



Employer Search Behavior: Reasons for Internal Hiring[☆]

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ABSTRACT

This article studies reasons for internal hiring, i.e., re-assigning or promoting an employee instead of recruiting an external candidate. We exploit a representative survey of establishments covering all European Union countries to measure employers' search for internal candidates. Internal search is a widespread practice: 66% of establishments typically search internally. The accumulation of specific skills and the provision of incentives for employees are the main advantages of hiring internally in the theoretical literature. Ordered probit estimates show that on-the-job training and internal search are positively associated. On the contrary, incentive schemes such as variable pay are not associated with employer search. These results help to assess competing theories, and in particular, suggest that specific human capital is an important driver of internal hiring. Finally, we uncover two interesting facts that need further research: internal hiring is less likely in service firms and in non-competitive product markets.

1. Introduction

Employers fill a vacancy by hiring from outside the firm or by promoting or re-assigning their own workers. A longstanding and still debated question in personnel economics concerns the reasons for the high share of job vacancies (hovering around 60%) that are filled internally (DeVaro, 2020). Why should a firm favor inside candidates over outside ones? A well developed theoretical literature has explored different motives (Waldman, 2013). Employers are expected to select internal candidates to increase work incentives or save on training costs as incumbent employees have accumulated firm-specific skills. However, empirical evidence on this question is scarce. This is because commonly used data sources for studying recruitment methods are not appropriate. For example, case studies of individual firms show how internal hiring is correlated with worker characteristics, but not with firm characteristics (Baker et al., 1994).¹ The contribution of this paper is to document, in a representative sample, the importance of search for internal candidates and examine whether patterns in data conform to competing theories.

To measure employer search behavior, we exploit a survey on management practices conducted in 2019 in 28 countries of the European Union. The European Company Survey (ECS) is a unique cross-industry data set covering 21,000 establishments, which allows us to reveal the prevalence of and reasons behind certain Human Resources practices (HR). The survey covers hiring methods, work organization, incentive

schemes and training. The outcome of interest is the response to the question: *When recruiting, how often does management start by looking whether there are any suitable internal candidates?* 66% respond *most of the time* or *always*. Only 9% declare never looking for internal candidates. In comparison, in their study of the Swedish labor market, Lazear and Oyer (2004) find that 42% to 88% of jobs are filled internally depending on occupations. Our evidence shows, across countries and industries, that searching for internal candidates is a common recruiting practice.

We isolate HR practices and then establishment characteristics to explain the frequency of internal search using ordered probit models. We report marginal effects for models that include sector and country fixed effects. Accordingly, our results show how different HR practices and establishment characteristics predict the frequency of internal search, controlling for country-specific and sector-specific variations. We first investigate whether training policies complement internal hiring. We find that establishments that train their workers through on-the-job training, i.e., any form of direct instruction by more experienced colleagues, search more for internal candidates when hiring. There is no such association with other types of training, such as training sessions during paid working time. To better understand the role of training policies, we investigate what drives the decision to train employees. Developing firm-specific and job-specific skills are positively associated with internal search. In contrast, improving employee motivation through training is not associated with internal search. Our results suggest that

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¹ Analyses of vacancies from online job boards, widely used to test predictions of job search models, do not shed light on the decision to select insiders (Mueller et al., 2021).

search for internal candidates is associated with training policies that aim to develop firm-specific skills as predicted by human capital theory (Becker, 1964).

Reassignments and promotions within firms can also promote work incentives. Encouraging workers' efforts through competition, as in a tournament, is one potential channel to promote incentives (Lazear and Rosen, 1981). The main theoretical argument is that opening vacant positions to external candidates reduces the chance of promotion for incumbent employees and, therefore, their incentives (Chan, 1996). Although this idea is difficult to test, such a mechanism is expected to be at play in workplaces where individual incentive schemes are particularly valuable. This is not the case in workplaces in which the need for collaboration between employees is prevalent. In contrast, ordered probit estimates show that employers are more likely to search internally in establishments where employees work in teams. However, the overall motivation of employees and different incentive practices are positively associated with internal search.² This finding is consistent with the view that incentive schemes and internal hiring are correlated, but competition between employees is possibly not the main answer to rationalize internal hiring.

Finally, we investigate how employer search for internal candidates is associated with other establishment characteristics. Employers search less internally in the professional service sector relative to the manufacturing sector. Professional and technical services activities represent 7.4% of employment in 1995, and 13.1% in 2019. Differences in recruitment methods across sectors suggest that the transformation of European economies towards more services possibly explains the decline in internal hiring, as documented in Maurin and Signorelli (2019). We also find that reducing the level of competitiveness in the product market reduces the probability of searching internally. *Contribution to the literature.* Hiring methods have received a growing interest outside of personnel economics over the past few years since they offer new perspectives on important issues, such as unemployment, wage inequality or government policies.³

Most of the recent empirical work focus on “formal” recruitment policies: posting an advertisement and soliciting job applicants. For example, Carrillo-Tudela et al. (2021) find that faster hiring goes along with higher search effort, lower hiring standards and more generous wages. In contrast, this paper contributes to the literature on “informal” recruiting methods (Kuhn, 2018). Existing empirical work describes the prevalence, the characteristics of workers, and wage changes associated with this recruitment method (Doeringer, 1986; Waldman, 2013). Reviewing the literature, DeVaro (2020) argues that there is a lack of empirical evidence on the reasons for internal hiring. Scarcity of evidence on this topic is caused by the fact that most empirical contributions use data of a single firm (Bidwell and Mollick, 2015) and, therefore, cannot relate firm heterogeneity to employer search behavior.⁴

Bayo-Moriones and Ortín-Ángel (2006) is the closest study. However, their empirical setting is specific, limiting the external validity of the results.⁵

² The practices are; providing meaningful work, providing training opportunities, and offering monetary rewards.

³ For example, Mongey and Violante (2019), and Engbom (2021) investigate their role on aggregate labor market outcomes. Using German data, Bayer and Kuhn (2020) show that job changes within firms account for half of the average wage growth and virtually all of the increase in wage dispersion over the life cycle. Moreover, reducing firm's recruiting costs may be a valuable addition to the labor policy toolkit (Algan et al., 2020).

⁴ There are a few papers that use administrative data that cover specific sectors or occupations, and that validate the prevalence of job changes within firms (DeVaro et al., 2019; Lazear and Oyer, 2004). However, administrative data do not contain information on HR practices, such as training practices or incentive schemes.

⁵ Their data cover the promotion of a specific position for 653 Spanish plants in the manufacturing sector with at least 50 employees in 1997. Moreover, their

Table 1
Descriptive statistics.

Dependent variable:	
When recruiting, how often does management start by looking whether there are any suitable internal candidates?	
Never	9%
Rarely	10%
Sometimes	15%
Most of the time	28%
Always	38%
Main independent variables:	
Size (number of employees)	46.43
<u>Training Provision</u> (1–5 scale):	
On-the-job	2.92
Outside working time	2.80
<u>Reasons to train</u> (1–4 scale):	
Skills: Firm-specific	3.09
Skills: Current job	3.58
Motivation (improving employee morale)	3.23
Skills: Career advancement (job rotation)	2.95
Employee motivation (1–4 scale)	3.04
<u>Incentivize by providing</u> (1–4 scale):	
Meaningful work	2.82
Training opportunities	2.82
Monetary rewards	2.44
<u>Collaboration</u> :	
Work in team	0.72
Micromanagement (control tasks)	0.25
Helping colleagues (1–4 scale)	3.51
<u>Variable Pay</u> (1–5 scale):	
Firm performance	1.83
Individual performance	1.92
Team performance	1.67
Observations	18,287

Note: The table reports the main variables used in the estimation of the ordered probit model (1). Table A.2 provides additional variables. Section 2.2 defines the variables.

The rich data that we leverage, containing more than 21,000 observations with various dimensions of HR practices and establishment characteristics, allow us to shed light on the determinants of internal hiring for the first time to our knowledge.

The paper proceeds as follows. Section 2 describes the survey data set and the econometric model. Section 3 presents the empirical results. Section 4 concludes.

2. Research Setting and Methodology

This section presents the data source and describes the sample and the statistical model. The final sample contains a cross-section of 18,287 private establishments with at least ten employees. Table 1 presents the variable of interest. We estimate ordered probit models and discuss the marginal effects of establishment characteristics, training practices, and incentive schemes on the frequency of internal search. Appendix 6 describes at length the survey and the sample selection.

2.1. The European Company Survey

Description of data source. The European Company Survey (ECS) is a cross-country survey on human resource management (HRM) practices. It is a representative survey of the population of establishments with at least ten employees. Eurofound, an agency of the European Union, provides the data set. The data were collected from January to July 2019 by

data do not contain information on training practices. Therefore the authors cannot directly test for the importance of firm-specific human capital. Bayo-Moriones and Ortín-Ángel call for further work to test the generality of their results.

a leading consulting firm. The response rate of 44% is high for a survey that is not made mandatory by a national statistics agency.⁶ Establishments are selected from a random sample (stratified by sector and size) that is representative of all sectors in the economy. The original dataset contains more than 21,000 observations in 28 European countries (European Union countries and the United Kingdom). The survey quality is high, as less than one percent of answers were dismissed for quality issues. A set of questions covers establishment characteristics (e.g., industry, size), establishment outcomes (e.g., profit), and employee characteristics (e.g., number of managers). Another set of questions covers HRM practices. Table A.1 categorizes (selected) questions on matching (e.g., hiring and retention), work organization (e.g., job design), incentives (e.g., remuneration system), training (e.g., type of training), and employee involvement (e.g., employee representation). The analysis only covers the 2019 wave as previous survey waves do not have a similar internal hiring question.⁷

Sample selection Not-for-profit organizations and establishments without hires over the three years preceding the survey are dropped. Our final sample consists of 18,287 establishments out of 21,869 observations in the initial dataset.

2.2. Sample Description

Table 1 reports the means of variables of interest. We use establishment sampling weights throughout our analyses. The mean number of employees is 46. Table A.2 provides additional descriptions of establishments.

Search for internal candidates. The dependent variable measures the frequency of search for internal candidates. Precisely, the question is: *When recruiting, how often does management start by looking whether there are any suitable internal candidates?* 9% respond that they *never* use this recruitment method. 10% *rarely* and 15% *sometimes*. 28% respond *most of the time*, and 38% *always*. Therefore, 66% of employers usually first search for internal candidates when hiring. The high share of establishments that report looking for potential candidates within their organization aligns with studies that use administrative data. Lazear and Oyer (2004) find that 40% of jobs are filled internally at the lowest level, and 88% at the highest level. Using data for Finland, DeVaro et al. (2019) find that 60% of vacancies are filled internally. They also show that roughly half of the transitions are promotions. As job-level information is not available, this paper cannot distinguish between horizontal moves and promotions.

Firm-specific human capital. Between 40% to 60% of employees receive on-the-job training or other training. On-the-job training covers any form of direct instruction in the workplace by more experienced colleagues. Other training includes training sessions during paid working time. Establishments rank the roles of (i) firm-specific skills, (ii) career advancement, (iii) job-specific skills, (iv) or employee motivation for reasons to train employees.⁸ Ensuring that employees have the skills they need to do their current job is the main motive to train employees.

⁶ The response rate is higher than the *World Management Survey*, a widely used (non-mandatory) survey on management practices. Weights are available and are used in this paper to adjust for the non-response rate.

⁷ The third wave contains a question on internal hiring, but the wording is different. Moreover, most of the questions on training practices are absent in previous waves, as shown in Table A.1.

⁸ The wording of the question is: *How important are the following reasons for providing training to employees in this establishment?* Possible choices are: "Not at all important", "Not very important", "Fairly important", and "Very important". (i) *Firm-specific skills*: Increasing the capacity of employees to articulate ideas about improvements to the establishment. (ii) *Career advancement*: Allowing employees to acquire skills they need to do other jobs than their current job. For instance, to allow for job rotation or career advancement. (iii) *Job-specific skills*: Ensuring that employees have the skills they need to do their current job. (iv) *Employee Motivation*: Improving employee morale.

We then use additional questions to relate human capital and internal hiring. The first asks how quickly the skills change. Another measure is the percentage of new employees who do not yet have the skills needed to do their job to the required level. 20% to 40% of recruited employees are not ready yet, suggesting that the productivity of new hires can be lower for some time.

Incentive schemes. Monetary rewards are less used to motivate and retain employees in comparison to providing meaningful work and training opportunities. Variable pay is more commonly used for individual performance than variable payments based on team of firm performance.

2.3. Ordered Probit Models

We use ordered probit models to test for the relevance of HR practices to explain search for internal candidates. The outcome variable reports search frequency for internal candidates and takes five different values: Never, Rarely, Sometimes, Often and Always.

$$y_i^* = \beta \mathbf{x}'_i + \gamma_{country} + \eta_{Sector} + \varepsilon_i \quad (1)$$

The ordered probit model includes country fixed effects, sector (one-digit NACE) fixed effects and independent variables reported in Table 1 and Table A.2. We report marginal effects where covariates are evaluated at their mean values.⁹ Appendix 7 reports the average marginal effects in the population, and the results are similar. We cluster standard errors at the country level.¹⁰ Even though our regression framework cannot deal with endogeneity, the rich set of control variables and the sample size make our statistical model less subject to bias vis-a-vis the literature (e.g., Bayo-Moriones and Ortín-Ángel, 2006).

3. Reasons for Internal Hiring

This section reports marginal effects and discusses how the search for internal candidates is correlated with establishment characteristics and HR practices. Internal hiring is expected to be associated with the accumulation of specific skills and incentive schemes. Tables 2 and 3 present the main results.

3.1. Search for Internal Candidates and Human Capital Acquisition

Theoretical motivations. When specific skills are an essential component of a job, training must be provided to new employees (Becker, 1964). Firm-specific skills can be described as learning techniques that are idiosyncratic to a particular firm or knowing the identities of the relevant players within an organization (Lazear, 2009). Analyses performed in different settings arrive at the same conclusion: it is costly to search for search for and train employees (Bertheau et al., 2021; Muehleemann and Leiser, 2018). Therefore, we expect to find a positive association between searching for internal candidates and a firm's investment in the specific human capital to their employees.

Training provisions and motives. Table 2 reports the marginal effects where covariates are evaluated at their mean values. On a five-point scale, a increase in on-the-job training increases the probability that employers always search for internal candidates when hiring by 1.19 percentage points (Table 2, column 5). Other trainings such as training sessions on the establishment premises or at other locations during paid working time do not affect the probability of searching for internal candidates. The results suggest that the development of firm-specific skills is a determinant of internal hiring.

⁹ Empirical papers in the previous literature (e.g., Bayo-Moriones and Ortín-Ángel, 2006; DeVaro and Morita, 2013) estimate ordered probit models and report marginal effects where covariates are evaluated at their mean values.

¹⁰ We only report statistical significance and not standard errors. Results are available upon request.

Table 2
Ordered probit model: internal hiring and human resource policies.

Outcome: When recruiting, how often does the management start by searching for internal candidates?					
	P(Never)	P(Rarely)	P(Sometimes)	P(Often)	P(Always)
Employees receive training:					
On-the-job training	-0.41***	-0.37***	-0.37***	-0.04	1.19***
Other training	0.06	0.06	0.06	0.01	-0.18
Reasons for providing training:					
Developing establishment specific skills	-1.40***	-1.27***	-1.24***	-0.13**	4.03***
Developing skills to allow for job rotation or career advancement	-0.85***	-0.78***	-0.76***	-0.08	2.47***
Developing current job specific skills	-0.77**	-0.70**	-0.68**	-0.07	2.22**
Improving employee morale	0.06	0.05	0.05	0.01	-0.17
Incensitize by:					
Communicating a vision, providing meaning to our work	-1.69***	-1.54***	-1.50***	-0.16*	4.89***
Providing opportunities for training	-1.01***	-0.92**	-0.90**	-0.09***	2.93**
Offering monetary rewards	-0.85*	-0.78**	-0.76**	-0.08	2.47**
Motivation:					
Employee motivation	-0.96***	-0.87***	-0.85**	-0.09***	2.77***
Collaboration:					
Work in team	-1.51***	-1.37***	-1.34***	-0.14**	4.37***
Helping Colleagues	-0.51	-0.46	-0.45	-0.05	1.46
Monitoring:					
Managers control tasks	0.02	0.02	0.02	0.00	-0.06
Use data analytics	-0.68	-0.62	-0.60	-0.06	1.96
Variable pay based on:					
Firm performance	-0.25	-0.23	-0.22	-0.02	0.72
Individual performance	-0.06	-0.06	-0.06	-0.01	0.18
Team performance	0.21	0.19	0.19	0.02	-0.61
Observations	18,287	18,287	18,287	18,287	18,287
Country and Sector FE	Yes	Yes	Yes	Yes	Yes
Additional Controls	Yes	Yes	Yes	Yes	Yes

Notes: The table reports the probability that establishments search for internal candidates. Partial effects are estimated using an ordered probit model, where explanatory variables are set to their mean values. The dependent variable reports the response to the question: *When recruiting, how often does management start by looking whether there are any suitable internal candidates?* Section 3.3 discusses the results. On-the-job training refers to direct instruction in the workplace by more experienced colleagues. Other training refers to training sessions on the establishment premises or at other locations during paid working time. Additional controls include variables reported in Tables 1 and A.2. Asterisks denote statistical significance at the 1% (***), 5% (**) and 10% (*) level.

Table 3
Ordered probit model: internal hiring and establishment characteristics.

Outcome: When recruiting, how often does the management start by searching for internal candidates?					
	P(Never)	P(Rarely)	P(Sometimes)	P(Often)	P(Always)
Main Characteristics:					
Number of hierarchical levels	-0.86***	-0.79***	-0.77***	-0.08***	2.50***
Number of Employees	-0.01***	-0.01***	-0.01***	-0.00**	0.02***
Make Profit	1.37***	1.24***	1.22***	0.13*	-3.96***
Hires (standardized)	0.46**	0.42***	0.41***	0.04	-1.32**
Competitiveness:					
Non-competitive market	0.70***	0.63**	0.62**	0.06**	-2.01***
Price competition	0.45***	0.41***	0.40***	0.04**	-1.31***
Sector:					
Professional services	3.14***	2.85***	2.79***	0.29**	-9.07***
Accommodation services	-1.54*	-1.40*	-1.37*	-0.14	4.46*
Construction	1.84***	1.67***	1.64***	0.17*	-5.32***
Transportation and storage	0.52	0.47	0.46	0.05	-1.51
Financial and ICT services	0.48	0.44	0.43	0.04	-1.40
Wholesale and retail trade	0.55	0.50	0.48	0.05	-1.58
Other services	0.61	0.55	0.54	0.06	-1.75
Observations	18,287	18,287	18,287	18,287	18,287
Country FE	Yes	Yes	Yes	Yes	Yes
Additional Controls	Yes	Yes	Yes	Yes	Yes

Notes: The table reports the probability that establishments search for internal candidates. Partial effects are estimated using an ordered probit model, where explanatory variables are set to their mean values. The dependent variable reports the response to the question: *When recruiting, how often does management start by looking whether there are any suitable internal candidates?* Section 3.3 discusses the results. The reference category is the manufacturing sector. Asterisks denote statistical significance at the 1% (***), 5% (**) and 10% (*) level.

Table 4
Ordered probit model: internal hiring and establishment characteristics .

Outcome: When recruiting, how often does the management start by searching for internal candidates?					
	P(Never)	P(Rarely)	P(Sometimes)	P(Often)	P(Always)
Product Competition on:					
Quality of products	0.12	0.11	0.10	0.01	-0.34
Customization of products	-0.10	-0.10	-0.09	-0.01	0.30
Innovation	0.06	0.05	0.05	0.01	-0.16
Other controls:					
Predictable demand	0.38	0.35	0.34	0.04	-1.11
Part-time contracts	0.01	0.01	0.01	0.00	-0.04
Payment by results (piece rates)	0.06	0.05	0.05	0.01	-0.16
Own Organisation	0.11	0.10	0.10	0.01	-0.33
Contracted out	0.07	0.06	0.06	0.01	-0.19
Age (standardized)	-0.06	-0.05	-0.05	-0.01	0.16
Organizational change	0.41**	0.37*	0.36*	0.04*	-1.19*
Single-establishment	0.78*	0.71*	0.69*	0.07*	-2.26*
Underskilled employees	0.39	0.36	0.35	0.04	-1.14
Open-ended contracts	0.09	0.09	0.08	0.01	-0.27
Share of managers	0.20	0.18	0.17	0.02	-0.56
Employee representative	-0.49	-0.45	-0.44	-0.05	1.42
Export	0.84	0.76	0.75	0.08	-2.43
Speed of skills change	-0.29	-0.27	-0.26	-0.03	0.84
Hiring Criteria: The candidate has					
A personality that fits the company	-0.07	-0.06	-0.06	-0.01	0.21
All relevant skills (does not need any training)	0.28	0.25	0.25	0.03	-0.80
Professional experience in similar positions	0.36*	0.33*	0.32**	0.03	-1.04*
All needed educational and vocational qualifications	0.27*	0.24**	0.24*	0.02	-0.78*
Other Hiring controls:					
Recruits need more training	-0.13	-0.11	-0.11	-0.01	0.36
Difficulty to retain employees	0.15	0.14	0.13	0.01	-0.43
Difficulty to find employees with the required skills	0.14	0.13	0.12	0.01	-0.40
Observations	18,287	18,287	18,287	18,287	18,287
Country and Sector FE	Yes	Yes	Yes	Yes	Yes
Additional Controls	Yes	Yes	Yes	Yes	Yes

Notes: The table reports the probability that establishments search for internal candidates. Partial effects are estimated using an ordered probit model, where explanatory variables are set to their mean values. The dependent variable reports the response to the question: *When recruiting, how often does management start by looking whether there are any suitable internal candidates?* Section 3.3 discusses the results. Asterisks denote statistical significance at the 1% (***), 5% (***) and 10% (*) level.

We then investigate reasons for providing training. On a four-point scale, increasing the importance of establishment-specific skills as a reason to train increases the probability of hiring internally by about 4 percentage points, while developing current job-specific skills increases the outcome by about 2.5.¹¹ Training to allow for job rotation or career advancement is slightly less important than establishment-specific and job-specific skills. Training in order to improve employee morale does not affect employer search. These results support the idea that the development of specific human capital is associated with internal hiring. Prendergast (1993) argues that promotions encourage workers to accumulate firm-specific skills.¹² The survey contains a question on different practices used to motivate employees. However, it does not explicitly refer to the role of promotions.

Other factors related to firm-specific skills. Establishments recruiting candidates with required qualifications or experience search less internally (Table 4 reports the results). This correlation is consistent with the idea that, when external candidates are available (and do not need additional training), establishments do not rely on the pool of existing workers. Other factors related to human capital accumulation used in the previous literature do not significantly affect the outcome. For in-

stance, how quickly the knowledge and the skills needed by the employees change (*Speed of skills change*), and the use of temporary contracts (*Open-ended contracts*), are not related to internal hiring.

Robustness.

Table A.3 reports estimates for a model evaluated at the mean partial effect in the population, instead of the partial effect at the mean. Results are similar. For example, on-the-job training increases the probability of always searching for internal candidates by 1.10 (instead of 1.19) percentage points. Fig. 1 reports the probability of searching for internal candidates for firms with different fraction of workers that receive on-the-job training. We observe that the increase occur steadily. The closest study to this paper, Bayo-Moriones and Ortín-Ángel (2006), does not measure training. They discuss the role of fixed-term employment contracts, technological change and distances from similar plants. While those factors are surely correlated to specific human capital investments, they do not measure specific skills as directly as training.

3.2. Search for Internal Candidates and Incentives

Theoretical motivations. Tournament models explain internal hiring based on its role to foster worker's effort (Lazear and Rosen, 1981). On the one hand, job rotation creates incentives, but on the other hand, it might lead to a low job assignment (i.e., which workers take which job), as insiders do not necessarily possess the skills needed for the job to be filled (Chan, 1996; Waldman, 2003). Hence, it is an empirical question whether reassignments and promotions within firms incentivize worker efforts. There are three main factors related to the provision of incentives that can be used to test this idea. First, in establishments where employees' performance can be monitored, moral hazard associated with

¹¹ The wording of the item "Developing establishment specific skills" is "Increasing the capacity of employees to articulate ideas about improvements to the establishment"

¹² The theoretical argument is the following. When the effort to acquire specific skills is difficult to verify, promotions incentivize workers to acquire specific human capital. See Gibbons and Waldman (2006) and DeVaro and Morita (2013) for job-assignment models that link human capital accumulation and the internal labor market.

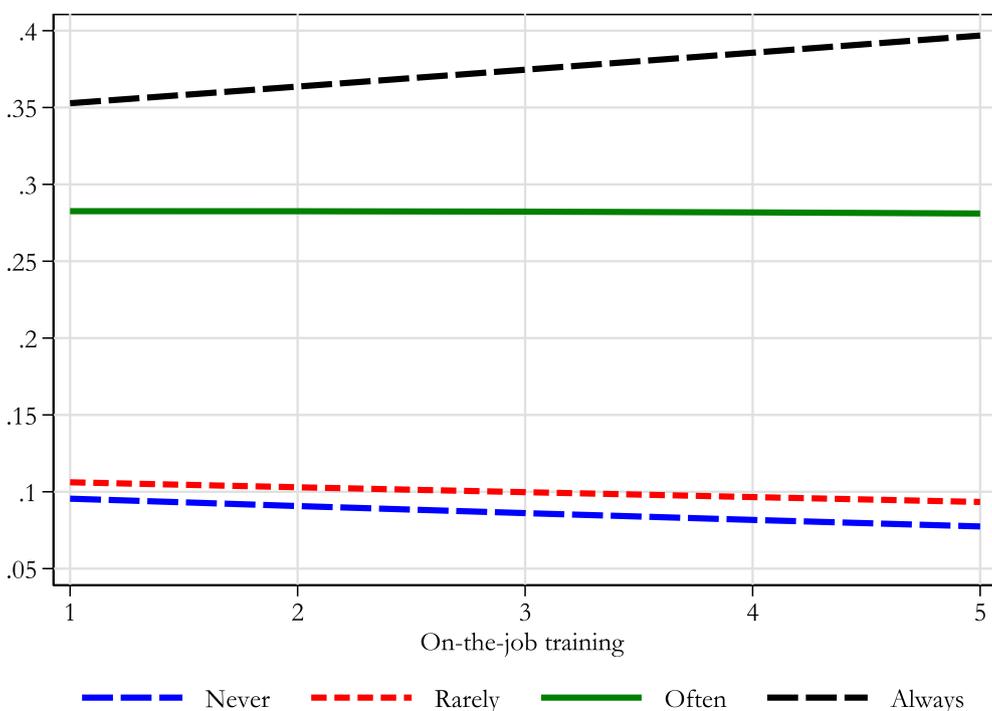


Fig. 1. Probability of searching for internal candidates and on-the-job training.

unobservable effort is reduced. Accordingly, we expect a negative relationship between internal search and the monitoring of employees' performance. Moreover, a limitation of individual incentive schemes such as promotions is that they reward an employee, not the group. Individual rewards can be problematic in workplaces where collaboration between co-workers is necessary (Chen, 2003; Lazear, 1989). We expect a lower search for internal candidates in establishments in which a group of people work together with a shared responsibility to execute allocated tasks (i.e., teamwork). Finally, Gibbs (1995) modelizes both promotions and pay for performance as incentive mechanisms and shows substitutability between the two.

Results: collaboration.

Table 2 reports HR practices associated with the theoretical discussion above. Contrary to expectation, establishments where employees work in teams are 4 percentage points more likely to always search for internal candidates. Another proxy for assessing the link between collaboration and internal search is the criteria for being evaluated positively. Helping colleagues without being asked is one of these criteria. We find a positive association between helping colleagues and internal search, but the effect is not statistically different from zero. All in all, the variation that we observe in our data seems to point to a positive association of collaboration with internal search, in contrast to some theoretical models (Chen, 2003; Lazear, 1989).

Results: monitoring. To evaluate the role of monitoring, we examine the link between the use of data analytics to monitor employee performance and employer search behavior. We find a positive but not statistically significant link. What's more, different approaches to manage the way employees carry out their tasks induce different monitoring. The survey distinguishes two approaches: either the manager supervises the assigned tasks or employees can autonomously carry out their tasks. The data suggest that there is no effect of management types on internal search. The results on monitoring also relate to models that stipulate that workers' efforts is observable, but not workers' abilities. Waldman (1984) shows that, when there is asymmetric information about workers' abilities, promotions serve as a signal.¹³ Even though

there is a positive link between data analytics and internal search, the association is not statistically significant.

Results: monetary rewards and other incentives. We find that monetary incentive schemes are positively and statistically associated with internal search, however the effect is less important in magnitude than other incentive schemes. "Communicating a strong mission and vision, providing meaning to our work" is the incentive practice that is the most associated with internal search. This channel is discussed in Osterman (1992). He argues that greater employee identification with the goals of the organization can lead to more effort, lower turnover rates and other behaviors that enhance productivity (see McConnell et al., 2016). Incentives based on opportunities for training and development are also more closely associated with internal search than monetary rewards. Turning to the role of variable pay, the results suggest that there is not a link between firm performance, individual performance or team performance and internal search.

Overall, we find that employee motivation and the use of different incentive schemes are positively associated with internal search. Factors related to collaboration, monitoring and variable pay are, in contrast, not associated with the outcome.

Robustness.

Table A.3 reports estimates for a model evaluated at the mean partial effect in the population, instead of the partial effect at the mean. Results are also very similar. For example, teamwork increases the probability of always searching for internal candidates by 4.04 (instead of 4.32) percentage points.

3.3. Search for Internal Candidates and Workplace Characteristics

Table 3 and Table 4 report marginal effects across different establishment characteristics.

Size, hierarchical levels and profits. Table 3 shows that larger establishments are more likely to search internally. Fig. 2 reports the probability of searching for internal candidates for firms with different number of employees. We observe that the increase occur steadily. This relationship is predicted in different internal labor market models (e.g., Zabojsnik and Bernhardt, 2001), as small firms are less likely to have at least one person among their employees to fill the position. Moreover,

¹³ For learning-based models, see DeVaro and Waldman (2012).

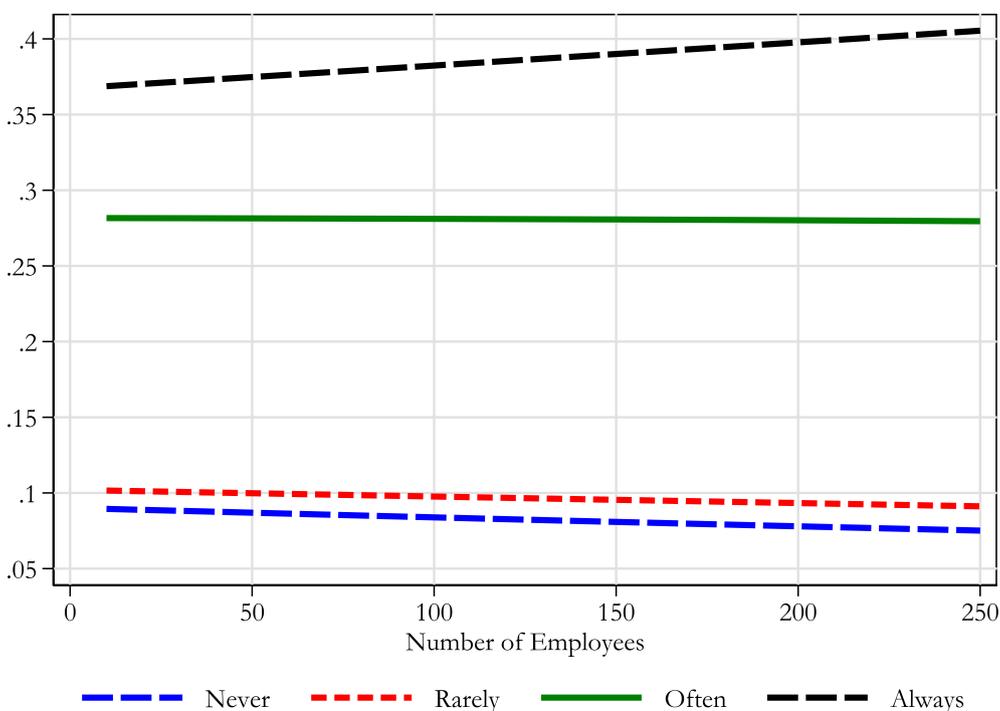


Fig. 2. Probability of searching for internal candidates and number of employees.

establishments with an additional layer of hierarchy in their organization are 2.5 percentage points more likely to search internally. The profitability of establishments is negatively correlated with internal search. Consistent with this finding, the level of non-competition in the product market is also negatively related to internal search. Firms that cannot attract workers in the external labor markets (due to a lack of competitiveness in the labor market) potentially compensate by job changes within firms. Bayo-Moriones and Ortín-Ángel (2006) also show that the degree of competition has a statistically significant impact on employer search behavior.

Industry differences. Table 3 reports estimated sector fixed effects. Professional service establishments search less internally. On average, they are more than 9 percentage points less likely to search for internal candidates relative to manufacturing establishments. The construction sector is 5 percentage points less likely to search for internal candidates.¹⁴ As mentioned above, in 1995 the sector professional and technical activities represented 7.4% of total employment. This share is 13.1% in 2019. Although there is no peer-reviewed work on the evolution of internal hiring over time to our knowledge, our results suggest that the expansion of the service sector is a potential factor in understanding the recent evolution of internal hiring.¹⁵

Additional establishment characteristics. As in DeVaro and Morita (2013), we do not find evidence that the fraction of temporary workers or part-time workers, or employee representatives influence the probability of searching for internal candidates (Table 4). Finally, Figures A.6 and A.5 report countries dummies using Austria as the reference category. We do find substantial heterogeneity across countries.

¹⁴ Accommodation services establishments are more likely to search for internal candidates, but the estimated effect is only statistically significant at the 10% level. This sector is the only one with more internal search compared to manufacturing establishments.

¹⁵ Cappelli (2019) shows that job openings are now filled more often by hiring from the outside rather than from within. Maurin and Signorelli (2019) present downward promotion rates in France, the UK and the US.

4. Conclusions

Studies on the recruitment process shed light on the internal functioning of firms and at the same time they can illuminate the understanding of the labor market at the aggregate level (e.g., Bertheau et al., 2020; Engbom, 2021). Most of the literature focuses on recruiting strategies in the external labor market, whereas recent empirical evidence shows that employers also search internally when hiring. In our sample, 66% of establishments typically search internally. The contribution of this paper is to provide explanations for why this is the case. To do so, we exploit a novel representative sample of more than 18,000 European establishments. Using ordered probit models, we uncover which establishment characteristics are associated with the frequency of internal search.

Our main and novel result is the positive association between on-the-job training and the frequency of search for internal candidates. These results suggest that the accumulation of specific human capital is an important driver of internal hiring. Also, employers are more likely to search internally in establishments where employees work in teams. This result goes against our expectation, as some theoretical models argue that the incentive mechanism would be lower in workplaces with a greater need for collaboration. Overall there is no clear evidence that incentive systems such as variable pay are related to employer search behavior.

Additionally, we document two facts linking internal search and establishment characteristics. First, there is a strong variation of internal search across sectors. In particular, professional services establishments are less likely to hire internally compared to manufacturing establishments. The expansion of the service sector possibly explains the decline in internal hiring discussed in the literature (Cappelli, 2019). Second, search for internal candidates is less common in profitable firms and in more competitive markets. These results suggest that mobility within firms is possibly used by establishments that cannot attract workers in the external labor market.

We believe that additional research is needed to shed light on the causes and consequences of internal labor markets. In particular, exploring internal vs. external job ladders and how they vary by firm characteristics is an interesting area to pursue.

Supplementary material

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.labeco.2021.102064

References

- Algan, Y., Crépon, B., Glover, D., 2020. Are Active Labor Market Policies Directed at Firms effective? Evidence from a Randomized Evaluation with Local Employment Agencies. Working Paper.
- Baker, G., Gibbs, M., Holmstrom, B., 1994. The internal economics of the firm: evidence from personnel data. *Q. J. Econ.* 109 (4), 881–919.
- Bayer, C., Kuhn, M., 2020. Which Ladder to Climb? Wages of Workers by Job, Plant, and Education. CEPR Discussion Paper 13158.
- Bayo-Moriones, A., Ortín-Ángel, P., 2006. Internal promotion versus external recruitment in industrial plants in Spain. *ILR Rev.* 59 (3), 451–470.
- Becker, G., 1964. *Human Capital*.
- Bertheau, A., Bunzel, H., Vejlin, R., 2020. Employment Reallocation Over the Business Cycle: Evidence from Danish Data. IZA Discussion Paper No. 13681.
- Bertheau, A., Cahuc, P., Jäger, S., Vejlin, R., 2021. Turnover costs: evidence from unexpected worker separations. mimeo.
- Bidwell, M., Mollick, E., 2015. Shifts and ladders: comparing the role of internal and external mobility in managerial careers. *Organ. Sci.* 26 (6), 1629–1645.
- Cappelli, P., 2019. Your approach to hiring is all wrong. *Harv. Bus. Rev.* 97 (3), 48–58.
- Carrillo-Tudela, C., Gartner, H., Kaas, L., 2021. Recruitment Policies, Job-Filling Rates and Matching Efficiency. Working Paper.
- Chan, W., 1996. External recruitment versus internal promotion. *J. Labor Econ.* 14 (4), 555–570.
- Chen, K.-P., 2003. Sabotage in promotion tournaments. *J. Law, Eco., and Organ.* 19 (1), 119–140.
- DeVaro, J., 2020. Internal Hiring or External Recruitment?.
- DeVaro, J., Kauhanen, A., Valmari, N., 2019. Internal and external hiring. *ILR Rev.* 72 (4), 981–1008.
- DeVaro, J., Morita, H., 2013. Internal promotion and external recruitment: atheoretical and empirical analysis. *J. Labor Econ.* 31 (2), 227–269.
- DeVaro, J., Waldman, M., 2012. The signaling role of promotions: further theory and empirical evidence. *J. Labor Econ.* 30 (1), 91–147.
- Doeringer, P.B., 1986. Internal labor markets and noncompeting groups. *Am. Econ. Rev.* 76 (2), 48–52.
- Engbom, N., 2021. Contagious Unemployment. NBER Working Paper 28829.
- Gibbons, R., Waldman, M., 2006. Enriching a theory of wage and promotion dynamics inside firms. *J. Labor Econ.* 24 (1), 59–107.
- Gibbs, M., 1995. Incentive compensation in a corporate hierarchy. *J. Account. Econ.* 19 (2–3), 247–277.
- Kuhn, P., 2018. *Personnel Economics*. Oxford University Press.
- Lazear, E., 1989. Pay equality and industrial politics. *J. Polit. Econ.* 97 (3), 561–580.
- Lazear, E., 2009. Firm-specific human capital: a skill-weights approach. *J. Polit. Econ.* 117 (5), 914–940.
- Lazear, E., Oyer, P., 2004. Internal and external labor markets: a personnel economics approach. *Labour Econ.* 11 (5), 527–554.
- Lazear, E., Rosen, S., 1981. Rank-order tournaments as optimum labor contracts. *J. Polit. Econ.* 89 (5), 841–864.
- Maurin, E., Signorelli, S., 2019. The decline in internal labor markets and technological change. mimeo.
- McConnell, C., Brue, S., Macpherson, D., 2016. *Contemporary labor economics*.
- Mongey, S., Violante, G., 2019. Macro Recruiting Intensity from Micro Data. NBER Working Paper 26231.
- Muehleemann, S., Leiser, M.S., 2018. Hiring costs and labor market tightness. *Labour Econ.* 52, 122–131.
- Mueller, A., Osterwalder, D., Zweimüller, Josef Kettemann, A., 2021. Vacancy Durations and Entry Wages: Evidence from Linked Vacancy-Employer-Employee Data. Working Paper.
- Osterman, P., 1992. Internal labor markets in a changing environment: models and evidence. In: *Research Frontiers in Industrial Relations and Human Resources*, pp. 273–308.
- Prendergast, C., 1993. The role of promotion in inducing specific human capital acquisition. *Q. J. Econ.* 108 (2), 523–534.
- Waldman, M., 1984. Job assignments, signalling, and efficiency. *RAND J. Econ.* 15 (2), 255–267.
- Waldman, M., 2003. Ex ante versus ex post optimal promotion rules: the case of internal promotion. *Econ. Inq.* 41 (1), 27–41.
- Waldman, M., 2013. Theory and evidence in internal labor markets. *The Handbook of Organizational Economics*.
- Zabojnik, J., Bernhardt, D., 2001. Corporate tournaments, human capital acquisition, and the firm size-wage relation. *Rev. Econ. Stud.* 68 (3), 693–716.