Bending the Pipeline?

Executive Search and Gender Inequality in Hiring for Top Management Jobs

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July 28, 2015

Abstract

We study the sources of women's underrepresentation in hiring for top management jobs, by focusing on the context of executive search. Using data that include proprietary information on 10,970 individuals considered by a search firm, we examine the sources of the low proportion of women placed in senior roles. Contrary to received wisdom, we find limited evidence that demand-side screeners strongly contribute to gender disadvantage in this setting. What gender differences exist tend to play out at the start of the hiring process and are driven both by supply-side and demand-side actors. Once considered for a position, women are no less likely than men to be hired—though they are slightly less likely to be interviewed by the search firm. Our findings highlight the theoretical importance of disentangling candidates' "self-steering" behavior from the "pipeline bending" of hiring agents. We discuss the implications of our results for understanding gender inequality at upper echelons of the labor market.

Introduction

Top management is still a man's business. Although women represent approximately 40% of the workforce in most developed economies, they account for less than 16.9% of top executives and directors in Fortune 500 firms and only 5.2% of chief executive officers (CEOs; Catalyst 2013). Given the disproportionate rewards accruing to those who reach the highest echelons of the corporate world, the stark underrepresentation of women at this level has been a continuing concern of organizational scholars (e.g., Kanter 1977; Ragins al. 1998; Carli and Eagly 2001; Eagly and Carli 2007). There is also a lively debate over whether women differ from men in positions of authority (Adams and Funk 2012), and whether having females in leadership positions affects firm performance (Herring 2009; Ahern and Dittmar 2012; Dezso and Ross 2012), management behavior (e.g., Matsa and Miller 2013), or the gender distribution of rewards and resources within firms (Cohen and Huffman 2007; Cardoso and Winter-Ebmer 2010; Kurtulus and Tomaskovic-Devey 2012; Shin 2012; Srivastava and Sherman 2015). Although far from resolved, these issues have garnered increasing attention in policy circles (see e.g. United States Government Accountability Office 2010; Women on Boards 2011) and have prompted a variety of initiatives that aim to increase the number of women in top executive and board-level positions (Ahern and Dittmar 2012; Armstrong and Walby 2012; Bertrand et al. 2014). Understanding why women do not reach those positions in the first place is thus of paramount theoretical and empirical relevance.

There is no shortage of explanations for the underrepresentation of women in top management. Much research argues for the importance of supply-side factors, claiming that the paucity of women in top positions reflects, at least in part, the limited pipeline of experienced female candidates available to fill senior executive roles (Colaco et al. 2011; Barsh et al. 2012; Parrotta and Smith 2013). In contrast, other work focuses on organizational demand-side barriers that prevent women's advancement to higher-level corporate positions—whether through internal (DiPrete and Soule 1988; Cohen et al. 1998; Barnett et al. 2000; Yap and Konrad 2009; Smith et al. 2013) or external labor market transitions (Brett and Stroh 1997; Lyness and Judiesch 1999).

Although distinguishing between supply- and demand-side factors is vital for clarifying the mechanisms of inequality (Reskin 2003), disentangling these factors is an empirical challenge. This is especially the case in the context of top management jobs, where it is difficult to observe the supply of candidates considered (not just those who were actually hired) and the demand-side selection process into these positions (Fernandez and Abraham 2010). Yet irrespective of the

hierarchical level of the job in question, researchers face the problem of determining how supply-side choices might be affected in anticipation of gender-biased treatment on the demand side. Women who expect demand-side actors to be biased against them may well be less likely to put themselves forward as job candidates. Indeed, Storvik and Schone (2008) argue that this is the case in their study of barriers to women's advancement in Norway's state bureaucracy. To the extent that women engage in such pre-emptive behavior, researchers can develop only limited insight regarding what their supply-side choices would have been in the absence of anticipated discrimination (for similar arguments, see Goldsmith et al. 2004; Barbulescu and Bidwell 2013; Pager and Pedulla 2015). The problem is exacerbated when one considers that women may harbor biased self-assessments of their own abilities that could, in turn, affect their decisions to pursue certain jobs (Correll 2001, 2004).

One way to make progress on this thorny problem is to find settings in which the actors are blind to the information needed to make gendered distinctions. On the demand side, a famous study by Goldin and Rouse (2000) examined the selection of orchestra musicians when the candidate's gender was hidden from demand-side screeners. That setup enabled direct inferences about the extent of gender bias in the demand-side selection process. Of course, one could hardly blind supply-side candidates to their own gender. So what is needed—if we are to approximate the individual's "anticipation free" supply-side behavior—is a situation where individuals are being considered for jobs without their knowledge. This occurs whenever employers pursue "passive candidates" who are not actively searching for jobs (Osberg 1993; Granovetter 1995; McDonald and Elder 2006). Following this strategy for isolating the anticipation-free gender distribution of supply-side choices requires that we compare employers' attempts to recruit passive candidates against a baseline defined by what the gender distribution of supply-side choices for those jobs would otherwise be.

In several respects, executive search firms provide an ideal context for addressing these challenges. First, studying such firms provides unique empirical evidence on gender allocation in a vital yet difficult-to-study sector of the labor market. In fact, search firms are *the* dominant player in senior management recruitment as they are involved in filling a substantial portion of top management jobs (Khurana 2002; Cappelli and Hamori 2014). Second, search firms maintain detailed records on all stages of the hiring process from the formation of candidate pools to final placement, and these records include information on which candidates were considered but did not make it through each stage. Third—and of critical importance for the goals of our study— executive search firms conduct searches for both active and passive candidates, most often

assembling initial lists of prospects without the candidates' knowledge. Since passive candidates do not know they are being considered, individuals identified by this procedure cannot be selecting out of the pool because they anticipate being discriminated against (or for any other reason). In this setting, then, we are in a position to observe the gender distribution of the candidate pool not only when prospects are aware of being considered for a job but also when they are not; thus we can establish an anticipation-free baseline. Hence we can develop a greater understanding of the extent to which supply-side choices may be affected by self-steering, including that due to candidates' anticipation of discrimination.

Following this strategy does raise the question of whether the search firms themselves demonstrate gender bias in conducting searches for top management jobs (e.g., in the initial identification of passive candidates). There is not much research that addresses gender inequality in executive search, but the few studies that have done so suggest that these organizations' practices contribute to preventing women's access to senior roles (Bonet et al. 2013; Tienari et al. 2013; but see Sardiello 2011). Especially in policy circles, there is a widespread assumption that search firms "bend the pipeline" for top management jobs in ways that disadvantage female candidates (Women on Boards 2011; EHRC 2012); however, no empirical studies have examined whether (much less how) they do so. Our paper probes this prevalent assumption by directly examining (i) whether search firms contribute to bending the pipeline of candidates for top management jobs and (ii) if so, just where in the executive search process such bending occurs.

For the first time in the literature, we have access to the records of a high-end executive search firm that contain data on candidates and on how they are allocated to jobs at the top management level. We use information provided by a leading UK executive search firm ("Execo", a pseudonym) that corresponds to 219 C-level and board vacancies that Execo worked to fill during the period 2005–2009. Given this information on all candidates considered for each of these jobs (10,970 individuals), we follow them through the hiring pipeline and identify (i) whose decision it was if the candidate did not proceed and (ii) the stage at which this decision was made. We complement these data with qualitative information from 45 interviews with search consultants. In addition, we have access to a rare data source from the Association of Executive Search Consultants (AESC) on executives who are willing to be contacted about senior executive positions. Hence we can compare the gender composition of candidates who actively identify themselves as looking for executive jobs with our anticipation-free, supply-side baseline of passive candidates considered by Execo.

Women constitute a small fraction of the candidates considered (11%) and hired (13%) by Execo. We find evidence consistent with women self-steering away from the active pursuit of top management jobs—that is, as compared with the baseline proportion of female passive candidates. Once women are included in a candidate pool, they are no less likely overall than men to be hired; but they are less likely to be interviewed by search consultants at the beginning of the process. We show that this result is driven by search consultants bending the pipeline against female candidates *and* by female candidates self-steering away from being interviewed. Finally, at the end of the pipeline, comparing positions filled by Execo with those filled by other means reveals that Execo-placed candidates are actually more likely to be female than are candidates hired through other channels.

This study makes several theoretical and empirical contributions to research on gender inequality. Theoretically, and for the first time in the literature, we are able to disentangle some of the supply- versus demand-side processes that result in female underrepresentation in hiring for top management jobs. We highlight the importance of distinguishing between self-steering behavior and pipeline bending, by identifying appropriate counterfactuals of what supply-side choices might look like when candidates do not fear being subject to discriminatory screening. Empirically, we provide the first systematic analysis of hiring pipelines for top management jobs. Contrary to the widely held belief that women are greatly disadvantaged in their chances of being recruited for these positions, we find only small gender differences. This result calls into question established understandings of the role of executive search firms in gender inequality, and it opens up avenues for further investigation on the types of organizational practices that could contribute to increased gender balance at the highest levels of the corporate ladder.

Gender Inequality in the Executive Labor Market

Numerous studies document the lack of women in top corporate positions (e.g., Bertrand and Hallock 2001; Dezso and Ross 2012), but our understanding of the factors contributing to this pattern is rather limited. The literature on gender differences in labor market processes can be grouped into two classes of theories depending on whether they emphasize demand-side factors (employer behavior) or supply-side factors (workers' behavior). Demand-side explanations of women's difficulties in advancement focus on how implicit or explicit job-related, sex-based stereotypes result in patterns of female disadvantage via gender discriminatory screening and evaluation processes. Examples include theories of gendered organizations (Acker 1990; Williams 1995), Reskin and Roos's (1990) queuing theory, status expectations theory (Correll 2004; Ridgeway 2011, 2014), role congruity theory (Eagly and Karau 2002), and double-

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standards theory (Foschi 2000). Although they emphasize different reasons, all these theories posit that employers have definite preferences for men. Support for this view is found in a large number of laboratory studies (Heilman 1995; Cejka and Eagly 1999; Rudman and Glick 1999; Heilman 2001; Rudman and Glick 2001; Foschi 2009; Foschi and Valenzuela 2012; Moss-Racusin et al. 2012), field studies (Roth 2006; Castilla 2008), and employer audit research (Azmat and Petrongolo 2014).

Many demand-side studies focus on promotion barriers that prevent women's advancement to high-level positions within firms (Cohen et al. 1998; DiPrete and Soule 1988; Barnett et al. 2000; Yap and Konrad 2009; Smith et al. 2013). While internal barriers are undoubtedly important, recent studies show that many executive jobs are filled by external hires (Lazear and Oyer 2004; Cappelli and Hamori 2005; Fernandez and Abraham 2010; Hassink and Russo 2010; Fernandez and Abraham 2011; Fernandez and Campero 2015) and that managers hired externally tend to be better paid than those promoted from within the firm (Harris and Helfat 1997; Bidwell 2011; but see Hassink and Russo 2008). Demand-side gender biases can occur also in the external labor market, and some authors argue that female executives benefit less than men from external labor market transitions (Brett and Stroh 1997; Lyness and Judiesch 1999; Hom et al. 2008; but see Gorman and Kmec 2009). Indeed, extant research suggests that discriminatory screening is more likely to occur at the hiring interface than at any other point in the employment process (Petersen and Saporta 2004). For example, employer audit studies—in which researchers submit fictitious resumes for well-matched candidates of different genders—often find evidence of gender-biased screening in hiring (Azmat and Petrongolo 2014).

In contrast to demand-side explanations, theories emphasizing labor supply factors argue that—for various reasons—men and women pursue different kinds of positions, thereby affecting the gender distribution of candidates considered for jobs (Polachek 1981). Scholars debate why these gender differences in career patterns emerge; suggested explanations include gender differences in socialization (O'Leary 1974; Marini and Brinton 1984; Betz and O'Connell 1989; Subich et al. 1989; Marini et al. 1996), segregated social network processes (Belliveau 2005), and stereotypical cultural beliefs about gendered job roles (Cejka and Eagly 1999) or gendered family roles (Becker 1991; but see Bielby and Bielby 1984, 1988). In addition, Correll (2001, 2004) argues that women have downwardly biased self-assessments of their own competences, and these biases are manifested in women's job choices. Although the reasons differ, supply-side theories all suggest that gender segregation will already be evident in the pipeline of people seeking different jobs (Fernandez and Friedrich 2011; Schweitzer et al. 2011; Barbulescu and

Bidwell 2013). This "limited pipeline" argument has also been used to explain the paucity of women in top positions (Colaco et al. 2011; Barsh et al. 2012; Parrotta and Smith 2013) and has been reflected in the popular discourse by which women are encouraged to put themselves forward more aggressively and actively compete for senior roles (e.g. Sandberg 2013).

The relative importance of demand- and supply-side factors in determining the lack of women in top positions is a subject of much controversy, both in scholarly work (Blau et al. 2006; Barreto et al. 2009; Ridgeway 2011) and the popular press (Farrell 2005). Theoretical clarity is hampered by the challenges of empirically disentangling the influence of supply and demand processes, which is especially problematic in the case of senior executive jobs. The first challenge is the difficulty of obtaining adequate data on allocation processes – either internal or external – at this level. In fact, the few extant studies of gender inequality in top management have selected on the survivors of the selection process—that is, they observe only the outcome of hiring processes, the men and women who fill the top jobs (Bertrand and Hallock 2001; Huffman et al. 2010; Matsa and Miller 2011; Smith et al. 2011; Gregory-Smith at al. 2013; Smith et al. 2013). Yet studies at lower levels of the organizational hierarchy have shown that accurate inferences about gender differences in allocation require observing not only those who were hired but also those who were considered but not hired (Fernandez and Weinberg 1997; Petersen et al. 2000; Fernandez and Sosa 2005).

However, even with proper data (either internal external) on the set of candidates who competed for particular jobs, distinguishing the extent to which supply-side and demand-side processes are at work remains a challenge. First, if demand-side screeners steer men and women toward applying for different jobs, then the nominally supply-side behavior of applying to different positions may also reflect discriminatory processes originating among demand-side screeners. For instance, Pager et al. (2009) find evidence of race-based steering in their employer audit study. Fernandez and Mors (2008) found direct evidence of such gender-based steering of job candidates in the letters that HR used to communicate with job candidates, although this process did not explain the observed levels of gender segregation across candidate pools for jobs in their setting. Second, in addition to the supply side factors discussed above (e.g. gendered family roles or downwardly biased self-assessments), job candidates could be *self-steering* in anticipation of how demand-side screeners are likely to react to them. If people avoid pursuing certain jobs because they expect to be discriminated against, then the candidate pool will not only reflect supply-side choices, but will also be influenced by expected discriminatory behavior by demand-side screeners (cf. Goldsmith et al. 2004; Barbulescu and Bidwell 2013; Pager and Pedulla 2015).

In their qualitative study of the Norwegian state bureaucracy, Storvik and Schone (2008) argue that fear of discrimination is the most significant barrier to women's advancement in that setting. Interestingly, these authors claim that contrary to women's perceptions, males and females are, in fact, treated in a gender-neutral way by demand-side screeners:

> "…female managers are treated just as well as male managers in central parts of the state bureaucracy. Employers give equal shares of respect and attention to both genders. Female managers are encouraged to apply for the same number of jobs as men and are offered an equal number of jobs as men when they apply; in fact, women are offered more jobs than men, when one controls for the number of job applications. This indicates that organizational barriers are not the problem." (Storvik and Schone 2008, p. 729)

These researchers also see no supply-side gender differences in work orientation, ambition, or ability to combine work and family life. Even so, they find that "female managers apply for management jobs less often than their male colleagues" (p. 729). Storvik and Schone attribute this pattern of job seeking to women's (apparently mistaken) sense that they will be discriminated against in management jobs.[1] To the extent that this pattern of women pre-emptively avoiding discrimination is a general one, it will be difficult for researchers to gain insight on what their supply-side choices would have been in the absence of perceived demand-side discrimination.

Executive search firms provide a strategic research site for addressing these challenges, both for empirical and theoretical reasons. First, as already mentioned, the study of executive search firms yields unique evidence on gender allocation in a vital, yet very difficult to study sector of the labor market. These organizations manage most of the external hiring for senior jobs. In the United Kingdom, for example, 73% of the largest corporations report using executive search firms in their Board appointment process (EHRC 2012). In the United States, estimates indicate that search firms are involved in hiring nearly half of all executives (Association of Executive Search Consultants 2011); however, the actual percentage is probably much higher for the very top positions, such as C-level hires and board appointments (see Khurana 2002). According to Cappelli and Hamori (2014), most senior searches that do not use a search firm would have been internal, and thus the proportion of external hiring not involving an executive search firm is small. Second, when studying top management jobs, the data used by executive search firms do not suffer from survivorship bias because these firms routinely keep information not only on those who were hired, but also those who were considered and not hired. Furthermore, they keep

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[1] In essence, Storvik and Schone (2008) are arguing that women candidates' anticipatory self-steering is a result of their statistically discriminating against managers in the state bureaucracy. Perhaps ironically, this is the mirror image of one common account for why employers might avoid hiring women: they statistically discriminate against women by supposing, for example, that women might be less attached to their jobs than are men (see e.g. Correll and Benard 2006).

this information for all the stages of the search – i.e. long-list of initial candidates, shortlist of candidates interviewed by the search firm, candidates interviewed by clients, and candidates that are ultimately hired.

Third, and most importantly, studying executive search firms allows us to make theoretical progress on the relative contribution of both supply-side and demand-side factors that affect the hiring of women for top management jobs. These firms conduct searches for both active and passive candidates. At the early stages they assemble lists of candidates most often without the client firms' or the candidates' involvement (Cappelli and Hamori 2014). On the supply-side, this aspect of the procedure yields unique insight into the phenomenon of self-steering. Since passive candidates by definition do not know they are being considered for a job, they cannot select themselves out of the pool—irrespective of any supply side factors such as gender-biased self-assessments of ability (Correll 2001, 2004) or expectations of demand-side discrimination (Storvik and Schone 2008). On the demand-side, the executive search firm serves as a buffer between its client and the pool of prospective candidates and so, at this early stage, any demand-side client steering of candidates to particular jobs can only occur indirectly through the search firm (for a similar argument in the context of contract employment, see Fernandez-Mateo and King 2011). Search firms have, indeed, been said to shape the hiring process early on, as they are responsible for assessing their client's needs and for deciding where to look for leads as well as whom to include on the long-list of possible candidates, whom to short-list, and whom to interview (McCool 2008; Hamori 2010). Given the extent of its involvement in the hiring process, a search firm could potentially "bend the pipeline" in ways that disadvantage female candidates. The few studies that have mentioned gender in the context of executive search suggest that headhunters do precisely that and thus contribute to restricting women's access to senior roles (see Dreher et al. 2011; Bonet et al. 2013; Tienari et al. 2013).

Beyond the early stages of the process, we can also distinguish demand-side from supply-side factors by examining whose decision it is to stop being considered as candidates progress through the later stages of screening. For example, the gender-biasing effects of some supply-side processes – biased self-assessments of one's own ability, or self-censoring to avoid discrimination – would manifest as candidates declining further participation in the search process. In contrast, demand-side biases would be evidenced by the search firm (or its client) preferentially selecting men versus women at each stage. Much of the extant research presumes that demand-side processes dominate and hence contribute to the scarcity of women hired for top

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management jobs; however, no study to date has been able to observe whether or not this is actually the case. The next section describes how we tackle this important theoretical question.

Research Setting

Executive search firms operating in the top management space work on a "retained" basis. In contrast with "contingency" search firms, which do not have exclusive contracts with clients and are paid only if they fill the position (see Finlay and Coverdill 2002), retained firms work under exclusive agreements and receive a fee from the client regardless of whether they place a candidate in the job under consideration (see Khurana 2002). The process starts with conversations between the client and the search consultant, which result in a document ("brief") detailing the characteristics of the job and describing the ideal candidate, often with a list of industries and companies to target (Jupina 1992; McCool 2008). After an overall strategy for the search is agreed upon with the client, the search consultant and a team of researchers spend a considerable amount of time (typically three to four weeks) identifying potential candidates. They do so by searching their database and by contacting people – often by telephone – who could direct them to qualified candidates (i.e. "sourcing names"). The goal is to compile a long list of potential candidates, typically 40 or 50 in number. If the position is advertised (which is not the norm), then the long list includes both applicants and nonapplicants. The latter constitute the majority of candidates included in this initial list, and they are unaware of being considered for the job—that is, they are passive candidates (Cappelli and Hamori 2014). Clients are rarely involved at this stage; in fact, search consultants emphasize that clients pay for an advisory service and prefer not to participate in the initial identification and evaluation of candidates. Once the long list is assembled, search consultants screen the long list for qualifications and potential interest in pursuing the search. A consultant will phone candidates who seem qualified in order to gauge both their suitability for an interview and their willingness to be considered. In most cases, the client firm is not involved until the search firm presents it with a short list of vetted candidates who have been interviewed and shown interest in the job. The client then determines which candidates it will interview and chooses the candidate to whom it will make an offer.

Our empirical investigation of this context draws on several sources of data. First, the main quantitative data set comes from the proprietary archives of a leading executive search firm located in the United Kingdom: "Execo" (not its real name). We detail these data in what follows.[2] Second, for the purpose of comparing women's representation in Execo's database with

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[2] For more information on the setting and data collection procedures see Fernandez-Mateo and Coh (2015).

a supply-side baseline of female executives in the outside labor market, we use data provided by the Association of Executive Search Consultants (www.aesc.org). The members of this global professional association include the top firms in the retained search industry; the association also maintains a database, called BlueSteps, to which executives can subscribe if they are willing to be contacted (confidentially) by search consultants. BlueSteps thus represents a set of both willing and potential candidates for top management positions. We focused on the subset of BlueSteps members seeking to be contacted for UK-based jobs between 2005 and 2009 (10,603 individuals). We also use data from the UK Labor Force Survey. Finally, we conducted 45 interviews with 42 search consultants in Europe and the United States.[3] We used these interviews to learn about the institutional context and understand the process that Execo and other search firms use to source candidates and move them through the hiring process.

Our fieldwork confirmed that Execo's practices are very similar to those of other large retained search firms serving the top management space. According to the Executive Grapevine Directory,[4] there are about ten firms of this type operating in the United Kingdom (in addition to many smaller, "boutique" search consultancies). Besides studying several search firms' training materials, we probed our interviewees—especially those who had worked both at Execo and at other search companies—about perceived differences in practices across firms. Invariably we were told that search methods are "pretty much the same … it's not rocket science, it is an established process that you go through." Although focusing on a single firm limits somewhat the statistical generalizability of our findings, the interviews with search consultants from a variety of firms and locations give us confidence that Execo is not an unusual case. Moreover, properly examining the drivers of gender inequality in the search process requires detailed within-firm information, which could not be obtained from a large sample of organizations.

We have data on all the vacancies that Execo attempted to fill over the period 2005–2009, but in this paper our attention is limited to 219 jobs that qualify as top management positions (i.e., board- and C-level jobs). The average base salary for these positions is £185,204 (approximately

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[3] Of these, 33 interviews were conducted in the United Kingdom; we remark that 13 of our informants worked as search consultants for Execo. We also reviewed published materials on executive search, visited several search firms (that allowed us to examine the structure of their databases), and read instructional material used by these firms to describe their search processes.

[4] The Executive Grapevine Directory (http://www2.askgrapevine.com/news/executive-search/) is compiled by a private market intelligence company and is the most complete list of search firms in the United Kingdom and other developed economies. Confidentiality considerations preclude our offering details about Execo, but we confirmed that the firm was included in this directory during our period of observation.

$300,000), which places them well within the top 1% of the UK salary distribution.[5] For each vacancy, we have information on job characteristics, know which candidates were considered, and know who made it through each stage of the hiring process. We build a data set of all candidates considered for these 219 jobs. This amounts to 13,089 observations corresponding to 10,970 candidates (since some individuals are considered for more than one job).

[[Insert Figure 1 about here]]

Figure 1 illustrates the hiring pipeline. This depiction is consistent with our interviewees' descriptions of the search process at Execo and other search firms. Candidate pools at Stage 1 ("long lists") include an average of 59 people per vacancy, of which Execo interviews eight candidates on average (Stage 2). Recall that deciding who is interviewed at this stage is up to the search firm. Clients are seldom involved until Stage 3, when they receive a short list of candidates (four, on average) to interview. Thus Execo's decision of whom to formally interview initially is the stage at which the number of candidates is reduced the most. These Execo interviews are taken seriously by candidates and search consultants alike; they last from one to three hours and require candidates to think seriously about their interest in the position. We were told by our informants that this procedure is the norm across search firms (see also Hamori 2010).

Analytical Strategy

Our analysis proceeds in two steps. First, we provide descriptive statistics on the gender composition of the initial consideration set and compare the proportion of women among active and passive (i.e., anticipation-free) candidates. Doing so allows us to examine whether there is any evidence of women self-steering away from being considered for top management jobs. Second, we analyze the progress of candidates through the hiring process to see if the search firm bends the pipeline against female candidates and/or if women voluntarily drop out of consideration. Toward this end, we perform a series of multivariate regressions designed to predict (a) the probability of candidates being selected at each stage of the process and (b) whose decision it was when the candidate was not selected. The latter analysis is made possible by Execo's classification procedures, under which an unselected candidate is generally labelled

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[5] During our observation period (2005–2009), Execo sought to fill 998 vacancies; all of these were for professional and executive jobs. Despite these jobs paying salaries in the top 1% of the UK wage distribution (£154,000 on average), most were not for the top management positions of interest to us. The job titles for such "non-top" vacancies are not standardized and often ambiguous (e.g., "purchasing director", "business unit director"), which hinders comparability across vacancies and precludes our properly controlling for job title. So in order to keep the analysis as focused as possible, we study only those jobs that Execo unambiguously classified as top management vacancies. Nonetheless, in separate analyses (available from the authors upon request) we confirmed that the paper's main results are substantively the same when we consider both top management *and* non-top management jobs.

either "not suitable" (if unfit for the vacancy) or "not interested" (if he/she declined to proceed with the process).

Analysis and Results

Self-steering versus bending in the initial consideration set

We first compare the proportion of women among active versus passive candidates within the Execo dataset. Active candidates are those who applied for the job (13.7% of the 13,089 observations). Men are more likely to apply than are women (14% of the male observations are applicants, as compared to 11.2% of the female observations). Thus most candidates (86.3%) included by Execo in long lists are passive ones, since they are initially unaware of being considered. As such, they represent a supply-side baseline of anticipation-free candidates—in other words, they are not selecting themselves out of consideration for jobs. Our interviews suggest that the process used by search consultants to find these passive candidates is based on a simple heuristic: identifying those who already work in roles similar to the job vacancy that needs to be filled. For example, if the client is looking for a chief financial officer (CFO) then Execo will search among CFOs or, at most, one level below that. As one of our interviewees explained, "the client would not want you to look two levels below … they are looking to find experience rather than potential." Similarly, if the job pays £200,000 then Execo will likely target individuals who are already earning similar salaries. In this respect, our interviewees' descriptions are consistent with those of Khurana (2002), who focuses on the market for CEOs.

Of the 13,089 observations in Execo's data set, 11.09% are female candidates; this figure includes both active and passive candidates. For active candidates (i.e., applicants), the female percentage is 9.05% and for passive candidates (nonapplicants) it is 11.41%. This difference is statistically significant ($p = 0.003$), which suggests that Execo's actions when assembling candidate pools *increase* the number of female candidates as compared to what would obtain if candidates selected themselves into applying for jobs.[6]

We also compare the percentage of female candidates in the Execo database with the corresponding percentage in an external baseline of active candidates, the BlueSteps data set. Because that data set consists of individuals who self-identify as both looking for an executive

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[6] As described below, we have some information on candidates' characteristics for a small subset of the sample. Separate descriptive analyses of this subset indicate that both active and passive female candidates are slightly younger than male candidates. Female applicant's current salary does not statistically differ from male applicants' salary, but the salary of female passive candidates is £16,000 lower than that of male passive candidates. Although this evidence is only suggestive and based on a small number of observations, it is consistent with the idea that Execo may be trying to "cast a wide net" when including women in candidate pools.

job and willing to be contacted by search firms, this supply-side baseline is not an anticipation-free one. BlueSteps includes 10,603 individuals—seeking to be contacted for UK-based jobs between 2005 and 2009—who specify the salary range of jobs for which they would be interested in being contacted.[7] We examined the gender composition of individuals seeking jobs around two salary levels: (1) the average base salary for jobs included in Execo's database (£185,204 per year); and (2) the average current salary of candidates included in our sample (£156,958 for candidates on which this information is available). For (1), we calculated the percentage of females among BlueSteps candidates willing to be contacted for only those jobs paying at least $300,000 (about £190,000) annually. Women constitute 7.5% of these 3,335 individuals. For (2), we calculated the percentage of women among those interested in positions paying between $200,000 and $300,000 (between £130,000 and £190,000, approximately). This interval includes the average current salary of candidates in our sample, and it is populated by 3,634 individuals of whom 8.34% are women.

These external baseline figures show that women are underrepresented among the active candidates in BlueSteps as compared with the Execo database. This statement holds whether the comparison is made to all candidates in the Execo database, where both 7.5% and 8.34%—for salary levels (1) and (2)—are less than the 11.09% female proportion at Execo, or only to passive, non-applicant candidates considered by Execo (7.50 and 8.34 are also less than 11.41%). As with the difference in percentage of female applicants and nonapplicants within the Execo database, these figures suggest that women may be self-steering away from top management jobs, as compared to what the search firm does. Although self-steering may reflect preferences for different types of jobs arising for a variety of reasons (e.g. family constraints, biased self-assessments of one's own competence, etc.), the evidence is also consistent with female candidates anticipating demand-side discrimination. Once we eliminate this anticipation problem by examining passive candidates, the proportion of women is higher.

Nevertheless, it is possible that this latter proportion is still lower than the proportion of women in the external labor market who are qualified for these jobs. Identifying this hypothetical pool of passive candidates is, of course, extremely difficult. We assayed an approximation by collecting data from the UK Labor Force Survey (http://www.esds.ac.uk/government/lfs) for the years 2006–2009. For each year, we calculated the percentage of women who reported annual gross salary within the top 1% of the distribution, which starts at £81,750 in 2006 (at £96,150 in 2009).

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[7] Individuals who sign up for inclusion in the BlueSteps database can choose from among six salary ranges for their target compensation: $100K–$150K; $150K–$200K; $200K–$300K; $300K–$500K; $500K–$1 million; and more than $1 million.

The calculated percentages are as follows: 10.4% in 2006; 21.6% in 2007; 22.2% in 2008, and 9.38% in 2009. The source data are unfortunately rather thin: in each year they include fewer than 50 observations of salaries exceeding £100,000. That being said, the percentage of women (11.41%) among passive candidates considered by Execo is within the range of statistical variation observed in the UK Labor Force Survey sample.

In sum, we can assert with confidence that Execo does not underrepresent women in comparison with active candidates' own application choices, and the search firm's actions yield a proportion of female passive candidates that is in line with the only data available for the external labor market (i.e. the U.K. Labor Force Survey).[8] Thus there is little evidence of pipeline bending against female candidates yet reasonable evidence of women self-steering away from consideration for these jobs.

Self-steering versus bending through the hiring pipeline

Figure 2 plots the percentage of male and female candidates at each stage of the hiring pipeline. Women account for 11.09% of the initial set of candidates but 13.16% of the hires. The only stage in the process at which the percentage of women declines with respect to the previous stage is Stage 2, where 9.03% of the Execo interviewees are female (a decrease of 2.06 percentage points from Stage 1).

[[Insert Figure 2 about here]]

We next examine whether the descriptive patterns shown in Figure 2 survive a multivariate analysis; we do this by estimating the probability that a given candidate is interviewed by Execo, interviewed by the client, and offered the job. The dependent variables for this analysis are dichotomous indicators set to 1 if the candidate made it through each stage of the process (and to 0 otherwise); see Table 1 for descriptive statistics. We use logit models with robust errors clustered by candidate, because some candidates are considered for multiple vacancies. We next describe the control variables used in the various regressions.

[[Insert Table 1 about here]]

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[8] In separate analyses (available from the authors) we examined variation in the proportion of female candidates included in a given consideration set by Execo, by using both linear regressions as well as two-limit and GLM specifications to predict the proportion of women considered for a given job. We found a few differences relating to job title and industry. In particular: vacancies for the chief marketing officer position generated a higher percentage of female candidates than did CEO vacancies; and jobs in the media industry generated a higher percentage of female candidates than did those in the finance industry. However, we found no statistically robust evidence that Execo's actions shape the proportion of female candidates considered for a given job.

Candidate controls

Female candidate. This variable takes value 1 if the candidate is a woman.

Candidate applied for job. This variable takes value 1 if the candidate applied for the job and 0 if included in the candidate pool by Execo without having applied. If the job is not advertised, then all candidates are included in the long list without their knowledge and thus the variable takes a value of 0 in each case. If the job is advertised, then this variable takes a value of 1 for candidates who applied and 0 for candidates who did not (63% of the candidates for advertised jobs are nonapplicants—that is, passive candidates).

Prior number of jobs considered. We have information from 2001 on all candidates about their relationship with the search firm before the start of the focal vacancy (i.e., from four years prior to our observation period). We count the number of jobs for which the candidate was considered in the past before being considered for the focal vacancy.

Prior contacts in other roles. Sometimes search consultants contact candidates to chat about the industry, to ask for referrals, and so forth. These calls or meetings are taken seriously and diligently recorded by Execo. Consultants claim that they "need to keep connected to the good candidates" because, "in order to be chosen by a client, we have to show that we are clued to the best candidates." We thus count the number of prior contacts between Execo and the candidate in which the executive did *not* play a candidate role.

One drawback of the data is that they do not include complete data on human capital for all candidates.[9] Even so, we have some candidate characteristics for a small subset of the sample; these are described as follows.

Candidate has an MBA. This is a dummy variable that takes value 1 if the candidate has acquired an MBA degree (and 0 otherwise).

Age. This variable measures the candidate's age at the time of being considered for the job. Women for whom we have these data are, on average, two years younger than men.

Current salary. This is the salary that the candidate reports to be earning when considered for the focal position. In the subsample for which we have this information (2,829 out of 13,089 observations), women earn nearly £12,000 less per year than men.

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[9] Even if such data were available, we would not be able to address the effect of unobserved factors in these models. Only in the case of experiments where we could rely on blind screening (e.g., Goldin and Rouse 2000) or random assignment audit procedures (e.g. Pager et al. 2009) can this concern be addressed.

<u>Vacancy controls</u>

Job salary. This variable records the maximum annual salary (in British pounds sterling, GBP) that the client firm is willing to pay for the job. The amount is agreed upon between Execo and its client before the search process begins.

Number of candidates considered. It is reasonable to expect that the probability of a given candidate making it through the different stages of the hiring process depends on how many other candidates are considered. We thus control for this number.

Execo–client prior relationship. This variable counts the number of searches that Execo conducted for the client firm between January 2005 and the start of the focal job.

Client firm size. For each client firm, we used external databases to code the number of its employees at the time in which the search took place. We were able to find company size for 96% of our observations. Because this variable is skewed, we use its logarithm in the regressions; however, the results do not change if we use the nonlogged value.

Advertised job. We use an indicator that takes value 1 only if the job is advertised, which it is for 26.4% of the vacancies.

Public-sector firm. Our interviews suggested that the search process is affected by whether or not the client firm is in the public sector; therefore, we include an indicator that takes value 1 for public-sector firms (and 0 otherwise). Execo does not record this information. Hence we used a variety of external sources to find it, including databases (e.g., Datastream and Thomson Reuters) and Internet searches of company websites. We were able to code this variable for 218 of the 219 vacancies. Note that firms coded as "public sector" can operate in a variety of industries. For example, a government agency that regulates public health is classified as "public sector" for this indicator and as "health industry" for industry indicators (whose description follows).

Executive board. We control for whether the job includes membership on the executive board of the company.

Job title. We account for the type of job with a set of dummy variables, one each for nonexecutive director, chief executive officer, chief financial officer, chief operating officer, chief technology officer, chief investment officer, chief scientific officer, chief marketing officer, chief information officer, partner, and "other C-level". The last type includes jobs that Execo categorizes as top management but are not easily classified within the usual C-level categories—

for instance, "managing director" and "group director of strategic support". For all regressions we use the dummy with the largest number of observations (CEO) as the omitted category.

Industry. Execo codes the industries associated with the job for which the hiring firm is recruiting. We include dummies for 15 industries: media (3.14% of the observations), information technology (9.61%), pharmaceuticals (2.14%), agriculture (0.9%), finance (17.72%), professions (12.48%), leisure (9.11%), engineering and manufacturing (13.71%), retail (15.01%), energy (1.06%), infrastructure (6.93%), health (1.58%), education (0.43%), nongovernmental organization (1.21%), and "other" (4.8%). In the regressions we use the dummy with the largest number of observations (finance) as the omitted category.

Year controls. We use year dummies to control for exogenous factors (e.g., economic cycles) that could affect the hiring process. Note that space limitations prevent our inclusion of industry and year dummies in Table 1, but detailed information is available from the authors upon request.

Likelihood of candidates' progressing through the pipeline

We first ask a simple question: Are women less likely than men to be hired for a job in this setting? Model 1 in Table 2 estimates a logit model predicting the likelihood that a given candidate is hired while including candidate and vacancy controls. We report odds ratios (ORs); these indicate an increase in probability for values higher than 1 in a given variable, and a corresponding decrease in probability for values lower than 1. Fewer than 1% of the candidates initially considered are hired, and a woman's likelihood of being hired is no different from a man's (OR = 1.108, p = 0.741). In separate analyses we estimated this model using a "rare events" logit specification and found the same results. We also confirmed that there is no gender difference when including vacancy fixed effects—that is, when men and women compete for the same job. Women are thus as likely as men to be hired once they are considered for a job by Execo. However, this final outcome could mask gender differences throughout the process. We therefore disaggregate the final hiring decision into outcomes at different stages; see Figure 2.[10]

[[Insert Table 2 about here]]

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[10] The number of observations for this analysis declines with each stage, since a given candidate can be assigned an "interviewed by client" indicator only if interviewed by Execo in the prior stage. Of the candidates who receive an offer, 87.6% accept it; there is no gender difference in the probability of accepting an offer. We thus omit analyses for this last stage of the process. We remark that Execo does not place a candidate in all vacancies. According to our interviewees, the average proportion of filled vacancies in the retained search industry is around 50-60%. The percentage of filled vacancies in our sample is 51%. Separate analyses reveal no substantial differences (with respect to proportion of female candidates, job salary, or company size) between filled and nonfilled vacancies. The only significant difference is that advertised jobs are more likely to be filled.

Model 2 in Table 2 estimates a logit model predicting the likelihood that a candidate is interviewed by Execo while controlling for individual and job characteristics. A few of the control variables are significant. For example, a candidate is less likely to be interviewed when there are more candidates considered for the role and also when the job is advertised. Candidates who had more prior contacts with the search firm are more likely to be interviewed. Observe that applicants (active candidates) are not disadvantaged with respect to candidates who are included in the consideration set by Execo (passive candidates); in fact, applicants are more likely to be interviewed (OR = 1.249, p = 0.034).

Consistent with Figure 2, women are less likely than men to be interviewed by Execo. The odds ratio (0.741; p = 0.015) translates into an approximately 2.3% decrease in the likelihood of a female candidate being interviewed, ceteris paribus.[11] Although statistically significant, the magnitude of this decrease is not large. We ran a battery of tests to check the robustness of this finding. First, we examined whether female candidates' lower probability of being interviewed is driven by women being considered for different jobs than men. For this purpose we estimate the Execo interview model including job vacancy fixed effects, which holds all job characteristics constant (Model 3 in Table 2). The odds ratio is still less than 1, which confirms that—even when women are considered for the same job as men—they are less likely to be interviewed. Second, search consultants may differ in their individual tendency to interview female candidates, which could contribute to the observed results. Model 4 estimates the probability of a candidate being interviewed while including consultant fixed effects (there are 47 consultants in the data set). The odds ratio for women (0.772) is less than 1 and statistically significant at the 1% level (p = 0.007). So even when men and women are evaluated by the same search consultant, female candidates are less likely to be interviewed. Consistent with this finding are separate analyses in which we confirmed that the *search consultant's* gender has no effect on the likelihood of a woman being interviewed; in other words, there is no evidence of gender homophily in interview decisions.[12] Finally, also in separate analyses, we estimated the Execo interview model including client fixed effects and found the same substantive results. That is, women's lower probability of

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[11] This corresponds to an estimation of the marginal effect in a linear probability model (see Waguespack and Sorenson 2011). In separate analyses we also calculated the changes in predicted probability of being interviewed while using different combinations of the predictors (a candidate considered for a CEO role who had not been placed before, etc.). The resulting decrease in the likelihood of a woman (rather than a man) being interviewed is similar to that expressed by the marginal effect. All these results are available from the authors.

[12] Of the 47 consultants, we have gender information for only 30 (19 men and 11 women). Controlling for the search consultants' gender thus reduces the number of observations, but all our main results do not change.

being interviewed is not driven by clients' unobserved characteristics (e.g. demographic composition of the client firm's top management team).

The result that women are less likely to be interviewed by Execo is thus robust to a number of statistical specifications. However, a plausible reason for this effect is the existence of quality differences between male and female candidates. It is very difficult to rule out this explanation because there are many unobservable and ambiguous dimensions that consultants use to evaluate members of this highly qualified group of candidates. For a subset of the sample we have information on age, current salary, and whether or not the candidate has an MBA. It turns out that these measures are poor predictors of a search consultant's decision to interview a candidate for top management jobs. For both men and women there is no difference in age, possession of an MBA, or current salary for candidates who are interviewed versus those who are not interviewed. Nonetheless, in separate analyses (available from the authors) we introduced these variables as controls in the Execo interview model (Model 2 in Table 2). Doing so severely reduces the number of observations: from 12,552 to 1,684. The female odds ratio becomes 0.673 (as compared with 0.792 without those controls) but is not statistically significant. In further analyses we found that the nonsignificance of the coefficient for women is not due to any substantive effect of the controls but rather to the lower number of observations included in the estimation.[13] Although this analysis suggests that candidates' observed quality is probably not the only factor driving the lower female interview rate, we cannot completely rule out that there may be some unobserved differences between male and female candidates. Yet even if there were such differences, they would translate into a small difference in the likelihood of being interviewed.

Once candidates have made it through the interview with Execo, we examine their probability of being interviewed by the client (Model 5) and receiving an offer (Model 6). In both cases the odds ratio for females is greater than 1 but not statistically significant. In separate analyses we estimated these models using a selection correction to account for the fact that candidates can be interviewed by the client or receive an offer only if they made it through the previous stage.[14] In

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[13] We did so by estimating Model 2 in Table 2 (without human capital controls) on the sample for which we do have human capital controls (1,684 observations). The odds ratio for women (0.668, $p = 0.094$) is of almost exactly the same magnitude and level of significance as when those controls are included. This result suggests that such controls have no substantive effect on our results.

[14] Because the dependent variables for both stages are dichotomous, at the client interview stage we estimated bivariate probit models with selection—a version of the Heckman (1979) selection model for a dichotomous dependent variable. The selection equation predicts whether the candidate was interviewed by Execo. Observe that this estimation is hampered because the model is only weakly identified off of the nonlinearity of the selection effect. In order to obtain better estimates, we would have to define instruments—variables that by assumption affect the selection stage, but not the substantive stage. Yet because the later-stage screeners rely on the same factors used at the earlier stages, it would be extremely

both cases the results do not change and the selection term is not significant. The results in Table 2 thus indicate that women are slightly less likely to advance through the process at one stage only: that is, where the search firm decides whom to interview. Once women make it to the interview with a search consultant, there is no gender disadvantage. Women are also not disadvantaged in terms of final placement.

Self-steering or bending at the interview stage?

The result that women are less likely to make it through the first filter of the executive search firm—but not thereafter—is consistent with hiring studies at lower levels of the labor market, which have found demand-side gender sorting only at the very beginning of the process (see e.g. Fernandez and Mors 2008; Fernandez-Mateo and King 2011). However, previous studies have examined only active candidates (i.e., job applicants), who by definition were interested in the position. At the very top of the labor market managed by search firms, most of the initially considered candidates are passive and so it is feasible that they refuse to interview when first approached by the search firm. If the likelihood of such refusal is higher for female candidates, then this would constitute evidence of self-steering; if that greater likelihood is due to decisions made by the search firm, however, then we would have evidence of search consultants bending the pipeline against female candidates.

As mentioned previously, when a candidate is not interviewed by Execo, we generally know if it is because he/she was "not suitable" or "not interested." Search consultants typically phone candidates in the consideration set in order to assess their suitability for the role and their willingness to go forward with an interview. If a candidate refuses to pursue the search consultants classify him/her as "not interested," while candidates who are deemed not appropriate for the job are classified as "not suitable."[15] Because Execo's consultants sometimes fail to record

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difficult to identify such instruments in this setting. For the offer stage we were unable to estimate the bivariate probit model because the model did not converge (we also have the same issue of lack of appropriate instruments). This problem is a common one when working with large data sets and multiple variables because the maximum likelihood formulation is computationally complex (Baum 2006). As an alternative, we estimated the computationally simpler traditional two-step Heckman procedure while treating the dependent variable as continuous; this method has been shown to produce unbiased point estimates (Gujarati 1995). The selection equation is whether the candidate was interviewed by the client.

[15] Although some candidates may be classified as "not suitable" without receiving a call, search consultants only register the code given to the candidate – not any details about the phone calls they make. It is plausible that all search consultants do not apply the exact same criteria when classifying candidates as "not suitable" versus "not interested." Although we have no evidence that this is the case, coding differences across consultants might introduce some error. However, in separate analyses we confirmed that the pattern of results shown in Table 3 is substantively unchanged even *within* consultant. This suggests that potential inconsistencies in coding procedures across consultants are unlikely to be a concern for our analysis.

this information, there are missing data for these variables (2,242 observations out of 13,089; see Table 1 for descriptive statistics). In separate analyses we examined the determinants of a given observation having missing data; we found that it is less likely for women, for candidates who applied for the job, and for jobs that are more highly paid. We are unable to establish why search consultants do not record this information, since our interviewees simply attribute the oversight to a lack of diligence. Nevertheless, we have no reason to suppose that consultants' diligence on this score is a function of *whose* decision it was not to proceed.

There are three possible outcomes for any given candidate who is considered for a job: interviewed; not interested, or not suitable. We therefore model this process using a multinomial logit specification with errors clustered by candidate and with "Execo interview" as the base category. The results of this regression are reported in Table 3. The relative risk ratios for the female coefficient are greater than 1 and statistically significant in both cases. The implication is that female candidates are more likely to be "not interested" in an interview *and* to be considered "not suitable" by search consultants. Table 3 includes all candidates, but we obtained the same results when restricting the analysis to nonapplicants (passive candidates). Thus it seems that both self-steering and pipeline bending occur at the interview stage. In separate analyses we confirmed that there are no statistically significant patterns at later stages of the process. This result is consistent with the lack of gender differences at the client interview and offer stages presented above.

[[Insert Table 3 about here]]

We cannot be sure why women are more likely to decide not to participate in the process; it could be for any number of the supply side reasons discussed above, including self-steering in anticipation of demand-side discrimination. With regard to the search firm's decision, we are unable to deduce from the quantitative data why search consultants are more likely to consider women than men to be not suitable for an interview. Although quality differences are not mentioned by our interviewees, they might play a role. Our informants' explanation hints at their tendency to be conservative when screening candidates - so as to make sure the client will be pleased. This tendency is revealed in the following comment, which is typical: "we are very conservative, quite risk-averse, so we tend to put forward people with a proven track record, rather than the non-traditional diversity candidate." Having said that, the magnitude of this effect is not large; it corresponds to a 3.6% higher probability of being classified as "not suitable" for women– when compared to being interviewed. Therefore it is difficult to envision how exactly search consultants' decision-making process operates in this regard. Establishing the cognitive

mechanisms that drive this finding would require experimental data. Still, the evidence is clear: the lower interview rate for women in this setting results from both supply-side and demand-side processes.[16]

Discussion and Conclusions

Using novel proprietary data from an executive search firm, this paper examines the sources of women's underrepresentation in hiring for top management jobs. We find that, contrary to expectations, the role of demand-side screeners in producing gender disadvantage is limited. While women are a low proportion of candidates considered for these roles, a set of counterfactual comparisons indicate that the search firm actually increases the proportion of female candidates with respect to supply-side application choices. Also, women are no less likely than men to be hired once they are included in a candidate pool—although women are less likely to be interviewed at the very start of the hiring process. Both supply-side and demand-side choices contribute to women's early disadvantage, but neither has an effect in later stages of the hiring pipeline. Our findings have both empirical and theoretical implications for research on gender inequality; we discuss each of these in turn.

Both public discourse and extant academic literature on executive hiring identify search firms as a key actor keeping women out of top management jobs (Dreher et al. 2011; Bonet et al. 2013). At the same time, search firms pay considerable attention to meeting their clients' needs, and social and institutional pressures to increase gender diversity among top managers have increased in the last few years (Felix 2012). These trends suggest that it would be possible for search firms to "bend the pipeline" in ways that *advantage* women as well.[17] So far, however, such expectations have been based on purely anecdotal evidence. More generally, the few studies using *any* type of top management data to examine gender inequality have been able to observe only its outcome— that is, the proportion of men versus women actually hired for top jobs (Bertrand and Hallock 2001; Huffman et al. 2010). This paper offers the first systematic empirical evidence on hiring

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[16] In separate analyses we found additional evidence of demand-side behavior contributing to the lower female interview rate; we did this by examining search consultants' variation in the probability of interviewing women for different types of clients. In particular, search consultants are not less likely to interview women for public-sector clients. This result is robust to candidate fixed effects—in other words, the same woman is more likely to be interviewed when the job is for a public-sector firm than when it is not. The result holds also when we control for consultant fixed effects. There is thus evidence that search consultants adjust their behavior when searching for certain types of clients and that such behavior is independent of candidates' observed (or unobserved) quality.

[17] A recent survey of the boards of 108 S&P 500 firms (Spencer Stuart 2014) reports that 71% of them state that their board is actively looking for female directors. In fact, some large search firms have begun to advertise their experience in placing women (e.g., "Spencer Stuart marks milestone: 1000th female board placement," https://twitter.com/SpencerStuView/status/321993759451672577).

pipelines for top management jobs. The findings show a striking lack of strong gender differences, which is unexpected in light of the widespread assumption that women experience significant disadvantage in recruitment processes for executive roles.

Although women are a minority of candidates in the search firm's database, prior work has not considered how low one should expect this proportion to be. Our comparison of female representation in Execo's database versus that in two external baselines shows that the proportion of women in the executive labor market appears to be lower, especially among active candidates for top management roles. The limited supply of female candidates translates into a low proportion of women hired, even though gender differences throughout the screening process are small. To make empirical progress on our understanding of gender inequality at the top of the labor market, it is therefore crucial to assess gender outcomes with respect to appropriate baselines of comparison. Comparing Execo's candidates with two other external datasets allows us to do so. Along these lines, we point out that another baseline for assessing how search firms shape gender outcomes is to consider what outcomes would have been observed had they not mediated the search process. Our research design does not permit fully settling this question, since the only data we have are from searches in which the headhunter was engaged by the client. However, we can provide some indication of these counterfactual outcomes by comparing job searches filled by Execo with those filled by other means.

As mentioned above, Execo does not place a candidate in nearly half (49 percent) of the vacancies for which it engages in a search. Given that clients work with only one search firm at a time, it is safe to assume that the focal vacancies not filled by the search firm were filled directly by the client. We investigated whether those hired through Execo are more or less likely to be women than are those hired directly by the client. Since we have the name of the client firm, the job title, and the search date, we could perform Internet searches to identify the individuals who were eventually placed in the jobs not filled by Execo. We used online sources to identify individuals who ended up holding the job for which the client company performed a search. We also used press releases and newspaper articles, annual reports, and public records that UK companies must submit when appointing board members. We were able identify individuals who held the job for 89 out of the 107 vacancies not filled through Execo. We classify the outcomes of these searches as "external hire" (if somebody was hired from the outside, without the search firm involved) or "internal hire" (if an internal candidate was hired or promoted, or if the incumbent stayed in the job). We then compared the percentage of women for these categories with the percentage of vacancies in which Execo placed a woman. Execo placed a female candidate in

12.5% of the vacancies on average;[18] in contrast, for those vacancies that Execo did not fill, the percentage of female hires was only 6.7%—a figure that reflects 9.4% female hires for jobs that were filled by the client with an external candidate, and 0% for those filled with an internal candidate. Thus candidates hired though the search firm are more likely to be women than those hired externally by the client, which in turn are more likely to be women than are internal hires. We have no data that would allow us to reliably establish why this is so, but the comparison reinforces our finding that the role of search firms in gender inequality has probably been overstated in the literature.

Beyond providing much-needed empirical evidence on recruitment at the top of the labor market, this study has two theoretical implications. First, we identify the importance of distinguishing between the self-steering and pipeline-bending behaviors that underlie (respectively) the supply- and demand-side mechanisms of hiring inequality. Although extant research acknowledges that processes on both sides of the market might contribute to women's underrepresentation in certain jobs, it rarely attempts to disentangle their relative contributions (for exceptions, see Barbulescu and Bidwell 2013, Fernandez and Campero 2015). A crucial problem is that of job seekers anticipating demand-side discrimination: if pre-emptive self-steering is at play, then individual behaviors that look like supply choices may instead be due—at least in part—to demand-side processes (Goldsmith et al. 2004; Pager and Pedulla 2015). Our paper makes some progress on this front by exploiting a feature of the executive labor market that is atypical of most other employment settings: most candidates do not apply for jobs. Studying differences between active and passive candidates gives us theoretical traction to identify the elusive phenomenon of gender-based self-steering in ways that have not been possible before. In other words, we point out the importance of identifying appropriate counterfactuals: what supply-side choices might look like when candidates' actions are not shaped by their expectations of how demand-side actors may behave during the screening process. Only in this way can we make further progress on that important theoretical question.

Second, we highlight the theoretical relevance of studying hiring as a process rather than an outcome. If we had measured hiring outcomes only at the end of the process in this setting – as most research still does - all we would know is that women are a low proportion (13%) of the hired candidates. Without any more information on the pool of initially considered candidates and

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[18] Our sample includes 112 vacancies in which a candidate is placed but also 114 placed candidates. The reason is that one of the vacancies—for nonexecutive directors of a government agency—was filled by three individuals (two females and one male). We coded this vacancy as "Execo placed a female candidate". This is why, even though Execo placed at least one woman in 12.5% of the *vacancies*, women account for 13% of the placed *candidates*.

their progress through the pipeline, one would be led to conclude that demand-side screeners play a substantial role in gender inequality. Yet a thorough analysis of the hiring pipeline paints a different picture.

The empirical and theoretical contributions just described are important not only because they expand our academic understanding of gender inequality in the executive labor market but also because they have significant policy implications for how best to tackle this problem. The widespread assumption that headhunters are instrumental in keeping women out of top management has, in some countries, called for the explicit regulation of search firms' practices—for example, requiring them to include a certain percentage of women on their short lists.[19] Our findings indicate that, though such an approach may be sensible for a variety of reasons, we must acknowledge that the problem of gender inequality at the top starts lower down in the hierarchy. In other words: by the time women have made it to the executive labor market, the role of demand-side hiring agents may be less influential than has been supposed. Their role also seems to be limited at the very beginning of the hiring process, before the client is involved in screening candidates and before shortlists are assembled. This observation is consistent with prior research on hiring and gender segregation (e.g., Fernandez and Mors 2008; Fernandez-Mateo and King 2011) and underscores the necessity of any proposal for intervening in the search process to do so at the very start of the hiring pipeline. However, most current discussions on this issue focus on the composition of short lists (i.e., the set of candidates presented to the client).

Of course, our study is not without limitations. First, even though we have shown that screeners in this setting tend to *increase* the proportion of women with respect to their rates of application, we are hard pressed to fully identify the "true" set of potential candidates qualified to be considered for these roles. In other words, the supply of passive female candidates may be larger than the set of those that make it into search consultants' databases. This would imply that self-steering is even more of an issue than what our data suggest, but also that demand-side screeners may still be underrepresenting women with respect to what they could possibly do. It would be ideal to have a baseline of how many women are qualified for these positions in the absence of bias on either the supply or demand sides. We attempted to address this issue by using data from the UK Labor Force Survey, but the scope of these data are limited and so more research is needed to identify this hypothetical candidate pool.

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[19] See "Vince Cable Considers All-Female Shortlists for City Firms' Top Jobs," *The Guardian*, March 4, 2014.

Second, our analysis is confined to behavioral outcomes: we study what actors do and how they do it, but we do not examine *why* they do it. We are thus following Reskin's (2003) suggestion to identify the actionable mechanism which produce inequality. Although our interviews provided some interpretations of search consultants' actions, in the end one cannot identify the psychological mechanisms that drive search consultants' and candidates' behavior by using archival and interview data. For example, a relevant question is why these very highly qualified women sometimes refuse to be considered for top management positions. Research in progress (using archival, survey and laboratory evidence) indicates that women's experiences of being rejected for executive jobs may shape their views of the hiring process and contribute to them refusing interviews in the future (Brands and Fernandez-Mateo 2015). Similar studies could be done to establish the reasons why search consultants are less likely to interview women; such reasons might include implicit bias and/or anticipation of client preferences – e.g. if consultants are less likely to select women because they believe that female candidates are a "riskier choice (cf. Fernandez-Mateo and King 2011).

Our research approach reflects a trade-off between broad data across many settings and detailed information on one particular company. Although the executive search firm whose data we use is typical of others in the retained search sector, the extent to which our findings generalize to other settings can be established only by collecting data from a representative sample of search firms. That being said, we can offer another bit of relevant evidence on the extent of bending in the hiring pipeline for CEOs over a comparable period collected from another large search firm (see Figure A1 in the Appendix). Although in that context we lack the detailed information on controls that are available in the Execo case, it is noteworthy that a very similar descriptive pattern emerges when using this second data source. Here, too, we find little evidence of the screening process bending the CEO pipeline against women. And just as in the case of Execo, the only stage of the process at which the percentage of women drops at all is at the search firm interview. We can only speculate regarding why this might be the case. But what we can say with assurance is that the magnitude of the effect produced by those unobserved processes is modest.

While the specific magnitude of the findings may vary, the approach and mechanisms to which we call attention should be applicable to the general context of hiring. Given the increased frequency of recruiting top executives from the external labor market (Cappelli and Hamori 2005; Bidwell and Mollick 2014), it is important to understand how such recruitment shapes gender outcomes. Especially in light of the paucity of available quantitative evidence in this context, additional studies that follow our approach are needed if theoretical progress is to be made on the

issue of gender inequality in top jobs. Whether or not the processes we identify also operate in internal selection processes is an open empirical question. In particular, more evidence is needed on whether searches handled by search firms are somehow different from those that firms perform directly. On the one hand, companies that seek to increase gender diversity, particularly for jobs in functions in which women are in short supply (e.g., in engineering and operations), may be more likely to use search firms. If so, then our study would represent a lower bound of gender inequality in hiring for executive roles. On this note, several of the consultants that we interviewed suggested that clients often hire them to perform "diversity searches." These consultants believe that it is more feasible for them to explicitly consider gender as a search criterion than it would be for Human Resource Managers. On the other hand, if offering the search to a headhunter is a way for some firms to "outsource bias", then our results would be a conservative estimate of the overall level of gender inequality in hiring for top management positions. Either way, assessing the relative importance of supply-side and demand-side factors— as we have done here—should prove a fruitful avenue for future research both within and across firms. Hence we hope to open up new avenues for understanding the drivers of gender inequality at the top of the corporate ladder.

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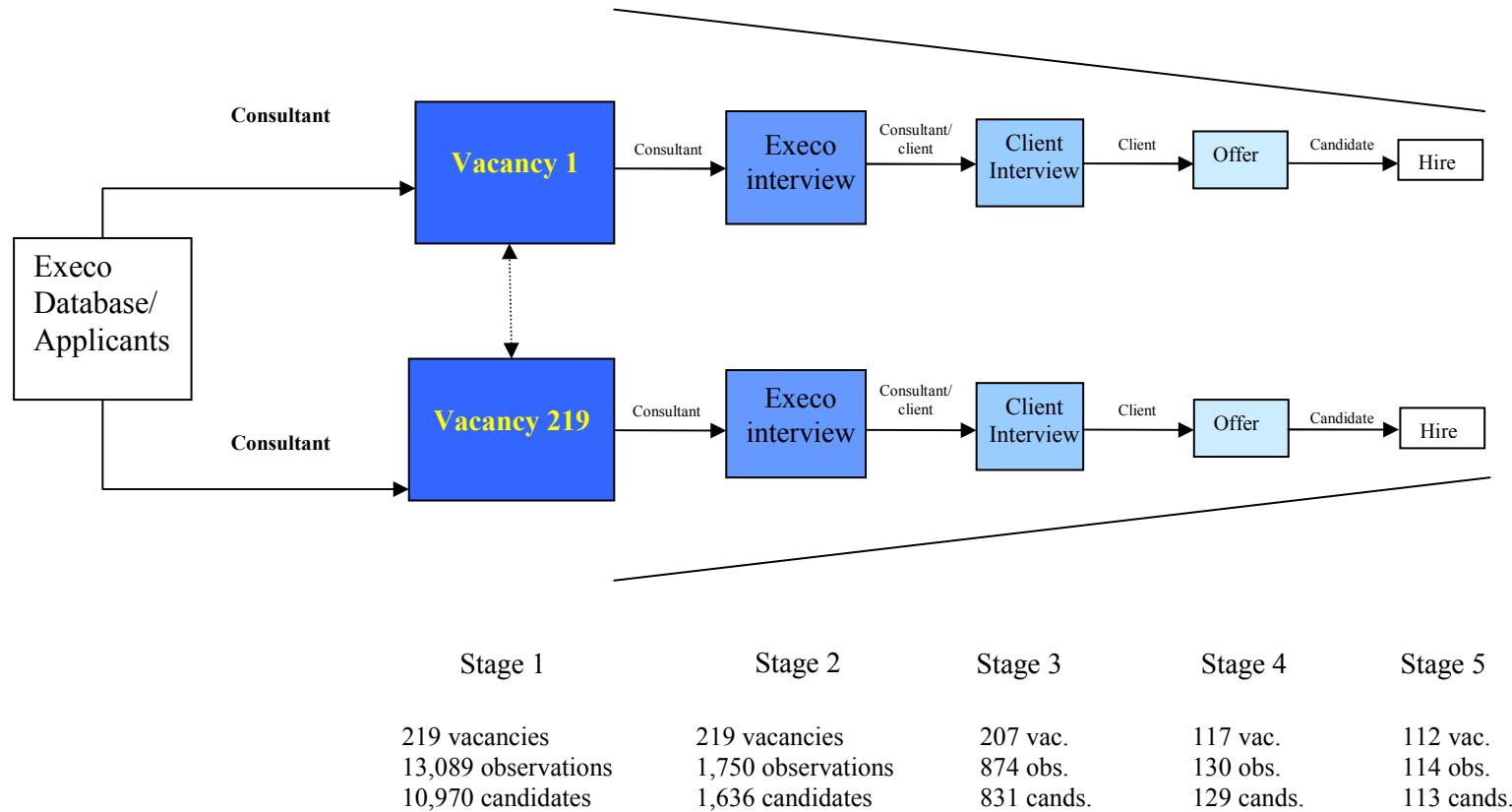
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Figure 1. Hiring pipeline at Execo

	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
	219 vacancies	219 vacancies	207 vac.	117 vac.	112 vac.
	13,089 observations	1,750 observations	874 obs.	130 obs.	114 obs.
	10,970 candidates	1,636 candidates	831 cands.	129 cands.	113 cands.

Note: The number of vacancies decreases at later stages of the process because clients sometimes decide to discontinue the search before it is finished. Our interviews indicate that this can happen for a variety of reasons, which are usually related to the client's organizational changes. Less often, the search is discontinued because the client is unsatisfied with the short list presented by the search firm.

Figure 2. Gender Composition Across Stages of the Hiring Pipeline
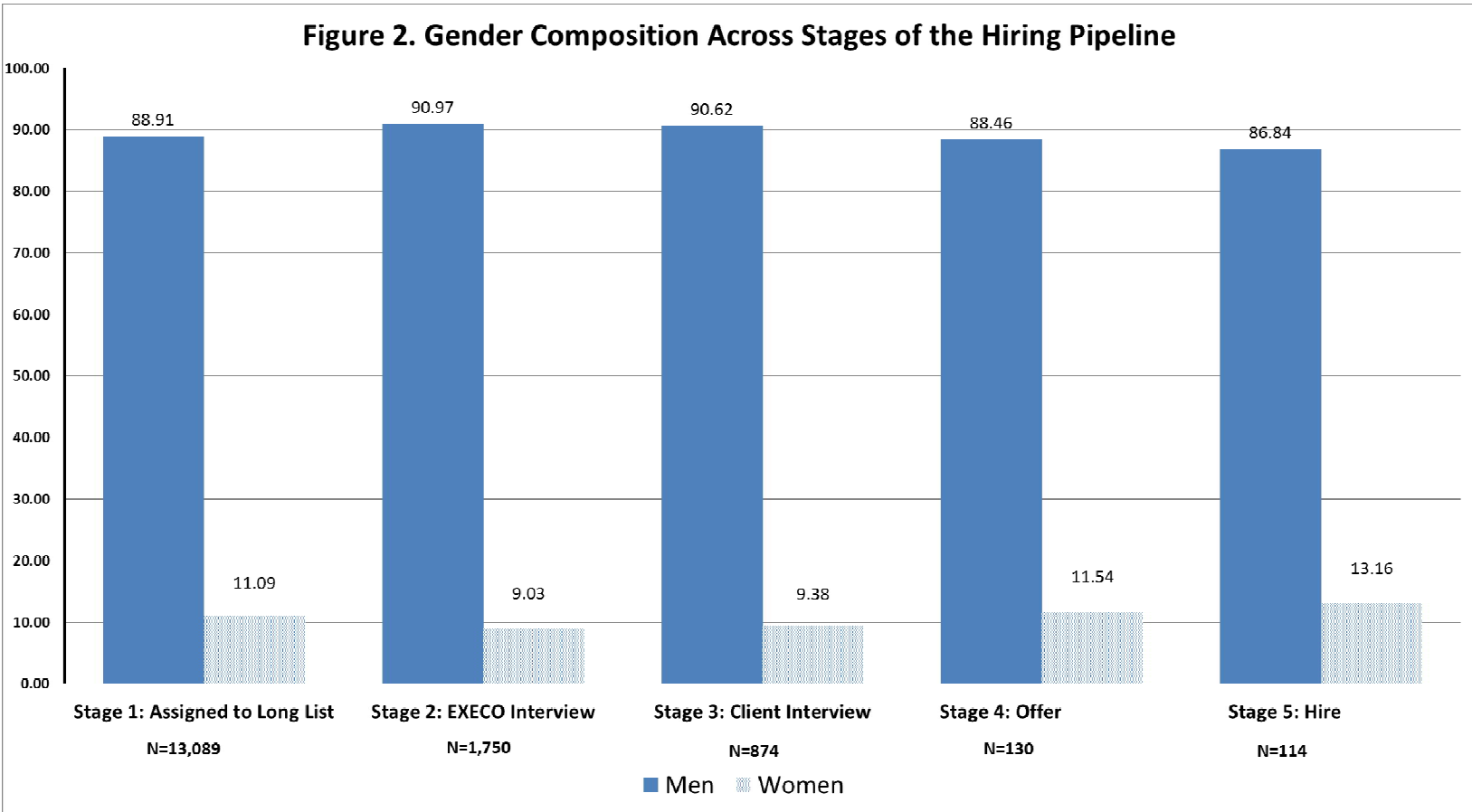
Note: This figure includes all observations in the data set. Owing to missing data on some client characteristics, the total number of observations for the regression models is 12,552 (rather than 13,089). The corresponding figure for the sample with no missing data shows similar percentages for females across all stages of the pipeline (respectively 11.02%, 9.02%, 9.00%, 10.08%, and 11.54%).

Table 1. Summary of descriptive statistics

Variable	N	Candidate variables		
		All candidates	Male candidates	Female candidates
Dependent variables				
Candidate interviewed by Execo	13,089	0.133	0.136	0.108**
Candidate interviewed by client	13,089	0.066	0.068	0.056[+]
Candidate receives an offer	13,089	0.009	0.009	0.010
Candidate "not interested" in interview	10,847	0.220	0.217	0.238[+]
Candidate "not suitable" for interview	10,847	0.618	0.615	0.636
Controls				
Candidate applied for job	13,089	0.137	0.140	0.112*
Prior number of jobs considered	13,089	1.154	1.176	0.984*
Prior contacts in other roles	13,089	4.51	4.520	4.45
MBA	6,118	0.175	0.174	0.179
Age	8,077	46.52	46.71	44.57*
Current salary (GBP)	2,829	156,958	158,085	146,367*

Variable	N	Vacancy variables	
		Mean	S.D.
Job salary (GBP)	219	185,204.1	96,096.6
Number candidates considered	219	59.76	42.07
Execo–client prior relationship (# jobs)	219	0.821	2.013
Client firm size (# employees)	201	19,024.04	55,489.22
Advertised job	219	0.264	0.442
Public-sector firm	218	0.123	0.330
Executive board	219	0.187	0.390
Nonexecutive director	219	0.059	0.236
Chief executive officer	219	0.356	0.479
Chief financial officer	219	0.305	0.461
Chief operating officer	219	0.077	0.268
Chief technology officer	219	0.022	0.149
Chief investment officer	219	0.013	0.116
Chief scientific officer	219	0.009	0.095
Chief marketing officer	219	0.054	0.228
Chief information officer	219	0.013	0.116
Partner	219	0.018	0.134
Other C-level	219	0.068	0.253

Notes: Descriptive statistics for *candidate* variables are calculated at the "individual by vacancy" level ($N = 13{,}089$); this corresponds to10,970 individuals considered for 219 vacancies (since some individuals are considered more than once). Differences between men and women: **$p < 0.01$, *$p < 0.05$, [+]$p < 0.1$.

Descriptive statistics for *vacancy* variables are calculated at the vacancy level ($N = 219$). GBP = British pounds sterling; S.D. = standard deviation. Descriptive statistics calculated at the *observation* level ($N = 13{,}089$) are very similar and available from the authors.

Table 2. Probability of candidates' advancing through the hiring process (logit models – odd ratios reported)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
			Execo interview	Execo interview		
	Hire	Execo interview	(vacancy FE)	(consultant FE)	Client interview	Client offer
Female candidate	1.108	0.792*	0.741**	0.772**	1.126	1.213
	(0.345)	(0.076)	(0.074)	(0.075)	(0.210)	(0.466)
Candidate applied for job	1.896[+]	1.249*	1.139	1.214[+]	0.583**	2.067*
	(0.725)	(0.131)	(0.133)	(0.128)	(0.111)	(0.758)
Candidate prior number jobs	0.997	1.025[+]	1.025	1.030[+]	0.985	0.985
	(0.058)	(0.015)	(0.017)	(0.016)	(0.033)	(0.068)
Candidate contacts other roles	1.018*	1.008**	1.010**	1.011***	1.019*	1.012
	(0.007)	(0.003)	(0.004)	(0.003)	(0.008)	(0.012)
Job salary (GBP)	1.000	1.000**		1.000**	1.000	1.000
	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)
Number of candidates	0.986***	0.992***		0.991***	0.950***	0.807***
	(0.004)	(0.001)		(0.001)	(0.011)	(0.048)
Execo–client prior relationship	1.012	0.984		0.979	1.050	0.993
	(0.062)	(0.017)		(0.020)	(0.034)	(0.065)
Client firm size (logged)	1.042	1.025[+]		1.030[+]	1.072*	1.029
	(0.059)	(0.015)		(0.018)	(0.030)	(0.059)
Advertised job	1.186	0.828*		0.791*	1.059	1.366
	(0.433)	(0.072)		(0.084)	(0.170)	(0.490)
Public-sector firm	1.038	0.930		1.239	1.148	1.099
	(0.485)	(0.107)		(0.189)	(0.247)	(0.532)
Executive board	1.281	0.895		0.915	0.940	1.176
	(0.597)	(0.101)		(0.125)	(0.194)	(0.584)
Constant	0.009***	0.314***			0.953	0.179**
	(0.005)	(0.051)			(0.295)	(0.116)
Observations (*N*)	12,190	12,552	12,551	12,552	1,640	801

Notes: Robust standard errors (in parentheses) are clustered by candidate. All tests are two-tailed. All models include controls for job title, industry, and year. FE = fixed effects; GBP = British pounds sterling.

***$p < 0.001$, **$p < 0.01$, *$p < 0.05$, [+]$p < 0.1$

**Table 3. Probability of candidates being classified
"not interested" or "not suitable" (multinomial model – relative risk ratios reported)**

	Candidate not interested	Candidate not suitable
Base (0) = Interview		
Female candidate	1.381**	1.324**
	(0.159)	(0.134)
Candidate applied for job	0.013***	1.393**
	(0.005)	(0.153)
Candidate prior number jobs	1.015	0.966*
	(0.020)	(0.016)
Candidate contacts other roles	0.994+	0.984***
	(0.004)	(0.004)
Job salary (GBP)	1.000**	1.000**
	(0.000)	(0.000)
Number of candidates	1.006***	1.008***
	(0.001)	(0.001)
Execo–client prior relationship	1.065**	1.032+
	(0.022)	(0.019)
Client firm size (logged)	0.947**	0.981
	(0.018)	(0.016)
Advertised job	1.516***	1.516***
	(0.161)	(0.139)
Public-sector firm	1.734***	1.052
	(0.248)	(0.133)
Executive board	1.098	1.505***
	(0.154)	(0.177)
Constant	0.834	1.406*
	(0.170)	(0.242)
Observations (N)	10,443	10,443

Notes: Robust standard errors (in parentheses) are clustered by
candidate; all tests are two-tailed. All models include controls for job
title, industry, and year. GBP = British pounds sterling.

***$p < 0.001$, **$p < 0.01$, *$p < 0.05$, +$p < 0.1$

Appendix: Data from CEO vacancies at "Large Search Firm"

Figure A1. Gender Composition Across Stages of the Hiring Pipeline for CEOs