The Old Boys’ Club
Schmoozing and the Gender Pay Gap

Zoë Cullen*  
Harvard Business School

Ricardo Perez-Truglia  
University of California, Los Angeles

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Old Boys’ Club: n. informal network through which men use their positions of influence to provide favors and information to help other men.

Abstract

By means of a natural experiment in a large financial institution we explore the hypothesis embodied by the term "Old Boys’ Club" - that male employees are promoted faster than female employees due to favorable treatment by their male managers. We exploit the rotation of managers in a large financial institution, and use an event study analysis to estimate the causal effect of the manager’s gender on the employee’s outcomes. We show that male employees are promoted faster under male managers than under female managers. These promotion differences are not accompanied by any differences in effort or output. These manager effects are significant in magnitude, and can explain a third of the unconditional gender pay gap in this organization. Moreover, we provide suggestive evidence that these managers effects are due to increased socialization with managers. For example, we show that these manager effects are present only if the manager and employee work in close proximity. We show that male managers spend more of their breaks with male employees. And we show that, even within male employees, a non-gender shock to socialization affects promotions in a similar manner.

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*Corresponding author: zcullen@hbs.edu, Rock Center 310, Boston, MA 02163. We are thankful for excellent comments from several colleagues and seminar discussants. The collaborating institution provided financial support for the research being conducted. Additionally, Zoe Cullen was a full-time, salaried employee at that institution while the research was being conducted.
1 Introduction

Women have a harder time climbing the corporate ladder (McKinsey, 2018): 48% female at entry-level, 38% at middle management, 22% at C-Suite and 5% at CEO. Improvement over the last decades has been agonizingly slow. Not only is this unfair, but also highly inefficient (Hsieh et al., 2019).

The lack of female representation is due to multiple factors. We focus on a specific hypothesis, the old boys’ club. In the context of business, this idiom has come to refer to male employees having a leg up with their male managers which can create a self-perpetuating cycle. An ideal experiment would randomize the assignment of managers to employees, and then measure the effects of manager gender on the employee’s career progression. Our approach relies on quasi-experimental evidence, based on event-study analysis of manager switches.

We collaborated with a large commercial bank with millions of customers, billions of dollars in assets and in revenues, and thousands of employees. In the remainder of the paper, we refer to this bank as the firm. This firm is typical in some important respects.

Ideally, we would randomize employees to male and female managers, and then measure how this random assignment affects their subsequent career progression in the next years. This experiment is, however, difficult to implement in practice. We turn to the next best thing: exploiting quasi-experimental variation in manager assignment generated by the rotation of managers within the organization.

Our identification strategy relies on the comparison between types of manager switches. We can compare employees who transition from having a female manager to having a male manager with employees who transition from a female manager to another female manager, netting out the direct effect of any switch. We can then do this comparison for male and female employees separately. The relative outcomes of male and female employees who undergo the same manager switches is key for understanding the causal impact of a new manager on the career progression of the employee. Having a male manager might be beneficial in general, to both female and male employees. If the female employees do better but the male employees do much better, we would attribute the relative male success to the gender of the manager.

We have data for 14,736 employees and 1,269 managers observed over a period of four years. Over the span of this panel, 40% of employees experience at least one switch event. Altogether there are 10,101 employee events involving 1,029 unique managers. 85% of employees only experience one event over four years. Events occur in every month throughout and the types of events are distributed similarly over time. The most common transition
is from one male manager to another male manager, and this happens roughly 2.5 times more often than the least common transition from a male to a female manager. Employees all throughout the organization experience events, and employee characteristics are largely uncorrelated with the type of event.

We show that male employees do better when they transition from female to male managers. We find the careers of male employees progress faster under male managers. 10 quarters after the transition, male employees who transitioned from a female to male manager increased their pay grade by an additional 0.5 points (roughly equivalent to a 7% higher pay) relative to the males who transitioned from a female to female manager. Female employees are not affected by this same transition. A female employee who undergoes a transition from a female to male manager does no better or worse than a female employee who undergoes a transition to yet another female manager. The one-sided co-male advantage is substantial: to shut the bias down, would be to reduce the unconditional gender gap in the organization by 38%, from $227 to $139.

Our framework has strong empirical predictions for the effects of the reverse transition from a male manager to a female manager: while male employees do better when they receive a new male manager (transitioning away from a female manager), they do worse when they transition to a new female manager (away from a male manager). The time it takes for the effect to develop is symmetric and in the opposite direction, the statistical precision is similar, and the magnitude of the effects is almost identical albeit with the opposite sign. Female employees do not fair any differently after the transition to a female manager compared to their outcomes under a new male manager.

As a placebo test, we rerun our main specification using a characteristic of managers that we do not expect to have any effect on employee outcomes: whether they were born on an even or odd date. We show that this placebo event study yields null effects for male and female employees.

We test whether the effects on promotion could be driven by selection in the types of employees who choose to stay at the firm or leave following a manager transition. To construct a test of differential exit trends in the period prior to the event, we follow the technique of Kleven et al. (2018), creating counterfactual events for those individuals who quit in the period before the event, under the assumption that they would have experienced the same events that their teammates experienced who did not quit. We show similar rates of attrition across units leading up to the events, between men and women and within gender across event types, and similar rates of attrition after the events as well. Lee Bounds under the most extreme assumptions about selection on ability do not undermine the statistical significance of our event study analyses. We also do not find differential rates of internal promotion,
suggesting the effects of managers does not occur through the changing composition of who stays on the team.

The differential rates in promotion we detect could reflect differential rates in effort and productivity. A male manager might be able to inspire and motivate a male employee more easily than a female employee. In this case, we would expect to observe a corresponding rise in our proxy measures of effort, including hours worked, absenteeism, and sales revenue. However, we find no evidence that any of these measures of effort are affected by the gender of the manager.

We provide three pieces of suggestive evidence supporting the socialization mechanisms. First, we show that the advantage conferred to male employees by male managers stems from positions where the manager and employee work in close proximity, and is not significant in positions where the manager and employee often work apart.

Second, we use survey data on the socialization between the employees and their managers. We show that, for a male employee, having a male manager increases the share of breaks taken with that manager.

Third we show that, even within male employees, a non-gender shock to socialization affects promotions in a similar manner. Such a shock is the transition from non-smoker managers to smoker managers. We use the survey data to confirm that this shock indeed increases socialization: smoker employees start spending more time with their smoker managers. We show that transitioning from non-smoker to smoker managers (relative to a transition from a non-smoker manager to another non-smoker manager) increases the pay grade of smoker employees but does not affect the pay grade of non-smoker employees. The comparable increase in shared breaks between smokers and non-smokers, and men and women under a male manager, imply that increased social time together could account for the boost in career outcomes that male employees experience under a male manager.

Our methodology does not rely on any occurrences out of the ordinary or any structure specific to the corporation that we study. The natural experiment arises from the rotation of managers across teams. A key feature of our data is the organizational structure that links employees to other co-workers on their team, and to the manager of the team. The methodology can be applied to data from other companies and for other countries.

This paper is related to various strands of literature. It is related to a literature on the effects of female leadership on gender gaps in the corporate ladder. There is evidence that female-led firms have higher share of female executives and better gender wage policies (Cardoso and Winter-Ebmer, 2010; Bell, 2005; Dalvit et al., 2018; Flabbi et al., 2014). There is also evidence that female employees with female bosses have higher salaries and job satisfaction (Grissom et al., 2012; Kunze and Miller, 2017) and report less discrimination
Work from sociology and related fields show the correlation between female representation in management and the gender pay gap to be weak or weakly negative (Srivastava and Sherman, 2015; Halldén et al., 2018; van Hek and van der Lippe, 2019). Srivastava and Sherman (2015) shows in the context of an information services firm that women who switched from a male to a female manager experienced lower salaries in the following year than men who made the same switch. Our contribution is to provide clear causal identification from quasi-experimental methods.

This study is also related to a literature on the gender wage gap (Goldin, 2014). There is a consensus that the vast majority of the gender wage gap is due to differences in promotion rates. By one careful account, the gap in internal promotion rates can account for approximately 70 percent of the gender pay gap by age 45 (Bronson and Thoursie, 2019). Several explanations have been provided for those gaps. Perhaps most notably, the birth of a child creates a gap in the labor force participation between male and female employees, resulting in differences in career progression and salaries (Kleven et al., 2018; Bertrand et al., 2010). Although large, the child penalty cannot fully account for the gender gaps in career progression and pay. Bronson and Thoursie (2019) note that the promotion gap occurs before the birth of the first child, and occurs between men and women who never have children.

The contribution of this paper to the literature is twofold. We contribute to this literature by identifying and quantifying one channel that is orthogonal to the child penalty, and has significant explanatory power. We find that eliminating the gender bias in the manager-employee match would result in a reduction of the gender pay gap by over a third.

Second, we provide evidence of one of the mechanisms, socialization at work, that has been largely overlooked in gender economics. As common as socializing with coworkers is, little is known about the returns to these more personal interactions in the workplace. Moreover, this mechanism is interesting beyond the context of the gender gap. Recent work has documented the importance of peer effects among employees at work, including not only peers who share the same gender but also other identities such as race and friendship (Giuliano et al., 2011; Hill, 2017; Hjort, 2014; Mas and Moretti, 2009; Bandiera et al., 2010; Glover et al., 2017; Lazear et al., 2015; Dahl et al., 2018). Field et al. (2015) find evidence that going through business training with a female friend increases the likelihood that a female participant engages in future business activity. Mengel (2015) find similar networking by men and women in a lab experiment, but that a earnings gap emerges because only men promote their close connections, who are more likely to be male. Our evidence of socialization may help us understand why people who share certain attributes in common choose to work together. Socializing effects also has management practice implications. Our research suggests that socialization is effective at fostering supportive career-advancing relationships, while having
minimal effects on effort and productivity.

The rest of the paper proceeds as follows. Section 2 presents an overview of the research design and our econometric specification. Section 3 presents the institutional context for this study and describes the data. Sections 4 and 5 present our empirical results; the final section concludes.

2 Research Design

2.1 Conceptual Design

The ideal experiment to capture the impact of manager type on employee outcomes would be to randomize managers across teams. In this setting, managers often rotate across teams, so the same employee can have different managers over time, for arguably exogenous reasons. At the time the manager switches teams, they assume responsibility for a entire unit. Consequently, the male and female employees in a single unit experience the same manager switch. On average, managers are reassigned to a different team every 18 months.

Switching itself may have an effect on the outcomes of team members (regardless of the start/end gender), so we compare between switches, employees who experience one type of switch relative to another, to difference out the effect of experiencing a manager switch.

The relative outcomes of male and female employees who undergo the same manager switches is key for understanding the causal impact of a new manager on the career progression of the employee. Having a male manager might be beneficial in general, to both female and male employees. When moving away from a female manager to a male manager, we focus on the differential effect between his male and female employees: if the female employees do better but the male employees do much better, we would attribute the relative male success to the gender of the manager.

We focus on two types of events: transitioning from a female manager to a male manager (F2M relative to F2F) or switch away from a male manager (M2F relative to M2M). The effects should be a mirror image of each other, despite different samples of employees experiencing these switches. This symmetry is an additional testable assumption that we use to validate the event-study framework.

For further validation of our event study framework, we look at “placebo” switches: i.e., a changes in a characteristic that should not matter. We use whether the day of birth is even or odd: since whether someone is born in an even or odd day is random, you would not expect that, regardless of whether an employee was born on an even or odd day, the employee’s career should not depend on whether the manager was born on an even or odd
day. Thus, you can think of the whole analysis described above but where you replace female by even birth day and male by odd birth day.

**Econometric Model**

We present our econometric model for generic outcome $y_{i,t}$, which can represent outcomes such as the salary, pay grade or sales of employee $i$ in month $t$. We use an event study design, defining $s = 0$ in the month of the manager switch and selecting the prior month, $s = -1$, as a reference period with which to contrast the effect of the event during the 30 months before and after the event occurs. Our event time coefficients measure the impact of the event relative to the quarter just prior to the event.

We use $j = \{F2M, M2F, F2F, M2M\}$ to indicate the type of transition that the employee experiences, for example switching from a female to male manager or vice versa. We interact event-study lags and leads with a dummy for female employee ($F_i$) to estimate event time coefficients for men ($\beta^M_{jt}$) and women ($\beta^F_{jt}$). We estimate event-study coefficients concurrently with individual fixed effects, $\gamma_i$, and gender specific month fixed effects, $\delta^g_t$, which flexibly absorb trends in male and female employee outcomes.

$$y_{i,t} = \sum_j \sum_s \beta^F_{j,s} \cdot F_i \cdot D^F_{i,t+s} + \sum_j \sum_s \beta^M_{j,s} \cdot (1 - F_i) \cdot D^M_{i,t+s} + \gamma_i + \delta^F_t + \delta^M_t + \epsilon_{i,t}$$

Events are defined by the switching of unit managers. We restrict events to manager switches that are lasting; the new manager must stay with the unit for at least one quarter.¹

The switch in manager gender from female to male changes the probability of having a male manager strongly one quarter after the switch, but over time the probability falls as the internal organization continues to change. When we look at longer-term effects, the effects could be attributed to exposure to a male manager just after the switch, or exposure two years later. The switch may lead to a stream of male managers, in which case we do not know which one of those (or all of them) were helping you.

To isolate the impact of a change in manager type from the impact of changing manager more generally we report the difference between the outcomes of employees who experience a change in gender, with the outcomes of those who change to a manager of the same gender. For example, in the left panel of Figure 2 we plot the effect of switching from a female to male manager after subtracting the effect of switching from a female to another female manager,

¹In Section G we discuss a series of robustness checks regarding the definition of the switch events.
separately for male and female employees. We also present a triple difference in Figure ?? by subtracting the effects for female employees from the effects for male employee and plotting the difference. What we capture with the first difference, $\beta_{F2M,t}^M - \beta_{F2F,t}^M$, is the impact of receiving a male manager relative to the impact of receiving a new female manager. When we see a positive effect of switching from female to male manager for male employees, we detect either a gender bias, or an overall boost that may come with male managers for all employees, male and female alike. By presenting the triple difference, comparing the the net effect of the same switches for men and women, $(\beta_{F2M,t}^M - \beta_{F2F,t}^M) - (\beta_{F2M,t}^F - \beta_{F2F,t}^F)$, a persistent positive effect rules out that the male managers boost the outcomes for male and female employees alike, making gender bias the likely interpretation.

This bias can be either a positive bias of the male manager for male employees or the relief from a negative bias of female managers for male employees. Even in a randomized controlled trial, we would not have a gender-neutral manager against which to compare the male and female manager biases. We present alternative specifications to shed light on the direction of the bias.

The effect of the managers’ gender may be through direct and indirect channels. For example, the manager may treat an employee differently, or the employee may change their behavior based on the gender of the manager. In the event study analysis, we are measuring the net effect of these channels. However proxy measures of effort (e.g. absenteeism, sales) offer insight into whether the employee adjusts their behavior, and we include a measure of assignment to priority customers and additional training measures to capture changes in manager behavior.

Underlying our interpretation of the event-study coefficients is an important identifying assumption: the relative trajectory of outcomes of employees of different types (e.g. male, female) is orthogonal to the type of manager assigned to the unit. An example violation would be if the divergent success of male employees relative to their female teammates led the female manager to recruit a male manager to take her place. To test whether our identifying assumption holds, we flexibly track the trajectories of men and women in 30 months prior to the event. In Figure 2 we show evidence that the trends of men and women in the prior period do not deviate as a function of the type of manager switch on the horizon.

One outcome, the choice to exit, requires special attention to perform a similar test of parallel trends leading up to the event. Attrition from the firm is mechanically stable leading up to the event by virtue of the fact that those who directly experience events must be present at work. To construct a test of differential exit trends in the period prior to the event, we follow the technique of Kleven et al. (2018), creating counterfactual events for those individuals who quit in the period before the event, under the assumption that they
would have experienced the same events that their teammates experienced who did not quit. In Figure 4 we run the event study including these counterfactual events. We show similar rates of attrition across units leading up to the events, between men and women and within gender across event types, and similar rates of attrition after the events as well.\(^2\)

To ensure the effects we detect are not an artifact of coding manager type switches, we rerun our main specification using a characteristic of managers that we do not expect to have any effect on employee outcomes: whether they were born on an even or odd date. In Figure C.2 we show that this placebo event study yields null effects.

### 3 Institutional Context and Data

#### 3.1 Institutional Context

We collaborated with a private commercial bank in Asia. To keep the identity of the firm secret, we refrain from providing exact information about its characteristics. This bank has millions of customers, billions of dollars in assets and in revenues, and thousands of employees.

The local demographics has a slightly higher labor force participation than the U.S. (77% versus 63%) and a smaller percentage of women describe work as unimportant or of little importance according to the World Value Survey (12% versus 19%). The gender wage gap is remarkably similar across countries (22.3% versus 21.4%).

The bank is female majority. However, as is typical around the world, the female representation falls as one progresses through the career ladder: 75% female at entry-level, falls to 61% at middle management, falls to 25% at C-Suite and 0% at CEO and Company Board.

#### 3.2 Manager Assignments

The organizational chart of the bank lists team members, and the managers of those teams. The manager of a team is identified by the designation “director” in their unit. If no member of the team is designated the director of that team, then the team is managed by the director one layer higher in the organizational chart hierarchy. For simplicity, we only consider one manager for each employee, the closest in the hierarchy, though multiple people along the hierarchy can influence the outcome of the employees career.

To validate our manager assignments, we conducted a survey of S&D survey where employees are asked to self-report managers who “have directly influenced your key performance

\(^2\)Results for events starting with a male manager, including smoke status events, are available in Appendix C.4
indicator and pay grade.” In the month of the survey, December 2017, 78% of the managers we identify using the organization chart are also listed by the employee as someone who directly influences their key performance indicator and pay grade; 91% if we restrict to pairs that have been together for one year or more.

The manager typically has discretion to distribute workload across team members however they see fit. In some cases, such as for a teller and her supervisor, the work hours are rigid, but the manager can approve leaves of absences or late days. Once each year, the manager assigns each individual a performance rating and bonus. At other points in the year the manager assesses whether the employee is eligible for a raise, and works with HR to determine the appropriate amount.

### 3.3 Manager Switches

People change managers over time for a variety of reasons. Some of those reasons are under the control of the employee and thus arguably endogenous. For example, employees who perform better may be promoted to a higher position and as a result be assigned to a different team with a different manager. Or an employee who disliked his or her manager may ask to be transferred to another team.

Instead, we focus on manager switches that are, arguably, outside of the control of the employee. For example, a team may lose its manager because the manager was promoted to a higher position. A manager may transfer to another team due to professional or life circumstances. Sometimes there is a reorganization which leads managers to be shuffled around. And sometimes the manager just leaves the company. In these situations, the same employee can have different managers over time, for arguably exogenous reasons.

To consider an event to be exogenous, the new manager must assume responsibility for all the employees in the unit. In other words, the unit experiences a manager switch, not an individual mover. In Appendix G we strengthen this restriction to only include those units where less than 10 percent of employees in the treated unit moves within a month of the manager switch. This restriction leaves two-thirds of exogenous events in our sample. Since our results are not sensitive to this restriction, and since we do not find evidence of differential attrition around events, our main specification only requires the manager to assume responsibility for the entire unit.

We exclude managers that are temporary replacements, requiring them to remain with the unit for at least one quarter in order to focus on managers who could have meaningful influence over the employees’ career trajectory. We also exclude new employees who are in their first month at the time of the manager switch. This last restriction allows us to observe outcomes for all employees in the period before the event, and removes potential
for endogenous hires by the new manager to confound the effect of the new manager on preexisting employees in the unit.

We do not need to assume that these manager events are exogenous. Instead, we test that assumption directly in our event-study analysis. If manager switches are orthogonal to the outcomes of employees, in the period leading up to the event itself the outcomes of employees will follow the same trajectory irrespective of their future event type. In Figures 2, we observe that male and female employees do not experience differential changes in their outcomes before the manager switch. This is true across all the types of manager switches that we study. In Appendix Table 2 we compare those who do and do not experience at least one switch. 22% of employees experience at least one switch, and 43% of managers. Employees who experience at least one switch are similar in age, education level, and salary to those who do not experience a switch. Mechanically there is a correlation between tenure at the bank and the likelihood of experiencing at least one switch, so those who experience one switch have on average 1 year longer tenure. The subsample of employees who experience a switch are highly comparable to those who do not experience switch events.

3.4 Outcomes

We collaborated with the different units of the organization to create a centralized and anonymous database of employee behavior including measures of effort, performance, promotion and salary. We also collect a measure of manager investment in employees through the nomination of the employee to leadership training, a program that requires the employee to take time during the work day to participate in a management training program.

Our leading career outcome is pay grade. Pay grade best measures the vertical career progression in the organization. Pay grades range from 41 to 66, on average a paygrade increase is associated with a contract salary increase of roughly 17%.

As a robustness check, we use monthly contract salary. The shortcoming with contract salary is that it is only one component of compensation (which is less than 20% for most employees but become more important for higher paygrades) and contract salary does not necessarily imply career progression. Nevertheless, paygrade and contract salary are highly correlated with each other, so we expect similar effects.

We collect two additional career outcomes: exits and internal transfers. When a person departs from the bank we continue to collect partial data on their financial accounts but little else. When a person transfers away from a unit in the bank, we continue to track their outcomes under a new manager. Both of these outcomes are measured and recorded daily.

Measuring performance in an objective and standardized manner is quite challenging for
many positions within the bank. However, for the 38% of employees who have a sales role, we can measure performance based on their sales revenues. The bank uses a sophisticated formula to aggregate an employee’s sales over all products (e.g., credit cards, loans, mortgages) that corresponds to the expected revenue generated by each product. We use this data to construct a sales performance index on a monthly basis. For employees working in the headquarter offices (29% of the sample), they must clock-in and -out from the office using an electronic card-swipe system, which is strictly enforced by security personnel. We use these time stamps to calculate the hours in the office on a daily basis.

We collect the data about breaks between employees and managers. For those employees in headquarters, the daily swipe times in and out of the building are recorded, and when the manager and employee exit the building within 30 seconds of each other, and both return within 30 minutes, we define this as a joint break. We vary these timing thresholds and show results are robust to alternative definitions of a common break. For those employees who are not in headquarters, but rather in branches across the region, we conduct a survey that asks respondents to think about their last ten breaks and report the number of the last 10 breaks that he or she took together with their manager.

Direct questions about the share of the last ten breaks where both employee and manager were present, as well as questions about the sports team preferences of the manager and self, and the share of personal emails exchanged, are collected through a survey administered by the Sales and Distribution Division. The full survey is included in Appendix Section I.

4 Effect of Manager’s Gender

A key marker of a successful career trajectory for employees at the bank is a raise in their pay-grade. In Figure 2 we graph the pay-grade of employees in the 10 quarters leading up to a manager switch (t=0), and 10 quarters after the manager switch. In Panel A, we focus on employees who have a female manager prior to manager switch. We then compare the outcomes of those who experience a switch to a new manager who is male, to those who transition to another female manager. In the period leading up to this switch, employee pay-grades follow the same path. After the transition, we observe that male employees who receive a male manager experience rising pay-grades relative to those that transition to another female manager. After the second year, their pay-grade is more than +0.5 higher, corresponding to 0.2 standard deviations in pay-grade bank-wide and a 1 standard deviation

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3For instance, a Human Resources employee is involved in various tasks such as identifying new hires, processing paperwork, and dealing with complaints from existing employees. The performance at each of those tasks is difficult to measure with objective data.
in pay-grade within employee over our 4 year window. Figure 4 shows the triple difference; we subtract the differential outcomes for female employees from the differential outcomes for male employees. Each pay-grade corresponds to approximately a 20% increase in salary.

We see the symmetric results when we focus on a male manager switching to a female manager. In Figure C.5 we restrict our sample to employees that have a male manager prior to an event, and switch to a female manager, we see that the pay-grade of male employees declines compared to those who switch to another male manager. Female employees fair no better or worse when the sex of their manager changes compared to switching to the same sex manager. In Fig. 5 we present additional evidence that the different outcomes experienced by men and women is likely driven by a male manager bias in favor of male employees that develops over their time together.

To increase confidence that the results of our event-study analyses are not an artifact of our set-up, we repeat the analysis using an arbitrary trait instead of gender: whether their birthday lands on an even or odd day. Figure C.2 shows that the interaction of manager odd/even birthday and employee odd/even birthday does not meaningfully affect worker outcomes. Their pay-grade in the period leading up to the event and the subsequent 10 quarters follows the same trajectories.

We also replicate this analysis by whether managers are high performing or low performing according their own boss, and find that neither male nor female employees are differentially affected by switching from high to low or vice versa (Appendix Fig. C.3).

We can replace our pay-grade outcome with the employee salary. While salary can reflect additions and deductions related to training and leave time, and excludes some incentive payments, it is on average highly correlated with pay-grade. In Figure 4 we observe that, male employees moving from a female to male manager experience a 7% higher salary after a year has passed with the new male manager, compared to their male counterparts who receive a new female manager. Salary is a noisier measure than pay-grade, and we have a less precise test of whether salary moves in the opposite direction when a male moves from a female to a male manager. However, we cannot reject that there is a symmetric relative decline.

We must address the possibility that the composition of employees changes over time as a response to these events. For example, if male employees tend to have better outcomes in one treatment group compared to another, they may also stay at the bank longer than other employees and hence, the outcomes we observe represent a differentially selected sample of male employees relative to everyone else. We follow the technique of (Kleven et al., 2018), creating counterfactual events for those individuals who quit in the period before the event, under the assumption that they would have experienced the same events that their
teammates experienced who did not quit. To be concrete, if an individual exits the bank, we assign that individual to experience a future event (after their departure) if the majority of their teammates in the unit experience an event in the future. In this manner, employees that exit in the prior period will be assigned to a treatment group even if they themselves do not survive long enough at the bank to experience an event. In Figure 3 we graph the rate of attrition from units leading up to a manager switch. When we focus on those that begin with a female manager prior to the event, and switch to either a female or male manager, we do not see differential exit depending on whether the employee switches to a male or female manager. We also do not see differential relative outcomes between male and female employees (our triple difference). After the event, we continue to observe very similar exit patterns across employees regardless of the event they experience. We construct bounds on the effects of differential attrition under extreme assumptions about selection on promotion and earnings potential, following Lee (2009). We first assume that the workers that are induced to quit are those at the bottom (top) of the distribution; i.e. that workers with the lowest (highest) potential are more likely to quit under a manager of the opposite gender. We then accordingly drop workers from the over-represented group at the bottom (top) of the distribution until workers of both genders appear at the same ratio as they do in the pre-period. Because our core specification involves a difference in difference estimate of two events, moving to a male manager and moving to female manager, we can also consider the extreme assumption that the attrition effects work in opposite directions for males and female. That is, perhaps male managers induce the lowest (highest) potential male employees to stay, whereas female managers induce the highest (lowest) potential female employees to stay. In Appendix Figure F.4 we show that under all four of these extreme selection assumptions, the pay grade results after ten quarters are very stable. Even the additional salary outcome remains at least 60% percent as large and always statistically different from zero. A likely reason for this is that employees can apply for a transfer within the bank to escape an undesirable manager, in which case we will continue to observe their outcomes.

One key question is whether the positive outcomes for men who switch over from a female to male manager (relative to switching over to a new female manager) corresponds with any change in their underlying productivity. Approximately one-third of male employees at the bank are responsible for directly selling products to clients. In Appendix Figure G.4 we show that among the subsample, the effect on paygrade of receiving a male manager relative to a female manager is similar to the effect we identify bank-wide. For this subsample, we can also observe their sales trajectory. In Figure 3 we see now differential trend in employee sales leading up to the event, either between male and female employees or within males and females who experience different types of events. Following the event, we observe slightly
higher variance in sales but nonetheless a stable trajectory on average. We conclude there is no corresponding increase in the productivity of male employees after receiving a male manager, relatively to the sales of those who receive a new female manager.

For employees that work office jobs within the bank’s headquarters, we observe a proxy for effort, the number of hours the employee works in the office as measured by the time-stamped swipes in and out of the lobby. In Figure 3 we use apply the event study analysis of average daily hours worked in a given month. We find no evidence of differential changes in behavior between the men and women who experience their manager change gender compared to those who just experience a new manager. In the same figure, we see that the relative number of work days in a given month (excluding maternity leave months) is also similar across male and female employees who do and do not experience a change in manager sex.

4.1 Interpretation

When interpreting the results presented, we must keep in mind three important caveats.

First, the specification cannot distinguish whether effects are driven by male managers, female managers, or both. It may be that moving from female to male manager introduces a pro-male bias. Or it may be removing a male manager removes a against-male bias from a female manager.

Second, the specification cannot distinguish whether effects are driven by how the managers treat the employees or how the employees react to the manager. For example, it is possible that female managers treat male employees just like the male managers but the male employees are more willing to take orders from the male managers than from the female managers. That being said, we have some suggestive evidence against the latter interpretation: we do not see a change in employee emails or rate of late arrivals.

The third caveat is that there are more “negative” or “positive” interpretations of the evidence. An example of negative interpretation would be downright discrimination: i.e., favoritism from male managers towards male employees. A positive interpretation would be that managers affect the careers of the employee because they are better at inspiring, motivating or training them. For example, male managers may be able to inspire male employees better. However, the lack of positive effects on the performance of male employees and enrollment in training programs suggests against this positive interpretation.

Last, we can provide a sense of the magnitude of these effects, by using different benchmarks.

First natural benchmark would be the unconditional gap. The average difference in pay-grade between male and female employees is 0.85. For male employees, the advantage of being under a male manager instead of a female manager is 0.5 pay-grades (after 10
quarters). Relative to the overall gender gap, this advantage is quite substantial (58.8% = 0.50 · 0.85).

Moreover, we can think about what would happen to the overall gender gap if we were to remove this male-to-male advantage: since 66% of male employees have male managers, the average pay-grade of male employees under these would be reduced by 0.33 (= 0.50 · 0.66) over two years if the male-to-male advantage were removed. In turn, this would reduce the gender pay gap by 38.8% (from 0.85 to 0.52 pay-grades). In other words, the male-to-male advantage can explain 38.8% of the gender gap at this organization.

However, this counterfactual analysis is under the assumption that our findings are due to a positive effect of male managers on male employees. If some of the effects were due to a negative effect of female managers on male employees, then the effects on the gender pay gap would be smaller. In this sense, this 38.8% provides an upper bound.

5 Mechanisms: Socialization

In this section, we explore socialization with the manager as a mediating factor for the male-to-male advantage documented in the previous section.

5.1 Breaks Data

Men and women have always had markedly different interests such as movies, TV, hobbies (Bertrand and Kamenica, 2018). As a result, having a manager of one’s gender may help building a relationship with this manager in ways that may be beneficial for career progression. For example, socializing with the manager may make the accomplishment and effort of the employee more salient to the manager, thus making the employee more likely to be rewarded with a promotion. Spending time with the manager may earn the sympathy of the manager, perhaps even voluntarily: i.e., the employee may use the opportunity to schmooze his or her way into a promotion.

To provide suggestive evidence, we start by looking at whether the gender composition of the employee/manager pair affects the extent to which they spend time with each other.

For the sales division (around 62% of the sample), we conducted a survey that asks respondents the number of days per week they have access to their manager as a result of working in the same location. We use these data to categorize positions where employees have the opportunity to socialize with their manager and those positions in which physical interaction is rare.

\footnote{In the extreme case where all the effects were due to negative effects of female managers on male employees, then removing these manager effects would actually increase the gender pay gap, as male employees would see their paygrades go up while the female employees would remain unaffected.}
On the same survey, we also ask employees to think about their last ten breaks and report the number of them that they shared with their managers. Employees received an email from the head of the division requesting that everyone take time to complete the survey and provide thoughtful responses. The full survey is included in Appendix Sec. I.

In Figure 7 we present the relationship between the sex of the manager and the employee, and the share of breaks they take together using a variant of the event-study specification. Rather than denoting time along the x-axis, we graph the chronological order of managers, before and after the event. In Figure C.4, we provide an alternative specification. We can normalize the share of breaks taken together by the manager mean, to account for differences in levels across managers. This lets us focus on the question of how managers allocate informal breaks to their male and female employees. We can then look at workers who make an exogenous switch, regardless of the gender of the manager they start with, and compare averages of this normalized share of breaks together by males and female workers under “exogenous” male and female managers. This lets us see that moving to a male manager has a positive impact on the relative share of breaks taken by male employees.

Not only does the share of breaks increase for men who transition to a male manager relative to men to transition to another female manager, but if we also look at baseline rates of break shares under male managers, they are higher for men than women whereas under female manager, men and women appear to have similar patterns of breaking with their manager. In other words, under a male manager, gender gaps in breaks become apparent.

The share of breaks spent with the manager is not a complete measure of the concept socialization. We have ongoing work to add joint lunches using swipe data about exits and entry from work. Nonetheless, we still will not have a complete measure of the numerous ways that people find to spend social time together, including personal messaging and after-work social events.

5.2 Position Heterogeneity: Accessibility of the Manager

Some explanations posited for why a male manager might favor a male employee have little to do with face-to-face interactions. For example, if male managers have biased beliefs about the productivity of other men and this drives favorable treatment of male employees, then close proximity might actually reveal the truth about productivity and diminish preferential treatment. Alternatively, if men are simply misogynistic or seek to pay the favor forward for the men who have helped them in the past, then face-to-face interactions may be unrelated to the extent of preferential treatment. We test whether physical proximity matters by looking a positions at the bank that vary in how they necessitate co-location between the manager and employees.
We use the answers to a survey question about proximity with one’s manager: how often were you physically working near [manager’s name], and participants responded with the number of days per week. We used the average response among all employees in a position to create a position-level attribute regarding how accessible the manager was to employees in that role. An example of a position that has high access is a customer support specialist, and an example of a position with low access is a sales and quality development director. We replicate our event-study analysis for those above and below the median number of days per week.

In Figure D.1 we compare the advantageous effect of switching to a male manager for male and female employees when the position requires employees and managers to work in close proximity (above median levels of interaction) and low proximity (below the median). Not only is the effect more pronounced among those with high access, but it is diminishes substantially among those with low access.

5.3 Smoker Events

We probe the socialization mechanism by studying a different shock: one that increases socializing while holding gender constant. We isolate the effects of socializing to assess how much it could be contributing to the advantageous outcomes of men under male managers. The conceit is: if we increase socialization, by a level equivalent to the rise we observe when a male employee receives a male manager, we might induce the same benefits to paygrade and salary. And, if so, socializing can likely account for most of the gender gap that develops under male managers.

We collect the smoking data two ways. During the 2017 annual health exam employees are asked about their current smoking habits and the age they started smoking. We also delivered a survey to current employees asking about the smoking status of their past co-workers in order to collect the smoking status of employees who had quit the bank prior to the annual health exam. For a subsample of people we collect their smoking status information in both manners in order to cross-validate the two sources. If over one-third of the crowdsourced reports consider the subject to be a smoker, we classify the person as a smoker. When we apply this rule, 82% of the self-reports are the same as the crowdsourced classification, among those with both types of reports. In Figure G.3 in Appendix G we show how results remain stable when we adjust this threshold. In Figure 7 we show the impact of moving from

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5This one-third threshold maximizes overlap between the self-reports and crowd-sourced reports in the sample of people who have both types of reports. As a robustness check we replicate our results under different classification rules in Figure G.3 in Appendix G. 21% of people flip their smoking status when we raise the threshold to require all reports indicate the person is a smoker and 9% flip status when we lower the threshold to any smoking report. In both of these extreme cases, our results hold.
a non-smoking male manager to a smoking male manager is approximately a 0.2 rise in the share of breaks taken with the manager when the employee is a smoker. For non-smokers the difference in the smoking status of the manager does not affect the share of breaks joint with their manager.

Figure C.6 are the event-study graphs around the date of a switch from a non-smoking manager to a smoker manager. We look at events where employees move from a non-smoking manager (of either gender) to male manager, 36% of whom smoke and 64% of whom do not. We compare the outcomes of male employees who transition male-non-smoker to male-smoker (N2S) versus the outcomes of male employees who transition male-non-smoker to male-non-smoker (N2N). We split male employees by their smoking status and compare the relative effect of these events for male-smoker employees versus male-non-smoker employees.

For smoking employee, switching to smoking manager causes time spent with managers to rise +20%, and Paygrade: +0.54. For male employee, switching to male manager causes time spent with managers: +20%. and Paygrade: +0.50. If the effect of smoking is purely through socialization, that would suggest that most of the gender effects could be explained through socialization.

We do not see an accompanying improvement in performance despite the boost in career outcomes that smoking employees experience when assigned a smoking manager. In Figure 3 we show sales, working days, leave days and retention remain on the same trajectory before and after the event, for male and female employees alike. We calculate Lee Bounds to rule out the possibility that differential selection drives the effects of a smoking manager on career outcomes (see Appendix F).

6 Conclusions

Having a same-sex manager is advantageous for men. Removing this bias would reduce the gender gap in pay and promotions by 38%. We also provide evidence on one novel mechanism: time spent with manager.

Our methodology is quite portable. The data necessary to carry out similar analyses are the link between employees and their manager, along with demographics characteristics and outcomes of interest. We hope this methodology will be applied to other firms, countries and industries. That will help to generalize the findings, and also understand where these biases are more or less problematic.

Our findings have implications for the policies aimed at reducing the gender gaps in pay and leadership. One of the things that companies can do is to reduce the scope for favoritism by changing the promotion review system. For example, involving multiple managers in the
promotion decisions may make it more difficult for employees, male or female, to schmooze their way into the promotion. This could also be achieved by standardizing the review process, if possible using objective indicators such as sales revenues and hours worked. Another strategy to curb these gender gaps is by leveling the opportunities for employees to socialize and connect with their managers. For example, companies could promote gender-neutral socialization activities. Whether these policies are effective at limiting gender gaps is an open empirical question, and thus marks an avenue for future research.

References


Figure 1: Descriptive Statistics about the Events

a. Distribution Over Time

b. Events per Manager

c. Events per Employee

Notes: Similar tables for smoking events and for placebo events are available in Figure B.2 and Figure B.3.
a. Female to Male
minus Female to Female

b. Male to Female
minus Male to Male

c. Odd to Even
minus Odd to Odd

d. Non-Smoker to Smoker
minus Non-Smoker to Non-Smoker

Notes: Results for employees experiencing even to odd manager switches and smoking to non-smoking manager switches are available in Figure C.1.
Figure 3: Female to Male (versus Female to Female), Triple Difference

a. Firm Exit

This regression includes 381,431 observations of 14,641 workers (5,194 Male & 9,447 Female). 3,198 of these workers experience a switch event (840 Male & 2,358 Female). There are 1867 transitions from a female manager to a male manager, 2144 from one female manager to another female manager. The within individual standard deviation of left firm is 0.177. 95% C.I. displayed.

b. Sales Revenues

This regression includes 380,964 observations of 14,638 workers (5,193 Male & 9,445 Female). 1,956 of these workers experience a switch event (463 Male & 1,493 Female). There are 1398 transitions from a female manager to a male manager, 1036 from one female manager to another female manager. The within individual standard deviation of sales is 95.1. 95% C.I. displayed, trimmed at −200 and 200.

c. Log(Days Worked)

This regression includes 355,344 observations of 14,162 workers (4,913 Male & 9,249 Female). 2,971 of these workers experience a switch event (762 Male & 2,209 Female). There are 1682 transitions from a female manager to a male manager, 1994 from one female manager to another female manager. The within individual standard deviation of ln(days worked) is 0.166. 95% C.I. displayed, trimmed at −.3 and .3.

d. Log(Work Hours)

This regression includes 104,231 observations of 4,876 workers (1,881 Male & 2,995 Female). 982 of these workers experience a switch event (285 Male & 697 Female). There are 386 transitions from a female manager to a male manager, 801 from one female manager to another female manager. The within individual standard deviation of ln(avg daily hours worked) is 0.208. 95% C.I. displayed, trimmed at −.4 and .4.

Notes: Results for employees experiencing male to female manager switches and non-smoking to smoking manager switches are available in Figure C.9 and Figure C.10, respectively.
Figure 4: Female to Male (versus Female to Female), Triple Difference

a. Pay Grade

This regression includes 374,913 observations of 14,332 workers (5,071 Male & 9,261 Female). 3,160 of these workers experience a switch event (819 Male & 2,341 Female). There are 1846 transitions from a female manager to a male manager, 2120 from one female manager to another female manager. The within individual standard deviation of pay grade is 0.479. 95% C.I. displayed.

b. Log(Salary)

This regression includes 380,964 observations of 14,638 workers (5,193 Male & 9,445 Female). 3,160 of these workers experience a switch event (819 Male & 2,341 Female). There are 1846 transitions from a female manager to a male manager, 2120 from one female manager to another female manager. The within individual standard deviation of ln(normalized salary) is 0.082. 95% C.I. displayed.

Notes: Results for employees experiencing male to female manager switches and non-smoking to smoking manager switches are available in Figure C.5 and Figure C.6, respectively
Notes: We present binned scatter plots with linear trend lines of the change in pay grade over the following 5 (10) quarters against the share of managers in the previous year that are male. This restricts our panel to workers are in the panel for at least 9 (14) quarters. This is because we require that they have already been at the bank for one year so that the share of male manager is always computed over exactly 12 months. This is simply the share of months in the last year that an employee worked under a male manager. The change in pay grade outcome then mechanically requires that a worker remain in the panel for an additional 5 (10) quarters, so that we can observe the change in pay grade at the end of that period. We control for tenure and include pay grade fixed effects, as we may expect promotions to be more or less likely based on the current pay grade.
Figure 6: Pay Grade: Female to Male (versus Female to Female), Triple Difference

**Physical Proximity to Manager**

a. Closer

b. Farther

This regression includes 367,581 observations of 14,288 workers (4,999 Male & 9,289 Female). 1,065 of these workers experience a switch event (343 Male & 722 Female). There are 679 transitions from a female manager to a male manager, 591 from one female manager to another female manager. The within individual standard deviation of pay grade is 0.475. 95% C.I. displayed, trimmed at −1 and 1.

This regression includes 367,581 observations of 14,288 workers (4,999 Male & 9,289 Female). 974 of these workers experience a switch event (149 Male & 825 Female). There are 703 transitions from a female manager to a male manager, 474 from one female manager to another female manager. The within individual standard deviation of pay grade is 0.475. 95% C.I. displayed, trimmed at −1 and 1.
Figure 7: Socialization with Manager

a. Female to Male  
\textit{minus} Female to Female

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure7a}
\caption{Share of Breaks with Manager before and after switch, by gender.}
\end{figure}

\begin{itemize}
\item This regression includes 4,843 observations of 2,638 workers (698 Male, 1,940 Female).
\item 430 of these workers experience a switch event (83 Male, 347 Female).
\item There are 254 transitions from a female manager to a male manager, 243 from one female manager to another female manager.
\end{itemize}

b. Odd to Even  
\textit{minus} Odd to Odd

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure7b}
\caption{Share of Breaks with Manager before and after switch, by birthday.

\begin{itemize}
\item This regression includes 4,947 observations of 2,648 workers (1,296 Odd BD, 1,352 Even BD).
\item 670 of these workers experience a switch event (330 Odd BD, 340 Even BD).
\item There are 403 transitions from an odd-birthday manager to an even-birthday manager, 321 from one odd-birthday manager to another odd-birthday manager.
\end{itemize}

\begin{itemize}
\item This regression includes 1,287 observations of 699 workers (176 Smoking, 523 Non-Smoking).
\item 196 of these workers experience a switch event (51 Smoking, 145 Non-Smoking).
\item There are 50 transitions from a non-smoking manager to a smoking manager, 160 from one non-smoking manager to another non-smoking manager.
\end{itemize}

The within individual standard deviation of share of breaks with manager is 0.174; 95% C.I. displayed.
<table>
<thead>
<tr>
<th>EMPLOYEES</th>
<th>Had Event?</th>
<th>Female to...</th>
<th>Male to...</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>No</td>
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<tr>
<td>Unique Employees</td>
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<td>Male (%)</td>
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<td></td>
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<td>(0.45)</td>
<td>(0.43)</td>
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<tr>
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<td></td>
<td>(5.45)</td>
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<td>College (%)</td>
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<td>0.853</td>
<td>0.870</td>
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<td>(3.66)</td>
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<td>(2.56)</td>
<td>(2.52)</td>
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<table>
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<th>Female to...</th>
<th>Male to...</th>
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<td>(2.29)</td>
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<td>(0.22)</td>
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<td>Incoming Manager</td>
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<td>------------------</td>
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<tr>
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<tr>
<td>Lateral Move</td>
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Notes: We say that an outgoing (incoming) manager quit (was hired) if they quit (were hired) in the six months after (before) the switch. Similarly, we code a switch a promotion if there is a change in pay grade in the three months before or after the event.