for more than 16 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 6 years, and with 3.3 percent who have been in the industry for over 16 years. The average level of education is at the secondary level, with 18.5 percent who have a secondary education focusing on retail. Close to 2.5 percent have an occupation

that requires some elementary schooling. The majority of workers — 74 percent — have tasks that require secondary school education, while nine percent have occupations that require practical or technical post-secondary school education. Approximately 15 percent require post graduate education of at least three years or more. On average, the relative wage is 7-7 percent above the average wage in the specific occupation in an establishment, and 16 percent above the average wage in the region. The fact that the average relative wages are positive suggest that the wage distributions are skewed to the left.

Fifty three percent of employees are married or cohabitating, and 36 percent have children. Approximately 11 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 municipality that is classified as urban or metropolitan (categories 4, 5 and 6) in a region with 30,000 fulltime retail employees.

**Table 2.** Descriptive statistics.

<b>Variables</b>	<b>Obs.</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min.</b>	<b>Max.</b>
<b>Dependent variables</b>					
<b>Quit (0,1)</b>	2,461,047	0.226	0.418	0	1
<b>Quit, next (0,1)</b>					
<b>Stayed ind. (0,1)</b>	556,862	0.569	0.495	0	1
<b>Left ind. (0,1)</b>	556,862	0.299	0.458	0	1
<b>Entrepreneur (0,1)</b>	556,862	0.041	0.198	0	1
<b>Unemployed/studying (0,1)</b>	556,862	0.091	0.288	0	1
<b>Individual characteristics</b>					
<b>Human capital</b>					
<b>Est. tenure</b>	2,655,398	4.846	3.893	1	17
<b>Est. tenure &gt; 16 years (0,1)</b>	2,655,398	0.035	0.183	0	1
<b>Ind. tenure</b>	2,654,900	6.368	4.246	1	17
<b>Ind. tenure &gt; 16 years (0,1)</b>	2,654,900	0.033	0.180	0	1
<b>Education</b>					
<b>1: Primary, &lt; 9 years</b>	2,646,673	0.027	0.163	0	1
<b>2: Primary, 9 years</b>	2,646,673	0.115	0.319	0	1
<b>3: Secondary, ≤ 3 years</b>	2,646,673	0.651	0.477	0	1
<b>4: Post-secondary, ≤ 3 years</b>	2,646,673	0.117	0.321	0	1
<b>5: Post-secondary, ≥ 3 years</b>	2,646,673	0.089	0.285	0	1
<b>6: Doctoral</b>	2,646,673	0.001	0.030	0	1
<b>Retail education (0,1).</b>	2,646,673	0.185	0.388	0	1
<b>Control variables</b>					
<b>Occup. skill</b>					
<b>Level 1</b>	2,470,779	0.023	0.150	0	1
<b>Level 2</b>	2,470,779	0.740	0.439	0	1
<b>Level 3</b>	2,470,779	0.091	0.288	0	1
<b>Level 4</b>	2,470,779	0.146	0.353	0	1
<b>Relative earnings, est.</b>	2,471,009	0.077	0.205	-2.868	2.428
<b>Relative earnings, LA-region</b>	2,471,009	0.156	0.265	-2.178	3.359
<b>Married (0,1)</b>	2,655,398	0.532	0.499	0	1
<b>Children (0,1)</b>	2,655,397	0.366	0.482	0	1
<b>Age cat</b>					
<b>&lt;25 years</b>	2,655,398	0.137	0.344	0	1
<b>&gt;=25 &amp; &lt;=40 years</b>	2,655,398	0.402	0.490	0	1
<b>&gt;40 years</b>	2,655,398	0.461	0.498	0	1
<b>Female (0,1)</b>	2,655,398	0.588	0.492	0	1
<b>Region of birth</b>					
<b>Swedish</b>	2,655,283	0.890	0.313	0	1
<b>North Am. Eur.</b>	2,655,283	0.057	0.231	0	1
<b>Africa</b>	2,655,283	0.005	0.071	0	1
<b>South America</b>	2,655,283	0.006	0.080	0	1
<b>Asia</b>	2,655,283	0.041	0.198	0	1
<b>Oceania</b>	2,655,283	0.0003	0.018	0	1

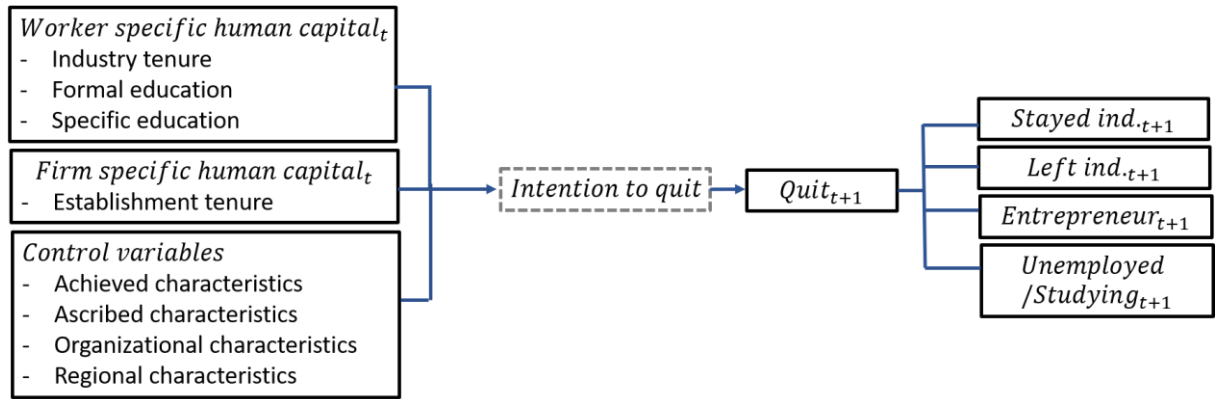
**Table 2.** Continued.

<b>Organizational characteristics</b>					
<b>Est. size</b>	2,655,398	65.348	151.099	1	1440
<b>Chain</b>	2,655,398	0.537	0.499	0	1
<b>Marginal return</b>	2,472,750	-0.129	22.363	-8870.25	803
<b>Regional characteristics</b>					
<b>Retail region</b>	2,655398	29937.35	29213.38	37	84437
<b>Centrality</b>					
<b>Category 1</b>	2,655,398	0.008	0.087	0	1
<b>Category 2</b>	2,655,398	0.049	0.215	0	1
<b>Category 3</b>	2,655,398	0.069	0.253	0	1
<b>Category 4</b>	2,655,398	0.068	0.251	0	1
<b>Category 5</b>	2,655,398	0.435	0.496	0	1
<b>Category 6</b>	2,655,398	0.372	0.483	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; or (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. Figure 1 shows the different choices that we empirically assess. On the left-hand side, we have the observable characteristics of the individual, the establishment and the region where the individual works at time  $t$ . We expect that these will influence the intention to quit, which is unobservable - hence the dashed lines - which will

manifest itself in the employment status ( $Q_{it+1}$ ) at time  $t+1$ , which consists of four alternatives ( $Stayed\ ind_{it+1}; Left_{it+1}; Entrepreneur_{it+1}; Unemployed/ Studying_{it+1}$ ).



**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):

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

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 voluntary labor turnover in the retail sector, as explained in the previous section.  $X_{it}$ ,  $X_{ft}$  and  $X_{rt}$  are vectors of explanatory



variables as described in Table 1, for individual  $i$ , establishment  $f$  and region  $r$ , at time  $t$ .<sup>10</sup> Last, we have included a time-dummy,  $year$ .

#### 4.2. Paths 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); remain in the retail sector; (ii) switch to a different sector; (iii) become an entrepreneur; and (iv) become unemployed or become a student.

#### 4.3. Individual ability, AKM fixed effects

Individual unobserved characteristics that are not included in the model could cause our estimates to be biased. When modeling longitudinal data, one would traditionally include an individual fixed effects component that absorbs time invariant characteristics to avoid this bias. The drawback of using such a set up in our case is that we will not be able to assess the influence of different *levels* of human capital, but instead we will assess the influence of *changes* in human capital. To be able to analyze the influence of different levels of human capital while limiting the potential bias from unobserved heterogeneity we use the method originally proposed by Abowd, Kramarz, and Margolis (1999), referred to as the AKM Fixed Effects. In this method individual and firm level characteristics can be extracted by exploiting the information revealed by the change in wage when

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<sup>10</sup> As additional robustness tests, we also ran the same estimations using a linear probability model (OLS), the results are available upon request.

individuals change workplace, a.k.a. movers. It is also possible to extract information of those that do not change workplace, a.k.a. stayers, as long as they work in a firm that has had at least one mover.

We estimate the following wage equation:

$$\ln(\text{wage}_{it}) = \alpha_i + \phi_{it} + \beta \mathbf{X} + e_{it} \quad (3)$$

Where the dependent variable is natural logarithm of the annual wage income for individual  $i$  at time  $t$ .  $\alpha_i$  is the unobservable individual fixed effect and  $\phi$  is the firm fixed effects, and  $\mathbf{X}$  is a vector with all observable characteristics of the firm and individual (age, education, year...) and  $e_{it}$  is a random error term. From this estimation we recover the individual fixed effects, which we refer to as AKM-ability, and include this in the estimations. We only consider fulltime employment. As the minimum wage negotiations only cover parts of the industries, we use the definition of low wage as an indicator for fulltime jobs<sup>11</sup>. Summary statistics of the variables that are included in estimation of equation (3) can be found in the Appendix Table A1.

## 5. Empirical Findings

The marginal effects for the logit and multinomial logit regressions are reported in Table 3, 4 and 5. The odds ratios are found in the Appendix, Tables A2 and A3. The logit estimations are separated into two columns; where the second column includes estimation with the AKM-ability variable.

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<sup>11</sup> In 2018 below 0.1 % of employed in Sweden had a fulltime equivalent wage corresponding to 50% of the national median wage (Swedish National Mediation Office, 2019).

### **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 16 years of experience or more has a positive effect, which 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 effect on the likelihood of quitting, which confirm the findings in previous studies such as Gable et al. (1984) and Min (2007).

**Table 3.** Marginal effects from the logit estimation. Column 2 presents the results when we control for AKM-ability variable.

Vars.	(1) Quit	(2) Quit
Tenure est.	-0.0155*** (0.000129)	-0.0146*** (0.000127)
Tenure est. > 16 years (0,1)	0.0912*** (0.0125)	0.100*** (0.0122)
Tenure ind.	-0.00205*** (0.000128)	-0.000523*** (0.000127)
Tenure ind. > 16 years (0,1)	-0.0399*** (0.0127)	-0.0516*** (0.0124)
Education		
Primary, 9 years <sup>a</sup>	0.0384*** (0.00192)	0.0401*** (0.00188)
Secondary, < 3 years	0.0559*** (0.00179)	0.0586*** (0.00175)
Post-secondary, < 3 years	0.0713*** (0.00196)	0.0741*** (0.00193)
Post-secondary, > 3 years	0.0916*** (0.00211)	0.0884*** (0.00207)
Doctoral	0.142*** (0.0134)	0.129*** (0.0131)
Retail education (0,1)	-0.0249*** (0.000857)	-0.0233*** (0.000846)
Occup. skill:		
Level 2 <sup>b</sup>	-0.0489*** (0.00238)	-0.0356*** (0.00228)
Level 3	-0.0865*** (0.00258)	-0.0564*** (0.00254)
Level 4	-0.0981*** (0.00254)	-0.0592*** (0.00257)
Relative wage, est.	-0.0313*** (0.00183)	-0.0215*** (0.00182)
Relative wage, LA-region	-0.135*** (0.00161)	-0.0950*** (0.00176)
Female (0,1)	0.0303*** (0.000617)	0.0270*** (0.000612)

**Table 3.** Continued.

Vars.	(1) Quit	(2) Quit
Region of birth		
North Am. Eur. <sup>d</sup>	-0.0139*** (0.00131)	-0.0150*** (0.00129)
Africa	-0.00682 (0.00423)	-0.0124*** (0.00414)
South America	0.0117*** (0.00370)	0.00818** (0.00363)
Asia	0.00106 (0.00155)	-0.00507*** (0.00152)
Oceania	0.0190 (0.0173)	0.0144 (0.0168)
Age cat.		
Ages 25-40 <sup>c</sup>	-0.0409*** (0.00109)	-0.0322*** (0.00108)
Ages >40	-0.132*** (0.00114)	-0.123*** (0.00113)
Married (0,1)	-0.00401*** (0.000730)	-0.00351*** (0.000726)
Children (0,1)	0.0101*** (0.000756)	0.0125*** (0.000750)
Chain (0,1)	0.0312*** (0.000612)	0.0322*** (0.000606)
Size of est.	-8.31e-05*** (2.43e-06)	-7.73e-05*** (2.39e-06)
Marginal return	2.90e-05** (1.38e-05)	2.51e-05* (1.29e-05)
Retail region	2.85e-07*** (1.51e-08)	2.98e-07*** (1.49e-08)
Centrality, Category 2 <sup>e</sup>	-0.00585 (0.00378)	-0.00419 (0.00371)
Category 3	-0.0150*** (0.00372)	-0.0123*** (0.00366)
Category 4	-0.00143 (0.00371)	0.00100 (0.00364)
Category 5	0.00178 (0.00358)	0.00442 (0.00352)
Category 6	0.0267*** (0.00369)	0.0292*** (0.00362)
AKM-ability	N	Y
Year FE	Y	Y
Obs	2,122,736	2,087,858

Heteroscedasticity-robust standard errors, clustered on the establishment level, are in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Base categories are: <sup>a</sup>Primary education, less than 9 years, <sup>b</sup> Level 1, <sup>c</sup> Age category: < 25; <sup>d</sup>Sweden. <sup>e</sup> Rural, remote municipality.

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 four percent while having a doctoral degree increases the probability of quitting by 14 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 2.5 percent. Thus, a specific education within retail appears to increase the willingness to stay in the current retail employment. This result is in line with the hypothesis that occupational investment, proxied by retail education, increases the opportunity cost to leave an organization. Compared to the lowest level of occupational skill, the likelihood of quitting is negative for all the higher occupational skills. In column 2, the AKM-ability variable is included. As this cannot be estimated for firms that have not had at least one mover the sample size is now somewhat smaller. The results remain of a similar magnitude and direction as before.

The likelihood of quitting a job decreases with age, and at an increasing rate, for males and for those who are foreign born, except individuals that originates from South America. Being married decreases the probability to quit, while having children appears to increase it. Organizational characteristics in terms of the size of the establishment has a negative effect on the likelihood of quitting, while the size of retail employment in the region increases the likelihood of quitting. Finally, compared to the baseline category of centrality, remote and sparsely populated municipalities, individuals working at establishments located in metropolitan municipalities are more likely to quit, while those in less remote areas are less likely to quit.

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. Moreover, many studies have verified that individuals with a foreign background experience job discrimination. Grand and 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). Our finding that males have a lower likelihood of quitting is surprising and goes against previous studies on employment turnover (Keith & McWilliams, 1995; Loprest, 1992).

We find that individuals in metropolitan 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. However, we do also find that people in less remote rural areas are less likely to quit compared to the most remote areas, which is puzzling.

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 as well as the regional relative wage has negative and significant effects on the likelihood of quitting. If an individual has a wage that is high relative to others in the same occupation in the same workplace, he or she is less likely to quit. We find the same effect of wage relative to the regional average. A higher wage relative to others in the establishment and the region indicates that the individual is better off to remain in the current job, thus he or she is less likely to quit, which is in line with the wealth maximization hypothesis. As before, the coefficients remain of the same magnitude and direction after we have included the AKM-ability variable.

Table 4 presents the marginal effects from estimating the multinomial logit of the paths after quitting a job.

## **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, and to increase the tendency to become employed in a different sector. Industry tenure has the opposite effect: it increases the tendency to remain in the sector and it decreases the tendency to leave, both at a decreasing rate. 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, 1964). 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, and less likely to become employed in another sector. The effect of education first increases as the level rises, then it decreases again for doctoral level, which indicates a quadratic relationship. This is in line with our expectations as well as findings in previous studies (e.g. Carless & Arnup, 2011). These results also hold when we include the AKM ability variable. Those with a retail education are more likely to remain in the retail sector and less likely to leave it. As changing sector may implicate a change of occupation, changing sector may be perceived as an opportunity cost if one has made occupational investments in the form of retail education. Thus, these result supports the findings of Zimmerman et al. (2020). Compared to the lowest degree of occupational skill, the likelihood of remaining in the retail sector is higher for individuals with higher skill levels. This relationship holds also when including the AKM ability-variable. The effect of occupational skill is the opposite when considering the propensity to leave the sector. However, only the influence of one of the occupational skill levels, level two, is robust to the inclusion of the ability-variable.

**Table 4a.** Marginal effects from the multinomial logit estimation. Column 2 and 4 presents the results when we control for AKM-ability variable.

Multinomial				
Vars.	(1) Stayed ind.	(2) Stayed ind.	(3) Left ind.	(4) Left ind.
Tenure est.	-0.0120*** (0.000358)	-0.0121*** (0.000360)	0.00738*** (0.000338)	0.00720*** (0.000341)
Tenure est. >16 years (0,1)	0.00406 (0.0412)	0.0247 (0.0407)	0.00694 (0.0356)	-0.0174 (0.0356)
Tenure ind.	0.0291*** (0.000344)	0.0286*** (0.000351)	-0.0270*** (0.000321)	-0.0278*** (0.000327)
Tenure ind. >16 years (0,1)	-0.106** (0.0417)	-0.110*** (0.0412)	0.0623* (0.0363)	0.0775** (0.0362)
Education				
Primary 9 years <sup>a</sup>	-0.0682*** (0.00631)	-0.0713*** (0.00654)	0.0800*** (0.00549)	0.0799*** (0.00578)
Secondary, <3 years	-0.0789*** (0.00598)	-0.0792*** (0.00621)	0.107*** (0.00517)	0.103*** (0.00546)
Post-secondary, <3 years	-0.0929*** (0.00629)	-0.0857*** (0.00653)	0.121*** (0.00549)	0.110*** (0.00577)
Post-secondary >3 years	-0.138*** (0.00654)	-0.134*** (0.00678)	0.186*** (0.00577)	0.178*** (0.00607)
Doctoral	-0.0871*** (0.0260)	-0.0985*** (0.0270)	0.127*** (0.0239)	0.139*** (0.0255)
Retail ed. (0,1)	0.0172*** (0.00232)	0.0179*** (0.00237)	-0.0108*** (0.00216)	-0.0125*** (0.00222)
Occup. skill				
Level 2 <sup>b</sup>	0.0706*** (0.00517)	0.0845*** (0.00551)	-0.0284*** (0.00455)	-0.0527*** (0.00506)
Level 3	0.0315*** (0.00591)	0.0717*** (0.00634)	0.0340*** (0.00531)	-0.0229*** (0.00587)
Level 4	0.0516*** (0.00583)	0.117*** (0.00640)	-0.00164 (0.00518)	-0.0846*** (0.00584)
Relative wage, est.	0.103*** (0.00460)	0.114*** (0.00476)	-0.0666*** (0.00426)	-0.0802*** (0.00442)
Relative wage, LA region	-0.0570*** (0.00398)	0.00945** (0.00455)	0.166*** (0.00368)	0.0818*** (0.00421)
Female (0,1)	0.181*** (0.00165)	0.185*** (0.00170)	-0.142*** (0.00156)	-0.148*** (0.00161)

**Table 4a.** Continued.

Multinomial				
Vars.	(1) Stayed ind.	(2) Stayed ind.	(3) Left ind.	(4) Left ind.
Region of birth				
North Am. Eur. <sup>d</sup>	0.0251*** (0.00352)	0.0249*** (0.00360)	-0.0464*** (0.00313)	-0.0421*** (0.00324)
Africa	0.0455*** (0.0106)	0.0458*** (0.0109)	-0.0837*** (0.00868)	-0.0769*** (0.00917)
South America	0.0163* (0.00863)	0.0121 (0.00891)	-0.0342*** (0.00770)	-0.0278*** (0.00804)
Asia	0.0407*** (0.00383)	0.0468*** (0.00395)	-0.0921*** (0.00313)	-0.0858*** (0.00330)
Oceania	-0.0621 (0.0412)	-0.0557 (0.0423)	-0.0696** (0.0344)	-0.0433 (0.0373)
Ages 25 - 40 <sup>c</sup>	-0.0518*** (0.00203)	-0.0593*** (0.00209)	0.0328*** (0.00187)	0.0366*** (0.00193)
Ages > 40	-0.153*** (0.00256)	-0.157*** (0.00263)	0.0718*** (0.00236)	0.0766*** (0.00243)
Married (0,1)	0.0308*** (0.00192)	0.0364*** (0.00199)	-0.0382*** (0.00179)	-0.0420*** (0.00186)
Children (0,1)	-1.13e-05 (0.00200)	0.00366* (0.00206)	0.0419*** (0.00186)	0.0368*** (0.00193)
Chain (0,1)	0.139*** (0.00161)	0.142*** (0.00165)	-0.0954*** (0.00148)	-0.101*** (0.00153)
Size of est.	-0.000182*** (7.22e-06)	-0.000178*** (7.26e-06)	0.000229*** (5.97e-06)	0.000224*** (6.06e-06)
Marginal return	0.00105 (0.000930)	0.00124 (0.00136)	-0.000857 (0.000695)	-0.000998 (0.00103)
Retail region	-5.56e-08 (3.96e-08)	-7.57e-08* (4.08e-08)	2.17e-07*** (3.64e-08)	2.30e-07*** (3.76e-08)
Centrality, Category 2 <sup>e</sup>	0.0468*** (0.0107)	0.0411*** (0.0112)	-0.0497*** (0.0103)	-0.0431*** (0.0107)
Category 3	0.0605*** (0.0106)	0.0527*** (0.0110)	-0.0608*** (0.0102)	-0.0499*** (0.0106)
Category 4	0.0394*** (0.0105)	0.0299*** (0.0109)	-0.0416*** (0.0101)	-0.0307*** (0.0105)
Category 5	0.0575*** (0.0101)	0.0469*** (0.0105)	-0.0606*** (0.00974)	-0.0482*** (0.0101)
Category 6	0.0482*** (0.0104)	0.0373*** (0.0108)	-0.0660*** (0.00997)	-0.0521*** (0.0104)
AKM-ability	N	Y	N	Y
Year FE	Y	Y	Y	Y
Obs.	471,736	446,079	471,750	446,079

Heteroscedasticity-robust standard errors, clustered on the establishment level, are in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Base categories are: <sup>a</sup>Primary education, less than 9 years, <sup>b</sup>Level 1, <sup>c</sup>Age category: < 25; <sup>d</sup>Sweden. <sup>e</sup>Rural, remote municipality.

**Table 4b.** Marginal effects from the multinomial logit estimation. Column 6 and 8 presents the results when we control for AKM-ability variable

Multinomial				
Vars.	(5) Entrepreneur	(6) Entrepreneur	(7) Unemployed/ studying	(8) Unemployed/ studying
Tenure est.	0.00145*** (6.58e-05)	0.00160*** (6.58e-05)	0.00313*** (0.000174)	0.00334*** (0.000163)
Tenure est. >16 years (0,1)	-0.00177 (0.00393)	-0.00202 (0.00379)	-0.00923 (0.0157)	-0.00534 (0.0144)
Tenure ind.	-0.000843*** (6.96e-05)	-0.000776*** (7.01e-05)	-0.00128*** (0.000175)	-7.82e-06 (0.000170)
Tenure ind. >16 years (0,1)	-0.00129 (0.00406)	-0.00108 (0.00391)	0.0453*** (0.0159)	0.0338** (0.0146)
Education				
Primary 9 years <sup>a</sup>	0.00504*** (0.000867)	0.00525*** (0.000891)	-0.0168*** (0.00351)	-0.0139*** (0.00343)
Secondary, <3 years	0.00469*** (0.000789)	0.00466*** (0.000812)	-0.0328*** (0.00338)	-0.0284*** (0.00331)
Post-secondary, <3 years	0.00503*** (0.000879)	0.00468*** (0.000902)	-0.0329*** (0.00353)	-0.0290*** (0.00346)
Post-secondary >3 years	0.00271*** (0.000890)	0.00256*** (0.000914)	-0.0506*** (0.00359)	-0.0463*** (0.00351)
Doctoral	-0.000683 (0.00258)	-0.00209 (0.00247)	-0.0389*** (0.0127)	-0.0384*** (0.0121)
Retail ed. (0,1)	-0.000267 (0.000425)	-0.000431 (0.000424)	-0.00614*** (0.00120)	-0.00498*** (0.00116)
Occup. skill				
Level 2 <sup>b</sup>	0.00234*** (0.000789)	0.00195** (0.000845)	-0.0446*** (0.00347)	-0.0337*** (0.00337)
Level 3	0.0107*** (0.000997)	0.00936*** (0.00106)	-0.0762*** (0.00368)	-0.0582*** (0.00363)
Level 4	0.0354*** (0.00125)	0.0322*** (0.00143)	-0.0853*** (0.00365)	-0.0651*** (0.00366)
Relative wage, est.	0.00793*** (0.000859)	0.00749*** (0.000866)	-0.0443*** (0.00247)	-0.0414*** (0.00243)
Relative wage, LA- region	-0.00478*** (0.000648)	-0.00572*** (0.000727)	-0.104*** (0.00220)	-0.0855*** (0.00238)
Female (0,1)	-0.0136*** (0.000422)	-0.0132*** (0.000427)	-0.0248*** (0.000874)	-0.0241*** (0.000859)

**Table 4b.** Continued.

Multinomial				
Vars.	(5) Entrepreneur	(6) Entrepreneur	(7) Unemployed/ studying	(8) Unemployed/ studying
Region of birth				
North Am. Eur. <sup>d</sup>	-0.00195*** (0.000616)	-0.00213*** (0.000622)	0.0232*** (0.00205)	0.0193*** (0.00200)
Africa	-0.00443** (0.00186)	-0.00423** (0.00198)	0.0426*** (0.00660)	0.0354*** (0.00657)
South America	-0.00491*** (0.00155)	-0.00464*** (0.00159)	0.0229*** (0.00499)	0.0204*** (0.00488)
Asia	0.00386*** (0.000861)	0.00382*** (0.000907)	0.0475*** (0.00250)	0.0351*** (0.00244)
Oceania	0.0113 (0.0112)	0.0146 (0.0124)	0.120*** (0.0337)	0.0844*** (0.0317)
Age cat.				
Ages 25 - 40 <sup>c</sup>	0.0118*** (0.000354)	0.0115*** (0.000355)	0.00718*** (0.000945)	0.0111*** (0.000919)
Ages > 40	0.0303*** (0.000687)	0.0287*** (0.000676)	0.0513*** (0.00136)	0.0519*** (0.00133)
Married (0,1)	0.00533*** (0.000361)	0.00489*** (0.000366)	0.00212** (0.000973)	0.000727 (0.000953)
Children (0,1)	0.000562* (0.000342)	0.000381 (0.000345)	-0.0424*** (0.00107)	-0.0409*** (0.00104)
Chain (0,1)	-0.0287*** (0.000413)	-0.0277*** (0.000415)	-0.0146*** (0.000824)	-0.0132*** (0.000810)
Size of est.	-6.66e-05*** (5.13e-06)	-6.26e-05*** (4.95e-06)	1.95e-05*** (3.39e-06)	1.69e-05*** (3.29e-06)
Marginal return	-4.38e-05 (4.25e-05)	-5.28e-05 (6.02e-05)	-0.000152 (0.000199)	-0.000191 (0.000270)
Retail region	3.88e-08*** (7.55e-09)	3.43e-08*** (7.66e-09)	-2.00e-07*** (2.10e-08)	-1.89e-07*** (2.08e-08)
Centrality, Category 2 <sup>e</sup>	-0.00231 (0.00208)	-0.00262 (0.00213)	0.00518 (0.00442)	0.00463 (0.00435)
Category 3	-0.00286 (0.00204)	-0.00355* (0.00209)	0.00313 (0.00435)	0.000739 (0.00427)
Category 4	-0.00580*** (0.00203)	-0.00622*** (0.00209)	0.00802* (0.00433)	0.00701 (0.00426)
Category 5	-0.00638*** (0.00197)	-0.00667*** (0.00203)	0.00943** (0.00413)	0.00804** (0.00407)
Category 6	-0.00779*** (0.00203)	-0.00801*** (0.00208)	0.0256*** (0.00429)	0.0228*** (0.00423)
AKM-ability	N	Y	N	Y
Year FE	Y	Y	Y	Y
Obs.	471,736	446,079	471,736	446,079

Heteroscedasticity-robust standard errors, clustered on the establishment level, are in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Base categories are: <sup>a</sup>Primary education, less than 9 years, <sup>b</sup>Level 1, <sup>c</sup>Age category: < 25; <sup>d</sup>Sweden. <sup>e</sup>Rural, remote municipality.

Tenure in the previous workplace increases the probability to become an entrepreneur, while tenure in the industry decreases it. Regarding establishment tenure, the same effect is observed on the probability to become unemployed. Compared to the lowest level of education, all levels of education except doctoral, increase the probability to become an entrepreneur, however, there seem to be no internal hierarchy between the levels. Level of education decreases the probability to become unemployed. This effect increases in magnitude as the level rises. Retail education has no effect on probability of becoming an entrepreneur, while it has a negative effect on the probability to become unemployed or start studying. When examining the occupational skill, the likelihood to become an entrepreneur increases with each level, and the opposite is found for the propensity to become unemployed or start studying.

When we examine wage-variables, we find that relative wage, within the establishment increases the probability to remain in the industry and to become an entrepreneur while it decreases the probability to leave the sector and to become unemployed or start studying. Wage relative to the others in the same occupation in the region increases the probability to leave the sector, while it decreases the probability to become an entrepreneur and become unemployed or start studying. The effect of this variable on the propensity to remain in the sector was not robust to the inclusion of the ability variable.

When examining the demographics and individual characteristics, we find that compared to individuals below 25 years of age, the probability to leave the sector, to become an entrepreneur and become unemployed or studying increases with age, while the probability to remain in the sector decreases. 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 males females are more likely to remain in the retail sector, while they are less likely to switch to a different sector, become entrepreneurs, or become unemployed or start studying. These results are in line with studies showing that males are more mobile than females in 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 females are less likely than males to become entrepreneurs is also supported in previous literature (Simoes, Crespo, & Moreira, 2016). Compared to those who originates from Sweden, those born outside of Sweden are less likely to leave the sector, more likely to remain in the retail sector and to become unemployed or start studying. 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. Compared to Sweden-born, individuals stemming from Africa, South America and Northern America and Europe are less likely to become entrepreneurs, while individuals from Asia are more likely. Regarding family situation, those who are married are more likely to become entrepreneurs, more likely to remain in the sector and less likely to leave it, while those with children are more likely to leave the sector and less likely to become unemployed or start studying.

Regarding firm level, or organizational aspects, the probability to remain in the sector increases if the plant was a chain and it was located in a more central municipality, while size of the establishment decreased the probability to stay in the retail industry. These variables had the opposite effect for the probability to leave the sector. For this outcome variable, the size of retail in the region also had

a positive effect. The probability to become an entrepreneur increases with the size of retail in the region, while it decreases with size of the previous workplace, if the previous workplace was part of a chain and if the workplace was in a more central municipality. The probability to become unemployed or start studying decreases if the previous workplace was part of a chain, and with the size of retail in the region, while it increases with the size of the previous workplace, and if it was located in a more central municipality. All the discussed results in table 4 and 5 are robust to the inclusion of the AKM-ability variable.

## **6. Conclusion**

We study the retail sector as it is an important sector offering numerous employment opportunities and act as a steppingstone into the labor market. However, labor turnover within the industry is very high and entails costs at the firm level such as recruitment costs and foregone future revenues but also at the individual level in terms of an unpleasant working environment. We contribute to the existing literature on labor turnover focusing on the factors affecting voluntary labor turnover using the unique setting offered by the Swedish labor market and access to 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

- Abowd, J. M., Kramarz, F., & Margolis, D. N. (1999). High wage workers and high wage firms. *Econometrica*, 67(2), 251-333.  
<https://doi.org/10.1111/1468-0262.00020>
- Adams, J. S. (1963). Towards an understanding of inequity. *The Journal of Abnormal and Social Psychology*, 67(5), 422.  
<https://doi.org/10.1037/h0040968>
- 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. <https://doi.org/10.1016/j.jretai.2006.08.005>
- Arnold, H. J., & Feldman, D. C. (1982). A multivariate analysis of the determinants of job turnover. *Journal of Applied Psychology*, 67(3), 350-360. <https://doi.org/10.1037/0021-9010.67.3.350>
- 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 Innovation (KTH).
- Batt, R. (2002). Managing customer services: Human resource practices, quit rates, and sales growth. *Academy of Management Journal*, 45(3), 587-597. <https://doi.org/10.5465/3069383>
- Becker, G. S. (1964). *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.

<https://doi.org/10.1080/13691830701880251>

Bertelli, A. M. (2007). Determinants of bureaucratic turnover intention: Evidence from the Department of the Treasury. *Journal of Public Administration Research and Theory*, 17(2), 235-258.

<https://doi.org/10.1093/jopart/mulo03>

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.

[https://doi.org/10.1016/S0022-4359\(97\)90014-2](https://doi.org/10.1016/S0022-4359(97)90014-2)

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. <https://doi.org/10.1006/jvbe.1997.1601>

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. <https://doi.org/10.1108/09590550710736210>

Broadbridge, A. (2002). Rationalising retail employment: a view from the outside looking in. *International Journal of Retail & Distribution Management*, 30(11), 536-543. <https://doi.org/10.1108/09590550210449395>

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.

<https://doi.org/10.1108/09590550710835193>

- 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.  
[https://doi.org/10.1016/S0883-9026\(97\)00103-1](https://doi.org/10.1016/S0883-9026(97)00103-1)
- 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.  
<https://doi.org/10.1016/j.jvb.2010.09.002>
- 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:
- & 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.  
<https://doi.org/10.1086/209893>
- 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.  
<https://doi.org/10.1177/0092070396242005>
- 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. <https://doi.org/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. <https://doi.org/10.1108/09590550410549310>
- Hochstein, B., Bolander, W., Christenson, B., Pratt, A. B., & Reynolds, K. (2021). An Investigation of Consumer Subjective Knowledge in Frontline Interactions. *Journal of Retailing*.  
doi:<https://doi.org/10.1016/j.jretai.2020.10.003>
- Bolander, W., Goldsmith, R., & Plouffe, C. R. (2019). Adapting influence approaches to informed consumers in high-involvement purchases: are salespeople really doomed? *Journal of the Academy of Marketing Science*, 47(1), 118-137. doi:<https://doi.org/10.1007/s11747-018-0609-2>
- 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. DOI:10.1037/0021-9010.76.3.380
- Keith, K., & McWilliams, A. (1995). The Wage Effects of Cumulative Job Mobility. *ILR Review*, 49(1), 121-137. doi:10.1177/001979399504900108

- Lévy-Garboua, L., Montmarquette, C., & Simonnet, V. (2007). Job satisfaction and quits. *Labour Economics*, 14(2), 251-268.  
<https://doi.org/10.1016/j.labeco.2005.08.003>
- Loprest, P. J. (1992). Gender Differences in Wage Growth and Job Mobility. *The American Economic Review*, 82(2), 526-532.  
<https://www.jstor.org/stable/2117456>
- 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. <https://doi.org/10.5465/20159602>
- 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.  
[https://doi.org/10.1007/978-1-349-11562-4\\_17](https://doi.org/10.1007/978-1-349-11562-4_17)
- 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.  
[https://doi.org/10.1016/0148-2963\(91\)90003-G](https://doi.org/10.1016/0148-2963(91)90003-G)
- Mende, M., & Noble, S. (2019). Retail apocalypse or golden opportunity for retail frontline management? *Journal of retailing*, 95(2), 84.  
doi:DOI:10.1016/j.jretai.2019.06.002
- Min, H. (2007). Examining sources of warehouse employee turnover. *International Journal of Physical Distribution & Logistics Management*, 37(5), 375-388. <https://doi.org/10.1108/09600030710758437>
- Mincer, J., & Jovanovic, B. (1981). Labor mobility and wages. In *Studies in labor markets* (pp. 21-64): University of Chicago Press. doi: 10.3386/w0357

Ministry of Education, (2010). Gymnasieförordning [The Upper Secondary School Ordinance] 2010:2039. Retrieved from:

[https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/gymnasieforordning-20102039\\_sfs-2010-2039](https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/gymnasieforordning-20102039_sfs-2010-2039).

Accessed 2020-10-10.

Mobley, W. H. (1977). Intermediate linkages in the relationship between job satisfaction and employee turnover. *Journal of Applied Psychology*, 62(2), 237. <https://doi.org/10.1037/0021-9010.62.2.237>

Motowidlo, S. J. (1983). Predicting sales turnover from pay satisfaction and expectation. *Journal of Applied Psychology*, 68(3), 484-489. <https://doi.org/10.1037/0021-9010.68.3.484>

Näringsliv, S. (2015). Fakta om löner och arbetstider 2015. *Rapportserie för Svenskt Näringsliv*.

doi:[https://www.svensktnaringsliv.se/migration\\_catalog/Rapporter\\_och\\_opinionsmaterial/Rapporter/fakta-om-loner-och-arbetstider-2015pdf\\_619265.html/BINARY/Fakta%20om%20%C3%B6ner%20och%20arbetstider%202015.pdf](https://www.svensktnaringsliv.se/migration_catalog/Rapporter_och_opinionsmaterial/Rapporter/fakta-om-loner-och-arbetstider-2015pdf_619265.html/BINARY/Fakta%20om%20%C3%B6ner%20och%20arbetstider%202015.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.

<https://doi.org/10.1108/09596110510604841>

Parsons, D. O. (1972). Specific Human Capital: An Application to Quit Rates and Layoff Rates. *Journal of Political Economy*, 80(6), 1120-1143.

<https://doi.org/10.1086/259961>



- Pitts, D., Marvel, J., & Fernandez, S. (2011). So hard to say goodbye? Turnover intention among US federal employees. *Public Administration Review*, 71(5), 751-760. <https://doi.org/10.1111/j.1540-6210.2011.02414.x>
- Porter, L. W., & Steers, R. M. (1973). Organizational, work, and personal factors in employee turnover and absenteeism. *Psychological Bulletin*, 80(2), 151-176. <https://doi.org/10.1037/h0034829>
- Ramaseshan, B. (1997). Retail employee turnover: Effects of realistic job information and interviewer affect. *Journal of Retailing and Consumer Services*, 4(3), 193-199. [https://doi.org/10.1016/S0969-6989\(96\)00044-6](https://doi.org/10.1016/S0969-6989(96)00044-6)
- Robinson, D. D. (1972). Prediction of clerical turnover in banks by means of a weighted application blank. *Journal of Applied Psychology*, 56(3), 282. <https://doi.org/10.1037/h0033102>
- Roggeveen, A. L., & Sethuraman, R. (2020). How the COVID-19 pandemic may change the world of Retailing. *Journal of Retailing*, 96(2), 169. doi:doi:10.1016/j.jretai.2020.04.002
- 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. [doi.org/10.5281/zenodo.1070727](https://doi.org/10.5281/zenodo.1070727)
- Schulz, R. M., Bigoness, W. J., & Gagnon, J. P. (1987). Determinants of turnover intentions among retail pharmacists. *Journal of Retailing*, 63(1), 89-98.
- 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. <https://doi.org/10.1111/joes.12111>
- Statistics Sweden. (2012). Standard för svensk yrkesklassificering 2012 [*Swedish Standard Classification of Occupations 2012*]. Retrieved from Statistics

Sweden:

[https://www.scb.se/contentassets/c9d055b6f2114b62bd23c33602b56da5/ov9999\\_2012a01\\_br\\_x70br1201.pdf](https://www.scb.se/contentassets/c9d055b6f2114b62bd23c33602b56da5/ov9999_2012a01_br_x70br1201.pdf) Accessed 2020-07-06.

- (2001). Standard för svensk yrkesklassificering 1996 [*Swedish Standard Classification of Occupations 1996*]. Retrieved from Statistics Sweden: [http://share.scb.se/ov9993/data/publikationer/statistik/\\_publikationer/ov9999\\_1998a01\\_br\\_x70%C3%B6p9803.pdf](http://share.scb.se/ov9993/data/publikationer/statistik/_publikationer/ov9999_1998a01_br_x70%C3%B6p9803.pdf). Accessed 2020-07-25.

Swedish National Mediation Office. (2019). *Kollektivavtalen och de lägsta lönerna [Collective agreements and the lowest wages]*. Retrieved from Swedish National Mediation Office:

[https://www.mi.se/app/uploads/L%C3%A4gst%C3%B6ner\\_200120\\_v3.pdf](https://www.mi.se/app/uploads/L%C3%A4gst%C3%B6ner_200120_v3.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. <https://doi.org/10.2307/2391826>

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: <https://www.tillvaxtanalys.se/publikationer/rapport/rapportserien/2014-04-01-battre-statistik-for-en-battre-regional--och-landsbygdspolitik.html>. Accessed 2019-10-10.

Waters, L., Roach, D., & Waters, C. W. (1976). Estimates of future tenure, satisfaction, and biographical variables as predictors of termination. *Personnel Psychology*. <https://doi.org/10.1111/j.1744-6570.1976.tb00401.x>

- Weiss, A. (1984). Determinants of quit behavior. *Journal of Labor Economics*, 2(3), 371-387. <https://doi.org/10.1086/298038>
- 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. <https://doi.org/10.1177/1536867X0600600104>
- Zimmerman, R. D., Swider, B. W., & Arthur, J. B. (2020). Does turnover destination matter? Differentiating antecedents of occupational change versus organizational change. *Journal of Vocational Behavior*, 121, 103470. <https://doi.org/10.1016/j.jvb.2020.103470>



## Appendix A

**Table A1.** Summary statistics for variables included in the AKM-estimation, equation 3.

<b>Variables</b>	<b>Obs.</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min.</b>	<b>Max.</b>
ln(Wage)	4,794,924	7.970	0.355	7.293	13.2424
Education					
Primary, < 9 years	4,780,732	0.021	0.142	0	1
Primary, 9 years	4,780,732	0.104	0.306	0	1
Secondary, ≤ 3 years	4,780,732	0.624	0.484	0	1
Post-secondary, ≤ 3 years	4,780,732	0.129	0.335	0	1
Post-secondary, ≥ 3 years	4,780,732	0.120	0.325	0	1
Doctoral	4,780,732	0.001	0.037	0	1
Occup. skill					
Level 1	4,430,767	0.037	0.188	0	1
Level 2	4,430,767	0.650	0.477	0	1
Level 3	4,430,767	0.141	0.348	0	1
Level 4	4,430,767	0.173	0.378	0	1
Married (0,1)	4,794,924	0.533	0.499	0	1
Children (0,1)	4,794,921	0.394	0.489	0	1
Age category:					
Category 1:	4,794,924	0.123	0.328	0	1
Category 2:	4,794,924	0.441	0.497	0	1
Category 3:	4,794,924	0.436	0.496	0	1
Est. size	4,686,460	136.697	625.436	1	19231
Chain	4,686,460	0.517	0.500	0	1
Marginal return	4,060,588	-0.261	69.737	-49078.500	14140
Centrality					
Category 1	4,794,924	0.008	0.088	0	1
Category 2	4,794,924	0.047	0.211	0	1
Category 3	4,794,924	0.067	0.251	0	1
Category 4	4,794,924	0.064	0.245	0	1
Category 5	4,794,924	0.415	0.493	0	1

**Table A2.** Odds ratios for all outcome variables in Table 3.

Vars.	(1) Quit	(2) Quit
Tenure est.	-0.0979*** (0.000818)	-0.0944*** (0.000825)
Tenure est. > 16 years (0,1)	0.575*** (0.0788)	0.651*** (0.0788)
Tenure ind.	-0.0129*** (0.000807)	-0.00339*** (0.000824)
Tenure ind. > 16 years (0,1)	-0.252*** (0.0802)	-0.334*** (0.0802)
Education		
Primary, 9 years <sup>a</sup>	0.286*** (0.0153)	0.312*** (0.0158)
Secondary, < 3 years	0.400*** (0.0145)	0.436*** (0.0151)
Post-secondary, < 3 years	0.495*** (0.0153)	0.534*** (0.0158)
Post-secondary, > 3 years	0.612*** (0.0158)	0.619*** (0.0163)
Doctoral	0.877*** (0.0670)	0.840*** (0.0691)
Retail education (0,1)	-0.157*** (0.00541)	-0.151*** (0.00549)
Occup. skill		
Level 2 <sup>b</sup>	-0.275*** (0.0125)	-0.213*** (0.0129)
Level 3	-0.520*** (0.0143)	-0.350*** (0.0149)
Level 4	-0.605*** (0.0140)	-0.370*** (0.0151)
Relative wage, est.	-0.197*** (0.0115)	-0.139*** (0.0118)
Relative wage, LA-region	-0.852*** (0.0102)	-0.615*** (0.0114)
Age cat.		
Ages 25-40 <sup>c</sup>	-0.212*** (0.00548)	-0.171*** (0.00561)
Ages >40	-0.806*** (0.00634)	-0.776*** (0.00650)
Female (0,1)	0.193*** (0.00399)	0.177*** (0.00405)

**Table A2.** Continued.

Vars.	(1) Quit	(2) Quit
Region of birth		
North Am. Eur. <sup>d</sup>	-0.0896*** (0.00867)	-0.100*** (0.00884)
Africa	-0.0435 (0.0273)	-0.0820*** (0.0281)
South America	0.0718*** (0.0223)	0.0519** (0.0227)
Asia	0.00666 (0.00973)	-0.0331*** (0.00999)
Oceania	0.115 (0.102)	0.0904 (0.103)
Married (0,1)	-0.0253*** (0.00460)	-0.0227*** (0.00470)
Children (0,1)	0.0636*** (0.00476)	0.0808*** (0.00486)
Chain (0,1)	0.196*** (0.00386)	0.209*** (0.00392)
Size of est.	-0.000524*** (1.54e-05)	-0.000501*** (1.55e-05)
Marginal return	0.000183** (8.67e-05)	0.000162* (8.37e-05)
Retail region	1.80e-06*** (9.53e-08)	1.93e-06*** (9.66e-08)
Centrality, Category 2 <sup>e</sup>	-0.0386 (0.0247)	-0.0287 (0.0252)
Category 3	-0.101*** (0.0244)	-0.0856*** (0.0249)
Category 4	-0.00933 (0.0242)	0.00678 (0.0247)
Category 5	0.0116 (0.0233)	0.0297 (0.0238)
Category 6	0.165*** (0.0239)	0.187*** (0.0244)
Constant	-0.951*** (0.0312)	-1.303*** (0.0322)
AKM-ability	N	Y
Year FE	Y	Y
Obs	2,122,736	2,087,858

The establishment level is clustered. Heteroscedasticity-robust standard errors are in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Base categories are: <sup>a</sup>Primary education, less than 9 years, <sup>b</sup>Level 1, <sup>c</sup>Sweden.

**Table A3a.** Odds ratios for the models in Table 4. The outcome *Stayed ind.* is the base category.

Multinomial logit		
Vars.	(3) Left ind.	(4) Left ind.
Tenure est.	0.0449*** (0.00169)	0.0444*** (0.00171)
Tenure est. >16 years (0,1)	0.0171 (0.186)	-0.0998 (0.185)
Tenure ind.	-0.140*** (0.00161)	-0.142*** (0.00165)
Tenure ind. >16 years (0,1)	0.387** (0.189)	0.445** (0.188)
Education		
Primary 9 years <sup>a</sup>	0.470*** (0.0370)	0.470*** (0.0387)
Secondary, <3 years	0.587*** (0.0357)	0.567*** (0.0374)
Post-secondary, <3 years	0.656*** (0.0368)	0.602*** (0.0385)
Post-secondary >3 years	0.929*** (0.0374)	0.893*** (0.0391)
Doctoral	0.666*** (0.120)	0.718*** (0.124)
Retail ed. (0,1)	-0.0651*** (0.0108)	-0.0721*** (0.0111)
Occup. skill		
Level 2 <sup>b</sup>	-0.218*** (0.0226)	-0.314*** (0.0238)
Level 3	0.0477* (0.0259)	-0.195*** (0.0277)
Level 4	-0.0958*** (0.0256)	-0.483*** (0.0284)
Relative wage, est.	-0.397*** (0.0213)	-0.461*** (0.0221)
Relative wage, LA region	0.661*** (0.0183)	0.268*** (0.0211)
Female (0,1)	-0.773*** (0.00754)	-0.797*** (0.00777)
Age cat.		
Ages 25 - 40 <sup>c</sup>	0.201*** (0.00992)	0.228*** (0.0104)
Ages > 40	0.506*** (0.0121)	0.527*** (0.0126)



**Table A3a.** Continued.

Vars.	(3) Left ind.	(4) Left ind.
Region of birth		
North Am. Eur. <sup>d</sup>	-0.209*** (0.0170)	-0.193*** (0.0176)
Africa	-0.400*** (0.0535)	-0.373*** (0.0556)
South America	-0.148*** (0.0409)	-0.118*** (0.0423)
Asia	-0.432*** (0.0196)	-0.415*** (0.0204)
Oceania	-0.156 (0.204)	-0.0639 (0.205)
Married (0,1)	-0.181*** (0.00895)	-0.204*** (0.00935)
Children (0,1)	0.143*** (0.00926)	0.121*** (0.00964)
Chain (0,1)	-0.554*** (0.00742)	-0.578*** (0.00768)
Size of est.	0.00108*** (2.93e-05)	0.00106*** (2.99e-05)
Marginal return	-0.00466 (0.00390)	-0.00545 (0.00576)
Retail region	8.34e-07*** (1.82e-07)	9.17e-07*** (1.89e-07)
Centrality, Category 2 <sup>e</sup>	-0.232*** (0.0475)	-0.205*** (0.0502)
Category 3	-0.292*** (0.0468)	-0.247*** (0.0494)
Category 4	-0.193*** (0.0463)	-0.146*** (0.0488)
Category 5	-0.286*** (0.0446)	-0.232*** (0.0471)
Category 6	-0.290*** (0.0457)	-0.230*** (0.0483)
Constant	-0.580*** (0.0632)	-0.455*** (0.0670)
AKM-ability	N	Y
Year FE	Y	Y
Obs.	471,750	446,079

The establishment level is clustered. Heteroscedasticity-robust standard errors are in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Base categories are: <sup>a</sup>Primary education, less than 9 years, <sup>b</sup>Level 1, <sup>c</sup>Sweden.

**Table A3b.** Odds ratios for the models in Table 5. The outcome variable *Stayed in the industry* is the base category.

Multinomial logit				
Vars.	(5) Entrepreneur	(6) Entrepreneur	(7) Unemp./study	(8) Unemp./study
Tenure est.	0.103*** (0.00387)	0.115*** (0.00398)	0.0588*** (0.00244)	0.0655*** (0.00250)
Tenure est. >16 years (0,1)	-0.109 (0.252)	-0.161 (0.252)	-0.122 (0.237)	-0.114 (0.236)
Tenure ind.	-0.0963*** (0.00410)	-0.0924*** (0.00428)	-0.0637*** (0.00245)	-0.0461*** (0.00260)
Tenure ind. >16 years (0,1)	0.0995 (0.259)	0.113 (0.259)	0.741*** (0.240)	0.643*** (0.239)
Education				
Primary 9 years <sup>a</sup>	0.434*** (0.0654)	0.463*** (0.0700)	-0.0579 (0.0372)	-0.0404 (0.0397)
Secondary, <3 years	0.432*** (0.0625)	0.442*** (0.0672)	-0.223*** (0.0353)	-0.210*** (0.0379)
Post-secondary, <3 years	0.474*** (0.0663)	0.453*** (0.0713)	-0.201*** (0.0381)	-0.207*** (0.0409)
Post-secondary >3 years	0.412*** (0.0686)	0.401*** (0.0736)	-0.374*** (0.0412)	-0.399*** (0.0442)
Doctoral	0.0795 (0.221)	-0.0362 (0.247)	-0.289 (0.189)	-0.326 (0.207)
Retail ed. (0,1)	-0.0436* (0.0254)	-0.0546** (0.0263)	-0.105*** (0.0167)	-0.0975*** (0.0177)
Occup. skill				
Level 2 <sup>b</sup>	0.0560 (0.0671)	0.00444 (0.0726)	-0.531*** (0.0321)	-0.503*** (0.0357)
Level 3	0.581*** (0.0723)	0.453*** (0.0789)	-0.909*** (0.0391)	-0.854*** (0.0436)
Level 4	1.281*** (0.0701)	1.110*** (0.0783)	-1.118*** (0.0393)	-1.061*** (0.0453)
Relative wage, est.	0.288*** (0.0510)	0.265*** (0.0534)	-0.724*** (0.0345)	-0.755*** (0.0372)
Relative wage, LA- region	-0.182*** (0.0386)	-0.357*** (0.0449)	-1.212*** (0.0312)	-1.195*** (0.0367)
Age cat.				
Ages 25 - 40 <sup>c</sup>	1.150*** (0.0392)	1.208*** (0.0433)	0.187*** (0.0158)	0.278*** (0.0176)
Ages > 40	2.037*** (0.0405)	2.069*** (0.0446)	0.849*** (0.0181)	0.932*** (0.0199)
Female (0,1)	-1.022*** (0.0187)	-1.029*** (0.0197)	-0.614*** (0.0117)	-0.637*** (0.0124)

**Table A3b.** Continued.

Vars.	(5) Entrepreneur	(6) Entrepreneur	(7) Unemp./study	(8) Unemp./study
Region of birth				
North Am. Eur. <sup>d</sup>	-0.160*** (0.0410)	-0.176*** (0.0435)	0.224*** (0.0238)	0.204*** (0.0255)
Africa	-0.367** (0.147)	-0.363** (0.162)	0.369*** (0.0656)	0.337*** (0.0722)
South America	-0.360*** (0.127)	-0.344*** (0.134)	0.234*** (0.0578)	0.236*** (0.0614)
Asia	0.136*** (0.0427)	0.133*** (0.0463)	0.417*** (0.0243)	0.333*** (0.0271)
Oceania	0.609 (0.413)	0.721* (0.419)	1.052*** (0.222)	0.886*** (0.250)
Married (0,1)	0.257*** (0.0215)	0.234*** (0.0227)	-0.0238* (0.0136)	-0.0485*** (0.0146)
Children (0,1)	0.0324 (0.0204)	0.0169 (0.0214)	-0.531*** (0.0151)	-0.570*** (0.0162)
Chain (0,1)	-1.880*** (0.0208)	-1.884*** (0.0216)	-0.410*** (0.0115)	-0.411*** (0.0124)
Size of est.	-0.00354*** (0.000322)	-0.00346*** (0.000322)	0.000541*** (4.82e-05)	0.000521*** (5.09e-05)
Marginal return	-0.00425 (0.00394)	-0.00516 (0.00578)	-0.00363 (0.00399)	-0.00464 (0.00590)
Retail region	2.33e-06*** (4.50e-07)	2.18e-06*** (4.74e-07)	-2.42e-06*** (2.95e-07)	-2.48e-06*** (3.17e-07)
Centrality, Category 2 <sup>e</sup>	-0.182* (0.0932)	-0.186* (0.0969)	-0.00315 (0.0752)	0.00715 (0.0801)
Category 3	-0.230** (0.0913)	-0.250*** (0.0950)	-0.0555 (0.0743)	-0.0746 (0.0794)
Category 4	-0.345*** (0.0923)	-0.356*** (0.0959)	0.0491 (0.0736)	0.0619 (0.0785)
Category 5	-0.407*** (0.0874)	-0.410*** (0.0907)	0.0384 (0.0708)	0.0500 (0.0756)
Category 6	-0.476*** (0.0907)	-0.477*** (0.0944)	0.251*** (0.0727)	0.264*** (0.0776)
Constant	-3.521*** (0.135)	-3.595*** (0.145)	-0.766*** (0.0885)	-1.204*** (0.0969)
AKM-ability	N	Y	N	Y
Year FE	Y	Y	Y	Y
Obs.	471,736	446,079	471,736	446,079

The establishment level is clustered. Heteroscedasticity-robust standard errors are in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Base categories are: <sup>a</sup>Primary education, less than 9 years, <sup>b</sup>Level 1, <sup>c</sup>Sweden.