

Gender differences in negotiation: Can interventions reduce the gap? *

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Abstract

Gender differences in negotiation are seen as contributing to the persistent gender gaps in labor market outcomes. We review the literature on interventions aiming to mute differences in negotiation and assess their effectiveness in reducing the gender pay gap. We present research on initiatives that aspire to increase how often and how women negotiate, as well as institutional changes that ban negotiations, ban requests for employee salary history, and improve wage transparency. Along with exploring effectiveness of these initiatives, we point to unintended consequences that warrant caution at implementation. The review makes clear that initial efforts to push women to negotiate more like men have shifted to instead alter the conditions of the negotiation. This shift results not only from wanting to consider policies that ‘fix-the-institutions’ rather than ‘fix-the-women,’ but also from evidence that these interventions are more successful in securing pay equity.

Keywords: bargaining, lean in, negotiation training, ban, salary history, transparency

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1. Introduction

Gender differences in negotiation are frequently used to explain the persistent gender gap in compensation, promotion, and occupation (e.g., Greig, 2008; Card et al., 2016; Säve-Söderbergh, 2019). Considering the potential impact on labor-market outcomes it is no surprise that substantive work has examined differences in how men and women approach negotiations. The overarching conclusion is that there are gender differences in both willingness and ability to negotiate, particularly in environments that have the characteristics of salary negotiations, and that these influence the gender pay gap.¹

There are many reasons why men and women may approach negotiation opportunities differently. They may be entering the negotiation from different vantage points, either because their initial bargaining positions differ or because they want different things from the negotiation. However, gender differences in negotiation may emerge even when the negotiation conditions are identical. For example, research has pointed to men and women holding different preferences for risk, altruism, and ambiguity, all of which can affect both the frequency and type of negotiation (e.g., Andreoni and Vesterlund, 2001; Borghans et al., 2009; Croson and Gneezy, 2009; Niederle, 2016). Research has also shown that men are more confident and competitive than women, especially in stereotypically male domains, and have different information on what can be attained through the negotiation, both factors that will impact negotiation outcomes (e.g., Niederle and Vesterlund, 2007; Cullen and Perez-Truglia, 2023a). Differences will also arise if men are more experienced and thus enter the negotiation with greater ability and ease (e.g., Mazei et al, 2015). Finally, societal norms likely differentially impact the way men and women approach negotiation opportunities (e.g., Bowles and Gelfand, 2010).

While it is not possible to identify the exact source of men's advantage in labor-market negotiations, there is broad agreement that, absent a job that calls for negotiation, individual negotiation differences should not affect compensation and advancement. Recognizing the resulting inequities has therefore led to initiatives that aim to reduce differences in negotiation and/or in the effect such differences have on labor market outcomes. Some initiatives aim to alter individual behavior, changing either how often or how women negotiate, others instead alter the institutional conditions under which negotiations take place. Examples of the latter include directly banning negotiations, banning requests for salary history, and improved wage transparency. We will review the literature on each of these initiatives and assess their effectiveness and broader impact. The paper expands our 2019 review to include substantial new research conducted in the past few years.² Recent policies aiming to change the conditions under which negotiations take

¹ For reviews see Bowles et al. (2005), Bowles and McGinn (2008), Stuhlmacher and Walters (1999), Bertrand (2011), Azmat and Petrongolo (2014), Mazei et al. (2015), Kugler et al. (2018), Hernandez-Arenaz and Iriberry (2019), and Bowles et al. (2022).

² Published as Recalde and Vesterlund (2022).

place, have led to an abundance of new data, and research is increasingly showing that these adoptions are not merely motivated by a push for policies that ‘fix-the-institutions’ rather than ‘fix-the-women,’ but also by evidence that these initiatives are more effective in equalizing outcomes.

2. Individual-level interventions

Evidence that men are more able and willing to negotiate in the labor market tempt recommendations that women should negotiate more like men. This section reports on research examining initiatives aimed at increasing how often and how women negotiate. We will see that while there is substantial public support for programs that change women’s approach to negotiation, there is limited evidence on the effectiveness of such changes. Rather than revealing the need to ‘fix women’ it appears that different societal constraints force men and women to approach negotiation opportunities differently.

2.a. Lean-In Recommendation

Babcock and Laschever (2003) present what is perhaps the most striking finding on gender differences in negotiation frequency. They show in a study of new MBA graduates that 57% of men and only 7% of women negotiate the compensation for their first job, a difference that contributes to men earning 7.6% more than their female classmates. Babcock, Gelfand, Small and Stayn (2006) explore a broader set of negotiations and examine the frequency by which men and women negotiate. Results reveal that the time between an individual’s last and expected future negotiation is a full 8 weeks for women, but a mere 3 weeks for men. Again, this points to men negotiating more often than women.³ Although negotiation in the labor market is of key concern, the limited information on employee and employer characteristics, on the employee-employer match, and the parties’ outside options makes it difficult to determine whether the observed differences in negotiation frequency result from differences in behavior or in negotiation opportunities.⁴ Many studies instead rely on controlled experiments and similarly find that men negotiate more often than women.⁵

The findings that both men and women gain from negotiation, and that women are less likely to pursue such opportunities, has been seen as evidence that women are leaving substantial lifetime

³ Recent examples include Biasi and Sarsons (2022) who show that male teachers negotiate more often than female teachers, and Li and Zafar (2023) who show that male more than female college students ask for re-grades. See also Dreber et al. (2022).

⁴ Andersen et al. (2021) examine gender differences in real estate negotiations, a setting where the value of the negotiated item is better assessed.

⁵ See e.g., Bowles et al. (2005), Small et al. (2007), Kray and Gelfand (2009), Amanatullah and Morris (2010), Kugler et al. (2018), Gihleb et al. (2023), Gago (2020), Maitra et al. (2021).

earnings on the table. This has led to a push for women to negotiate more and to lean in (e.g., Sandberg, 2013).

Exley, Niederle, and Vesterlund (2020, ENV henceforth) argue that we are missing an important counterfactual when we extend these results to make the recommendation for women to lean in and negotiate more. We need to know what happens when women ask more. Of course, the recommendation is harmless if the “worst that can happen is that they say no.” However, there are many cases where instead negotiation is costly, and increased negotiation may worsen the employee’s situation.⁶

ENV design an experiment to examine the effect of increased negotiation. “Workers” and “firms” each perform a task, and then decide how to split the surplus of their joint efforts. They run two versions of their study: a “choice treatment”, where workers are offered an initial wage and decide whether they want to accept it or instead negotiate; and an “always treatment”, where workers still see an initial wage offer but have to negotiate. Negotiations may last up to 3 minutes and are done via anonymous chat messages. The joint firm-worker surplus is reduced in the event of a bargaining impasse, as the worker and the firm then each secure a payment that is lower than had the negotiation not been initiated.

The ENV choice treatment shows that women opt out of some negotiations: 34% of the time they take the initial wage offer and do not enter the negotiation. This occurs although negotiations increase wages. In fact, the women who negotiate largely gain from doing so: 74% secure final wages above the initially offered wage, and only 13% get a lower final wage. Mirroring the standard finding in the field, ENV find that women often avoid negotiations, although initiated negotiations are beneficial.

To determine the counterfactual of increased negotiation, ENV compares the outcomes women achieve when they avoid some negotiations (choice treatment) to when they always negotiate (always treatment). The treatment where participants always negotiate backfires—there are no additional gains from negotiation and the share of negotiations that decrease earnings increases from 13% to 33%. Rather than improving women’s earnings, the additional negotiations decrease earnings and make women worse off. Results reveal that selection is key to increased negotiations being costly. Women know when it is beneficial to negotiate and use that knowledge to avoid costly negotiations in the choice treatment. Examination of the counterfactual makes clear that the finding that “women who enter negotiations gain from doing so” does not imply that women always should negotiate.

⁶ Negotiations may be costly immediately (costs of time, disutility from asking); in the future (backlash, reputation, future negotiation); or there may be costs from bargaining impasse (affecting future collaboration, legal costs, or retraction of earlier offers).

With the recommendation to lean in being directed at women, ENV also asks if men are better at deciding when to negotiate. Results confirm that men negotiate more often than women (74% vs 66% of the time) and that men also gain from negotiation. However, comparing the distributions of earnings between the ‘choice’ and ‘always’ treatments shows no evidence that their decisions are superior to women’s. Nonetheless, ENV document a greater push for women to negotiate. Respondents of an online survey were more likely to recommend more frequent salary negotiations for women than for men (75 vs 54%). In fact, participants presented with information about the initial ENV experiment were willing to pay to remove the worker’s choice to opt out of the negotiation. This willingness to restrict the choice arises despite an asymmetry in information where the ‘paternalistic’ participant only knows the distribution of initial offered wages, while the worker knows the initial offered wage and whether negotiation is likely to be beneficial. Importantly, this willingness to pay to remove the worker’s negotiation choice is more prevalent when faced with a female than a male worker. The study serves as a caution against the blanket recommendation that women should negotiate more.

While ENV point to women responding optimally to opportunities to engage in negotiation, it leaves open the question of why men and women negotiate at different rates. The work by Babcock, Recalde, Vesterlund, and Weingart (2017) presents an important clue as to why there might be gender differences in negotiation frequency. It uncovers stark gender differences in work assignments, which are likely to influence the opportunities men and women have for negotiating. Babcock et al. (2017) show that women more than men spend time on work that can be characterized as non-promotable. While these non-promotable tasks (NPTs) help the organization, they do not improve the individual’s performance evaluation, compensation, or advancement. Using a series of laboratory studies they find that women more than men are asked to take on NPTs and are more likely to agree to requests to take on NPTs. Importantly, these differences do not result from differences in performance or preferences, but rather from the shared expectation that women more often than men will take on these types of tasks.

A study by Gihleb, Landsman, and Vesterlund (2023) shows that task-assignment can affect both compensation and negotiation. They conduct a laboratory experiment where participants are assigned either the role of manager and employee, and form teams of three. Each manager has two employees, one assigned a less revenue-generating task (an NPT) and the other a more revenue-generating task (a promotable task, PT). The two tasks are randomly assigned, and thus not reflective of any inherent differences in performance. The manager is charged with distributing pay to the two employees. Although randomly assigned to the task, the employee assigned to the NPT is paid substantially less than the employee assigned to the more revenue-generating task, the PT. Further, introducing the option of employees negotiating pay increases the advantage given to the employee assigned the more revenue-generating task. Interestingly only employees assigned the PT are successful in increasing their pay through negotiation. Employees assigned the NPT see no improvement in pay when attempting to negotiate.

The Gihleb et al. (2023) findings suggest that men and women who are assigned different work will hold different bargaining positions and will have different returns from entering a negotiation even when they are otherwise similar. Further exacerbating differences is that men and women often are subjected to different societal norms for negotiating. Bowles and Gelfand (2010) show that while women are constrained by a ‘tight culture’ with strong norms for behavior, men instead operate within a ‘loose culture’ and have greater freedom to make decisions based on what they want rather than on what others expect them to do. While it may be acceptable for a man to ask and enter a negotiation, the same action by a woman may result in backlash, a topic we will discuss when exploring gender differences negotiated outcomes (Bowles et al., 2007; Tinsley et al., 2009).⁷

Gender differences in vantage points or norms can help explain why men negotiate more often than women, and these differences should temper blanket recommendations for women to negotiate more. Increasing the frequency by which women pursue negotiations could leave them worse off.

2.b. Improving Negotiation Skills

The evidence that men hold an advantage when negotiating depends on the setting in which the negotiation takes place (e.g., Barron, 2003; Dittrich et al., 2014; Pradel et al., 2005). For example, the gap is less pronounced when it is clear that something is negotiable and what the bargaining range is (Bowles et al., 2005; Rigdon, 2012; Kugler et al., 2018; Small et al., 2007; Leibbrandt and List, 2015). That is, *ambiguity* amplifies gender differences. The gap is also sensitive to whether the negotiation activates *stereotypes* (Kray et al., 2002), with differences increasing when female negotiation violates gender norms. The response to such stereotypes may result from stereotype threat, or from the correct expectation that backlash is greater toward women who violate gender norms (Bowles et al., 2007; Tinsley et al., 2009).⁸ The gender gap in negotiation is also found to be smaller when individuals negotiate on behalf of *someone else* rather than on behalf of themselves (Bowles et al., 2005; Amanatullah and Morris, 2010; Amanatullah and Tinsley, 2013)

⁷ For example, Bursztyn et al. (2017) find that single women opt out of negotiations because pursuing career enhancing actions may decrease their success in the marriage market. Related is also the larger literature on discrimination and differential treatment when bargaining. Ayres (1991, 1995) and Ayres and Siegelman (1995) report on an audit study for car sales, finding that single women are quoted higher prices than single men. Castillo et al. (2013) examine negotiations for taxi rides, finding that statistical discrimination drives gender differences in outcomes. Consistent with statistical discrimination, Busse et al. (2017) find, for buyers who appear uninformed, higher prices for women than men. However, audit studies instruct buyers on how to negotiate and do not capture differences in negotiation. List (2004) examines free-form negotiations over sports cards and finds that statistical discrimination gives rise to a male advantage. With transactions only occurring 3% of the time, it is however difficult to capture differences in negotiation.

⁸ For gender differences in negotiation expectation see also Eckel et al. (2008) and Andersen et al. (2018).

and when negotiation occurs in less competitive environments (Bowles et al., 2005).⁹ Finally, the *positional role* matters with the gender gap arising for the party with less power (Dittrich et al., 2014; Exley et al., 2020).¹⁰

Although the gender gap in negotiation frequency and outcomes varies with the negotiation setting, there is consensus that negotiations in the labor market carry characteristics that are likely to give men an advantage. For example, labor negotiations are on behalf of oneself; tend to be competitive; and are ambiguous on what may be negotiated.

Interventions aimed at addressing gender differences in negotiation ability have centered on improving women's negotiation skills. Evidence that experience improves negotiated outcomes (e.g., Mazei et al., 2015) has fueled the expectation that negotiation training can reduce the gender gap in compensation. For example, the American Association of University Women has initiated free nationwide negotiation workshops for 10 million women to 'close the pay gap, one workshop at a time.' Although substantial resources are used to improve women's negotiation skills, there is sparse evidence that it reduces gender differences in outcomes.

Stevens et al. (1993) is the classic reference when pointing to the success of negotiation training. The study has 60 MBA students participate in two different negotiation programs. Participants first receive basic negotiation training for four hours and are then assessed through knowledge tests and salary-negotiation simulations with confederates who provide raises based on the successful use of the instructed negotiation tactics. This first-stage assessment reveals a gender gap in negotiated salaries which is found to result from men and women setting different negotiation goals. Depending on the treatment, participants are then subjected to one of two negotiation training programs: one emphasizing goal setting, and the other augmenting the goal setting training with general self-management training.¹¹ While goal setting training on its own is shown to improve the skills of both men and women, it has no differential gender effect and does not eliminate gender differences in negotiation outcomes. The augmented training does, however, improve skills more for women than men, closing the gender gap. The authors find that augmented training works by increasing the perceived control women have over negotiation outcomes.

⁹ As for negotiation, the literature on competition reveals robust differences on the extensive margin (Niederle and Vesterlund 2007) and more context-dependent differences on the intensive margin (Gneezy et al. 2003). See Niederle and Vesterlund (2011) for a review, and Niederle and Vesterlund (2008) for the connection between negotiation and competition.

¹⁰ Other factors may affect gender differences in negotiation including the sex of negotiating partners (Eckel and Grossman, 2001; Solnick, 2001; Bowles et al., 2007; Sutter et al., 2009; Hernandez-Arenaz and Iriberry, 2018), the framing as a negotiation or an ask (Small et al., 2007), communication mode (Bowles and Babcock 2013; Bowles 2013), sharing norms (Hernandez-Arenaz and Iriberry 2023), and the attractiveness of the outside option (Dannals et al. 2021). Arnold and McAuliffe (2021) study gender differences in negotiation among children and document gender differences in negotiation at a surprisingly early age; while girls in grade 8 and 9 ask for less from male evaluators than female evaluators, the requests from boys do not respond to evaluator gender.

¹¹ The augmented self-management training adds identifying performance obstacles, planning to overcome obstacles, self-monitoring progress, and self-administering rewards. There is no control group receiving no training in the study.

While Stevens et al. (1993) demonstrates that training can affect men and women differently, training effectiveness is assessed in an environment where the response to negotiation is gender neutral. As noted earlier there is ample evidence that the response to negotiation differs by gender, and that women more than men experience backlash. For example, Bowles et al. (2007) reports on experiments where participants evaluate hypothetical job candidates after seeing interview transcripts and videos. Treatments vary candidate gender and whether the candidate asks for higher compensation. Men and women receive similar evaluations absent a salary request, but are perceived differently when asking for higher compensation, with women being assessed less favorably than men. Further, requesting higher compensation does not affect the willingness to work with a male candidate, but reduces it for a female candidate.

Amanatullah and Morris (2010) shows that backlash is anticipated by women. In an experiment that varies whether participants negotiate on behalf of themselves or on behalf of others, the authors ask participants to report the salary threshold above which they think they would be perceived as “pushy” and would cause the hiring manager to “punish them for being too demanding.” Results show that women anticipate backlash when negotiating for themselves, but not for others. Further, the impact of the anticipated backlash is large when women negotiate on behalf of themselves, causing them to ask for approximately 15% lower wages and to make larger salary concessions than men.

The research on backlash suggests that negotiation training will backfire if it fails to account for variation in the norms individuals face. Bowles and Babcock (2013) and Bear and Babcock (2017) explore negotiation tactics that account for gender norms and find that these can be effective in reducing the gender gap in negotiation outcomes. For example, Bowles and Babcock (2013) use pre-recorded negotiation scripts to assess whether different negotiation tactics can improve the negotiated outcome and the social assessment of the individual negotiating. They show that softened scripts that emphasize both relational accounts (a concern for the organizational relationship) and include a ‘supervisor-excuse’ for negotiating helps validate the request (improving both the likelihood the request is granted and the willingness to work with the employee).¹² While relational accounts are effective, it is unclear whether the tactic will be adopted in practice. Mazei et al. (2020) shows that women underestimate the effectiveness of relational account scripts and more often select scripts that are either assertive or neutral over those that include relational accounts.

¹² Bear and Babcock (2017) instead study priming techniques that reduce the gender incongruity women experience when negotiating for themselves. They show that primes that bring participants to (1) think of situations where the use of assertive and forceful tactics helped them succeed in a negotiation, and (2) imagine that they are negotiating on behalf of a close friend, are both effective in reducing the male negotiation advantage. They also show that these types of priming increase women’s negotiation-performance aspirations.

Two recent studies go beyond the use of hypothetical choice experiments and simulated negotiation environments and evaluate the effectiveness of negotiation training on real labor market and education outcomes using field experiments. Chotiputsilp and Kim (2022) study the effect of an intervention that provided negotiation training and salary information to male and female job seekers in Thailand. Ashraf et al. (2020) evaluate the effect of a program that provided girls in Zambia with negotiation skills training.

Chotiputsilp and Kim (2022) recruit 1,335 participants from three popular online job board sites in Thailand, where job seekers provide information about their work experience, past salary, desired salary, as well as education and demographic information. Participants are randomized into one of three treatments: control, salary information, and negotiation training. Participants in the control treatment receive no intervention. The salary information treatment provides participants with salary information by displaying the median, 25th, and 75th percentile of the salary distribution for employees in their selected occupation and area of residence. The negotiation training treatment adds to the salary information treatment a module “designed to last 30 minutes, lower psychological barriers that participants have in negotiating their salaries and instill negotiation skills.” Materials are adapted to the local context but based on “course materials employed by non-profit organization that partners with various state and city governments, including New York City.” It was administered via videos and interactive quizzes. To evaluate outcomes the study compares self-reported salary information from online job board sites before and 1-year after the intervention.

Results reveal that, compared to the control, negotiation training led to a marginally significant 2.2% increase in job seekers’ reported salaries. Simply providing information (information treatment) increased reported salaries by 1.8% relative to the control, a response that is not significantly different from zero nor different from the effect seen when training is added to the information treatment. Importantly, results mask heterogeneity by gender. Negotiation training increased the salaries reported by men by 3.3% relative to the control group, while training did not affect the salaries reported by women. For neither men nor women does negotiation training improve outcomes relative to only providing salary information.¹³ Thus, the negotiation intervention was ineffective in helping women achieve higher pay and failed to close the gender gap in reported salaries.¹⁴

¹³ A significant difference between the training and information treatment is only seen for a subsample of high earning men (those earning more than the 75th percentile), where training led to a 5% increase in reported salaries (significantly different than the information treatment). High earning women are unaffected by either treatment.

¹⁴ Results from a subsample of 208 participants who answered a survey 3 months post-intervention suggests that women’s limited response to treatment resulted from negotiation training increasing women’s belief that employers would perceive salary negotiations negatively. Note that in using self-reported salary data, it is impossible to determine whether men in the negotiation training treatment earned more because of the intervention, or simply reporting higher salaries due to treatment.

Ashraf et al. (2020) explores the effect of negotiation training on education rather than labor-market outcomes. A field experiment with 2,366 8th-grade girls in Lusaka, Zambia randomizes girls into three treatments (within schools): negotiation training, safe space, and control. The negotiation treatment has participants attend six 2-hour training sessions with material similar to that of a modified MBA negotiation class. The safe space treatment consists of the same number of 2-hour sessions but instead has girls play games, work on homework, and spend time with each other.

The study finds that negotiation training increases average school enrollment in grades 10 and 11 by 10% relative to the control treatment. The effect of the safe space treatment is smaller but not significantly different from the negotiation or control treatment when looking at overall school enrollment. However, analysis of enrollment in high quality schools, which prepare girls for college entry exams, reveal no impact of the safe space treatment and a positive impact of the negotiation treatment. The impact on school enrollment grows over time, indicating that benefits accumulate and may spill over to the labor and marriage markets.

Together these studies suggest that negotiation training programs that are comprehensive enough to increase women's confidence and sense of control over the negotiation may reduce the gender gap in negotiation outcomes.¹⁵ However, the evidence is sparse when examining the extent to which pure negotiation training reduces the gender pay gap. It is evident that successful implementation requires training that is tailored to the norms faced by the individual. Training women to negotiate like men is likely to backfire.

3. Institutional-level Interventions

Gendered norms and differential treatment of men and women limits the success of individual-level attempts to address gender differences in negotiation. Next, we consider whether institutional-level interventions have shown more promise. Several such interventions have been proposed and increasingly adopted in the past decade. We focus on the three most popular ones: directly banning negotiations, banning salary history requests, and increasing wage transparency. While the first two initiatives take as given gender differences in negotiation and attempt to remove the effects of such differences, the latter instead relies on evidence that the gender gap in negotiation is more prevalent when the negotiation is ambiguous. These institutional changes aim to directly change the negotiation environment, and to indirectly limit the role of gendered norms and expectations.

3.a. Banning Salary Negotiations

¹⁵ A recent study by McKelway (2021) examines self-efficacy/confidence training (rather than negotiation skills training) and finds it increased women's self-efficacy, employment, and income.

Evidence that differences in negotiation skill contribute to the gender wage gap, along with concerns that negotiation skills rather than productivity differences lead to variation in compensation, has led some corporations to simply ban negotiations. For example, Reddit banned negotiations in 2015 with the aim of eliminating the disadvantage women have at the bargaining table. Other companies have followed, and the policy has been noted as an effective way of eliminating wage disparities (Kray, 2015). Negotiation bans, however, have their own challenges, as there is a risk associated with leaving it up to management to secure equal pay for men and women.

In studying how task assignment impacts negotiation opportunities and outcomes, the study by Gihleb, Landsman, and Vesterlund (2023, henceforth GLV) also sheds light on the effects of a negotiation ban. The extent to which a negotiation ban is effective in reducing the gender wage gap depends on the potential bias of the manager, and on why negotiation is effective in raising compensation. For example, if the decision to negotiate serves as a credible signal on productivity, then employees with high productivity will be those who negotiate. If the productivity distribution of men dominates that of women, then men will negotiate more than women and will secure higher earnings. A negotiation ban in this setting could backfire because men will be seen as more productive and generally receive greater compensation than women. Of course, the ban can also backfire if management is biased against women and the negotiation serves to temper such biases.

GLV's lab experiment explores the effect of a negotiation ban by comparing two treatments. Workers in one treatment may negotiate with management and in another there is no negotiation option. As noted previously, participants are matched in triads, with each triad consisting of one manager and two workers. The triad interacts for five rounds. Personal characteristics like age, gender, and area of study are revealed to the manager. The two workers must in each round perform a task that generates a profit for the manager and a surplus that the manager must distribute between the two workers. One worker is given a high productivity task and the other a low productivity task. Uncertainty over the relative productivity ensures variation in subjective assessment of worker effort and allows for negotiations to signal productivity.

GLV finds that negotiating only improves compensation for workers who are assigned the more productive task. Hence, negotiations increase inequality between workers who are assigned different tasks. The negotiation ban, however, reduces the relative pay advantage on the high-productivity task. In contrast to the example provided above and to potentially biased management, results show decreased inequality when negotiation is banned.

Outside of the laboratory, Biasi and Sarsons (2022) find similar results when exploring a legal reform implemented in Wisconsin in 2011. Prior to the reform, public school teacher salaries were determined by collective bargaining agreements (CBAs) between school districts and teacher

unions. After the reform, they could be adjusted in response to individual negotiations. While the transition from collective to individual bargaining is unlikely to fully capture that of a private sector administered negotiation ban, it nonetheless illustrates how wages change with individual bargaining.

Biasi and Sarsons (2022) find no gender gap in compensation pre-reform and, exploiting quasi-random variation across school districts on when CBAs expired, they find that flexible pay caused gender differences in compensation to emerge after the reform. Women's wages dropped by 0.8% relative to men (corresponding to 1.2 years of seniority or 8% of the return to getting a master's degree). The impact is larger for younger and less experienced teachers. Interestingly, the gender gap varies with the gender of the school district superintendent. Flexible pay leads to a gender gap in districts with male superintendents and no differences in pay in school districts with female superintendents.

Since the data used in the study does not contain information about negotiations, the authors conduct a survey of public-school teachers in Wisconsin to examine whether gender differences in salary negotiation help explain their findings. Mirroring prior work by Babcock, Gelfand, Small and Stayn (2006), results reveal that female teachers are 12-23% less likely than their male colleagues to report having negotiated their pay at various points in their careers; they are also 13% less likely to anticipate negotiating in the future.¹⁶ These differences interact with the gender of the superintendent. Women working under male school district superintendents are less likely to have negotiated pay with their current employer and less likely to plan to negotiate in the future. No gender differences in negotiation propensity are documented under female school district superintendents.

Biasi and Sarsons (2022) cannot directly assess how differences in negotiation impact the gender pay gap after the reform. However, they can rule out gender differences in ability or mobility from playing a role. Consistent with men more than women using outside offers to negotiate higher pay, they also find that the post-reform gender pay gap is larger in commuting zones with many high-quality schools.

In summary, Biasi and Sarsons (2022) show that movement from CBAs to individual negotiations gave rise to a gender pay gap and that this gap likely is linked to men (with male leaders) initiating negotiations more often than women.

It may be questioned whether a negotiation ban is sustainable absent CBAs, and whether individual organizations can commit to the ban when other firms engage in negotiation. A ban may not be

¹⁶ The survey shows that among those who did not negotiate, women are 31% more likely than men to report that they do not feel comfortable negotiating. Women are also 29% less likely to know their colleagues' salaries and 14% less likely to know someone who negotiated their pay. Biasi and Sarsons (2021) show that both differences in information and confidence help explain the gender gap in negotiation.

sustainable when high quality employees secure attractive outside offers and require retention packages. Moreover, if a ban is not fully upheld it may result in mostly women believing that negotiation is not an option. With these caveats in mind, the limited evidence to date suggests that corporations wishing to compensate for ability, rather than negotiation skill, may benefit from eliminating negotiation, particularly for initial recruits where individual skills have yet to be identified.

3.b. Salary History Ban

An institutional-level intervention that has gained substantial popularity is to ban salary history requests. The motivation behind this ban is to break the path dependency of wages.¹⁷ The thought is that the ban will result in compensation that better reflects the employee's skill and experience, rather than locking them into the cumulative effects of prior discriminatory practices.

Salary history bans (or SHBs) have been put in place by numerous US states and local governments and are part of a recently passed EU directive to reduce gender differences in pay. A concern in introducing SHB policies has, however, been that the policy could fail or even backfire if employers statistically discriminate against women. Absent information on current salary, women's wages would be assumed to be low and in turn result in wage offers that were systematically dominated by those of men.¹⁸

Initial assessments of SHB policies implemented in the US, however, show that these concerns have not materialized. Estimates of SHB impacts suggest that they have decreased or had no effect on the overall gender gap in pay, sometimes with positive results only seen for subgroups with large initial differences in pay. For example, Hansen and McNichols (2020) examine the response to California's SHB, and find no significant change in the aggregate gender pay gap, but estimate a 2.3 percentage point increase in the female-to-male earnings ratio among those older than 35, and a 4.7 percentage point increase among those with children older than five. While these responses are somewhat smaller when including all states with SHBs (1.09 and 2 percentage points, respectively), the intervention is nonetheless shown to be effective in reducing gender differences in pay. Davis et al. (2022) examines the changes in wages for new hires in the public sector in response to SHBs introduced in 14 US states and finds no aggregate effect on the gender pay gap but documents improved female-to-male earnings in occupations with higher historical gender differences in pay and in occupations where women have been underrepresented. By contrast, Sinha (2022) finds that SHBs implemented across various states in the US led to a 2-

¹⁷ Estimates from the US show that 25 to 50% of potential employees are asked to disclose past salary (e.g., Hall and Krueger 2012, Barach and Horton 2021, Agan et al. 2020, Sinha 2022).

¹⁸ The response would be similar to that seen for attempts to reduce discriminatory practices by banning questions on criminal background, where ban-the-box initiatives had the unintended consequence of increasing discrimination against Black men who were, after the reform, assumed to be more likely to have such a history (see e.g., Agan and Starr 2018; Doleac and Hansen, 2018).

percentage point reduction in the overall gender gap in earnings. While female wages increased, those of men remained unchanged; note, however, that the reduction in the gender pay gap is driven by the private sector response.¹⁹

Other studies use online job advertisement data to investigate the impact of SHBs implemented in the US. Bessen et al. (2021) compare data on wage postings by private sector firms in counties in the same commuting zone that are treated and untreated by SHBs. They find that SHBs led to a 3-percentage point increase in the probability that a job ad lists salary information, and to a 4% increase in realized pay among job changers, with larger increases among job-changing women. Before the SHB, job-changing women earned 14.3% less than comparable job-changing men. After the ban, women's average pay increased by 6.4%, causing 45% reduction in the gender pay gap.²⁰

A recent study by Sockin and Sockin (2023) explores the impact of SHBs on both base and variable pay. Using data from an online labor platform, Glassdoor.com, they restrict attention to full-time salaried private sector workers who are not self-employed. The authors show that compared to men, women are less likely to receive variable pay, and that they receive lower base pay, lower variable pay, and lower total compensation even after controlling for observable characteristics of workers, industry, occupation, firm, and job title.²¹ The study replicates previous findings when looking at the impact of SHBs on base pay; three to four years after SHB legislation came into effect the gender gap in base pay was reduced by 1.5 percentage-points. However, these improvements are not seen in the gender gap in variable pay. If anything, there is a worsening of the gender gap in variable pay with no impact on the gender gap in the likelihood of receiving variable pay.

Collectively the studies show that initial fears that SHB policies may backfire and increase discrimination were unwarranted SHBs have instead reduced the gender pay gap, although in some cases it is only for a subgroup of individuals.²² In evaluating what may seem like a small response to the policy it is important to keep in mind that we only expect the response among newly hired employees, thus reducing the short run aggregate effect and potentially having a larger long-term response (see e.g. Mask 2021, Bessen et al 2021, Sockin and Sockin, 2023). On the other hand, it is important to keep in mind that SHB's rarely are introduced in isolation. As noted by Sherman et al. (2023), SHBs implemented by US states and localities may have helped close the gender gap in pay because they were accompanied by campaigns advocating for reductions in the gender pay

¹⁹ Sinha (2022) estimates an increase in the overall gender pay gap in the public sector of 2-3 percentage-points. It is challenging to reconcile this with the Davis et al. (2022) null effect of SHBs on the gender pay gap for new hires in the public sector. Sinha (2022) also looks at heterogeneity by race and education and shows that improvements in pay are seen for white women only and for young workers, particularly those with low education levels.

²⁰ See also Sran et al. (2020).

²¹ Sockin and Sockin (2023) also examine the effect of pay transparency policies.

²² SHBs have also helped scarred workers (who enter the labor market during a recession, more so women than men; see Mask 2021).

gap. As a potentially attenuating factor they note that a large fraction of recruitment for new roles occurs within the firm, where the employer already has salary history information. Another contributor to a muted policy response is that potential employees voluntarily may disclose their salary histories, not only undermining the desired impact of the policy, but also risking that the ban is adhered to more by some employees than others.

Agan et al. (2020) provides a theoretical examination of SHB policies that incorporates workers' decision to voluntarily disclose salary information and examines the implications this has for the gender pay gap. Using a survey of 504 US adults in the labor force they classify workers into three types: always disclosers (25%), never disclosers (17%), and policy compliers (58%). They find that men are more likely to always disclose and less likely to comply than women; and that willingness to disclose increases with the proportion of others who do. Cowgill et al. (2022) extend the survey to a larger sample of respondents who answer the survey twice, 1.5 years apart. Results reveal a 6-8 percentage point increase (25-30%) in the share of individuals who voluntarily disclose their salary history without being prompted between the two survey waves.²³ They also find that women more than men feel uncomfortable disclosing their salary, bringing the authors to argue that women experience higher psychological costs of disclosure.²⁴ This suggests gender differences in voluntary disclosure of past pay under SHBs, a difference that is likely to impact the policy's effectiveness.

Agan et al. (2022) conducts a two-sided audit study to investigate the inferences employers make from a candidate's salary history and decision to disclose past pay and explores how this affects hiring and compensation decisions. The researchers pose as firms and hire 256 real recruiters via UpWork to screen fictitious job candidates applying for a software engineering position. Recruiters are not aware that candidates and firms are fictitious. Each recruiter was hired by one firm and evaluated eight job candidates. Across firms, the study randomly varied whether the firm asked candidates about their current or most recent salary. Across candidates, the study randomly varied candidate gender, whether they worked for a high wage paying firm in the past, and the candidate's disclosure decision (salary could be provided independently of whether the firm asked for current or past pay information).²⁵

²³ See also Sinha (2022) who, using data from PayScale, finds that SHBs reduced disclosure rates more for women than men. Before the ban, women more than men were disclosing salary information (women were more often asked about their past pay and were more likely to disclose when asked).

²⁴ 48% of men and 54% of women agree with the statement that they feel "fundamentally uncomfortable answering the salary history question when asked by a potential employer". See also Sinha (2022) who in a nationally representative survey of US workers finds that over 70% of respondents would disclose past pay information only when asked, and among those unwilling to disclose, 30% agree with the statement that they feel uncomfortable talking about salary (women are 10% more likely than men to agree with the statement).

²⁵ For other experiments studying the impact of salary history bans on bargaining and wages see Khanna (2020) and Barach and Horton (2021). Neither sheds light on how the response varies by gender.

The Agan et al. (2022) results are as follows. First, candidates who choose not to disclose their current or past pay are assumed to have lower-than-average quality and lower outside options and are therefore given lower salary offers. Second, higher disclosed salaries increase recruiters' beliefs about worker quality and competing offers, but more so about outside options than worker quality. Third, disclosure by candidates, particularly of high salaries, generates high salary offers, but is also associated with lower call back rates. Examining differential responses by gender the authors find that choosing not to disclose salary information is penalized less for women than men. This is consistent with women being perceived to have higher disclosure costs than men (Cowgill et al., 2022; Sinha, 2022). The study also finds that dollars disclosed by men are discounted relative to other sources of variation in wages such as variation in pay between and within firms, potentially indicating that men's disclosures are seen as less indicative of actual productivity. Accounting for voluntary salary disclosure they nonetheless point to SHBs decreasing the gender pay gap.²⁶

The papers discussed so far have primarily focused on studying the impact of policies that simultaneously affect all employers in a given locality. There is a second type of SHB that has also been studied and implemented, bans voluntarily imposed by employers.²⁷ Sherman et al. (2023), study an SHB voluntarily adopted by a recruiting company in the UK to "address disparities in compensation among the women and men." Using placement data from the firm, which specializes in media, technology, and design roles, the authors find that the salary history ban did not have the intended effect. The wages of men and women decreased after the ban and there was no change in the gender pay gap. This result is similar to that found in a field experiment conducted by the authors where they varied, in a private mid-sized education institution in the UK, whether candidates for new staff (non-academic) roles were asked about their past salary history during the job interview.²⁸ Interestingly, in this second study the authors find that only 14% of new hires negotiated their pay, thus the impact of SHBs was limited.

The decrease in compensation documented by Sherman et al (2023) raises concerns that SHBs may not only impact the gender gap in pay. Davis et al. (2022) argues that SHBs cause employers to lose an informative productivity signal, and that this in turn can decrease wages. They find that SHBs decreased wages of new hires, but increased wages for continuing workers. By contrast, Sran et al. (2020) finds that SHBs resulted in a modest increase in worker earnings and Bessen et al. (2021) finds an increase in pay among job changers. Mask (2021) finds that SHBs increased real wages for scarred workers (those who entered the labor market during a recession) and had no impact on non-scarred workers.

²⁶ Agan et al. (2022) conduct simulation to examine the effect of SHBs on the gender pay gap when accounting for voluntary salary disclosure. Combining data from their two-sided audit study with survey results from Cowgill et al. (2022) they find that SHBs can reduce gender inequality in offered wages conditional on callback.

²⁷ Examples of firms removing salary questions from their hiring process include Amazon, American Express, Bank of America, Cisco, Google, Starbucks, and Wells Fargo. See Noguchi (2018) and Miller (2018)

²⁸ Unfortunately, candidates asked and not asked about their salary history during interviews had a meeting with an HR representative prior to the interview where they discussed their past salary history, making it difficult to interpret these findings.

Research to date does not confirm initial concerns that SHBs could backfire and increase the gender pay gap. However, evidence of SHBs instead reducing the gender pay gap is typically only seen for certain subgroups, while the aggregate effect is more limited. The small aggregate effects may in part result from the policy only impacting new hires, and from the policy's effectiveness being limited both by voluntary disclosure and from hiring within firm. While initial results are promising in terms of reducing the gender pay gap, it is important to better understand when the policy may negatively impact overall compensation.

3.c. Transparency

Pay transparency is another intervention used to reduce gender differences in negotiation. The degree of pay transparency ranges from no information to complete information, from adoption being voluntary to being implemented by law, and from information being revealed only internally to publicly. Policies include the right to discuss salary, requirements to report gender pay gaps or pay statistics by occupation and gender, disclosing pay ranges in job postings, and salary information on peers or on the entire wage distribution. While minimal reports on the mean or median gender pay gap can help reveal discriminatory practices, more detailed reporting can help similarly qualified individuals set aligned negotiation expectations and aspirations, and thus affect the gender gap in negotiation.²⁹

Rules and regulation on pay transparency vary widely by country and region. US private sector reporting has historically been limited to requiring gender pay gap reports to maintain government contracts. However, individual firms are increasingly choosing to reveal part of or the entire wage distribution to their employees, and a number of individual jurisdictions have passed pay transparency legislation.³⁰ For example, pay ranges are now required for job postings in California, Colorado, Connecticut, Maryland, Nevada, Rhode Island, Washington state, and New York City. Transparency legislation has been more widely adopted in the EU. With reporting requirements already in place in many member countries, the EU recently passed a directive to secure reports on gender differences in compensation by larger employers in all member countries. The directive

²⁹ Evidence from the UK (Blundell 2021, Duchini et al 2022) suggests that employees value limited gender pay gaps like they value corporate social responsibility (women more than men), and that public reports help put pressure on firms to reduce the gap.

³⁰ While individual companies may adopt pay transparency it is unclear that broad adoption will follow absent legislation. Cullen and Perez-Truglia (2023b) show that 69% of employees find it unacceptable to ask coworkers about their salaries, and 89% would feel uncomfortable if they had to ask for this information. Moreover, when asked about their willingness to share their personal salary information, 80% preferred to conceal it, with 39% being willing to pay the maximum possible price in the study to conceal their salary. Cullen and Perez-Truglia (2022), on the other hand, find that employees both want information and are willing to pay for it, but that they would prefer the less informative option when given the choice between (1) a website providing mean salary by position and unit, or (2) a website showing salary information at the individual level, where any employee can be looked up. As evidence that individuals value information, but value their privacy more, the study shows that the fraction of employees who support the first policy is 65.3% while those supporting the second policy is a mere 13.3%.

also calls for companies, independent of size, to inform new employees of the pay range for their position, and upon request from existing employees provide information on pay in their category of work.³¹

The movement toward greater wage transparency begs the question of whether it works. Does greater transparency affect negotiation and the gender pay gap? And, are there unintended consequences that need to be taken into account? We will address these questions first by reporting on a series of experimental studies, and then by exploring the response to pay-transparency legislation.

As noted earlier, research shows that ambiguity increases the gender gap in negotiated pay. For example, Bowles et al. (2005) find, in a survey of MBAs, that the gender gap in starting salaries is larger in industries with higher ambiguity in compensation. To directly assess the effect of ambiguity in negotiation, they conduct a controlled experiment where participants negotiate the price of a good in a buyer-seller environment. Buyers are given the bargaining range in both a high- and a low-ambiguity treatment, with the difference being that a negotiation target is added for the latter. Results show gender differences in negotiation in the high- but not in the low-ambiguity environment. That is, information on the negotiation target eliminates gender differences in negotiated outcomes.

Similarly, Leibbrandt and List (2015) shows that gender differences are smaller when the negotiation opportunity is less ambiguous. They conduct a field experiment with 2,422 job seekers where a low-ambiguity treatment states that wages are negotiable, and a high-ambiguity treatment has no such statement. Results show that both the negotiation and the applicant pool are affected by the negotiation ambiguity. While application rates are high in both treatments, the representation of women is higher when informed that wages are negotiable (applications decrease for men and increase for women). Examining the effect on negotiation Leibbrandt and List (2015) classify job applicants into those that initiate negotiations for higher pay, those who signal willingness to work for lower pay, and those who do not initiate negotiations. When negotiation is ambiguous, men, compared to women, are more likely to initiate negotiations for higher pay and less likely to signal willingness to accept lower wages. However, these gender differences disappear in the low ambiguity treatment when it is clear that wages are negotiable.

Relatedly, a series of studies examine the effect of providing information on the compensation of others. Major et al. (1984) conducts an experiment where participants choose their compensation after completing survey work for 20 minutes. Participants are given \$4 and decide how much to keep as pay, recording their pay and gender on a form which may or may not contain information about others' compensation. A baseline treatment keeps the form blank, while three social information treatments pre-fill the form making it seem as though the information reflects the

³¹ The directive also includes a ban on pay secrecy and on salary history requests.

compensation chosen by 8 previous participants. One treatment shows that 4 men and 4 women paid themselves \$2 on average, while the two others show the average pay as \$2.50 for one gender and \$1.50 for the other. Results reveal that men pay themselves nearly twice as much as women when no information is provided; however, the social-information treatments cause men to decrease their pay, eliminating the gender gap.³² That is, Major et al. (1984) finds that ‘transparency’ affects the individual’s sense of entitlement and their requests.

Rigdon (2012) expands the analysis to examine both the effect of information on requests and on negotiation outcomes. A modified ultimatum game experiment is conducted, where participants are randomly assigned to the roles of proposer and responder. The game is as follows: responders first make a cheap-talk pay request, proposers then make a responder offer, and responders accept or reject the offer. Acceptance implements the agreed upon offer, while rejection provides zero payoff to both parties.³³ Treatments vary whether participants receive information about the request and offers of previous participants. A baseline treatment provides no information, another treatment shows participants the distribution of pay requests made by male responders in the baseline treatment, a third treatment additionally shows the average offer received per pay request. Participants do not know that they only see male-responder requests. The baseline treatment shows that women demand less, are given lower offers, and earn less than men. These differences disappear when compensation information is provided, women ask for more and receive higher offers. Providing compensation information increases both the requests by and offers for women, causing the gender differences to disappear.

Rousille (2022) further explores the impact on gender differences in requests, or what she refers to as the gender ask gap, i.e., gender differences in requested salaries. Of interest is how the ask gap impacts differences in compensation, and whether wage transparency impacts these differences. The data used is from Hired.com, an online recruitment platform that matches job applicants with full-time high-paying engineering jobs in the US. Job applicants on the platform create a profile that lists qualifications and experience, along with information on the pay they would like to receive. Employers who match with a job candidate must submit a salary bid at the time they contact candidates for an interview. Interviews occur outside of the platform, but salary information is collected on those who are hired.

First, examining differences in salary requests and how these impact the gender pay gap, Rousille (2022) finds that relative to comparable men, women request lower salaries (2.6%), receive lower bids (2.2%), and earn less (1.4%). Importantly the gender pay gap is fully explained

³² A second experiment pays participants \$4 and asks them to decide how much time they want to work. Consistent with women asking for lower pay than men, women work longer and complete more and higher quality work.

³³ The standard ultimatum game limits the interaction to a take-it-or-leave-it offer. Nevertheless, the setting provides insights on why women fare worse in negotiations (Eckel and Grossman 2001; Solnick 2001). Reviewing the literature, Eckel et al. (2008) conclude that women are more egalitarian, expect and ask for less, and are less likely to reach an impasse.

by the gap in salary requests. Second, exploring the impact of transparency, Rousille (2022) exploits a temporary platform change that made employees more aware of the compensation of others. In 2018 salary requests made for San Francisco jobs were pre-filled with the median bid salary offered by firms over the past 12 months to similar candidates. Candidates were informed that the pre-entered request was the median and could edit the number as they wished. Candidates, prior and during the platform change, were also presented a histogram of salaries offered to similar candidates; however, the platform change added information on the median and pre-entered the information on the salary-ask box, a box that was otherwise left blank. Using an event study design that compares candidates who created profiles before and after the platform change, reveals that prefilling the box increased the requests made by women and closed the gender gap in ask salaries, bids, and in final pay. Importantly, Hired.com did not announce the platform change even to employers, so the pool of candidates did not change nor did the perceptions of employers, thus capturing a non-experimental response to higher salary requests by women.³⁴

A series of recent studies directly investigate the response to salary transparency legislation.³⁵ While many studies emphasize the impact on the gender wage gap, other studies explore the broader (often unintended) consequences of the policies.

Considering the variation in legislation and in the initial conditions of the market in which these are adopted, it is perhaps not surprising that the impact on the gender wage gap is mixed. Baker et al (2023) and Obloj and Zenger (2022) study the response to legislation that makes individual-level-salary information public. Both studies investigate the impact of public sector salary disclosure laws on university faculty salaries in North America. Baker et al (2023) find that the disclosure laws decreased the gender pay gap by 1.2-2 percentage points (20-30% of the pre-reform gap) in Canada, finding larger effects in workplaces that are unionized. Similar results are seen in US data, where Obloj and Zenger (2022) find that transparency legislation reduced the gender pay gap by 2-5.9 percentage points. Additionally, the study shows reduced returns to performance and promotions, and documents wage increases for those who were underpaid before the reform (and no change in the wage growth of those who were overpaid based on productivity).

The response to transparency is more mixed when more limited pay information is revealed (salary statistics by gender or by gender and occupation). Some studies document reductions in gender wage inequality, while others find no impact. Studies in both Denmark and the UK point to reductions in the gender pay gap. Bennedsen et al. (2022) studies the impact of a Danish law passed in 2006 requiring firms with 35 or more employees to report average salaries by occupation code

³⁴ Shedding light on the role of information, the study also explores whether gender differences in salary requests are higher in subsamples where women would have lower access to salary information. Using female representation as an information access proxy (see for gendered networks Zeltzer 2020, Cullen and Perez-Truglia 2023a), the study shows larger gender differences in salary requests in labor markets where the share of women is smaller, and among more experienced candidates, where there are also fewer women.

³⁵ See Cullen (2023) for a review of pay-transparency policies and the wide variation in legislation.

and gender. The law mandated reports to be made available internally to employees, but not for employers to make their reports public. Comparing firms with 20 to 34 employees unaffected by the policy to those with 35 to 50 employees, reveals that transparency legislation reduced the average gender pay gap by 1.9 percentage points.

Duchini et al (2022) and Blundell (2021) study a similar law introduced in the UK in 2017. The policy mandates firms with at least 250 employees to publicly report on gender differences (gaps in average hourly wages, bonus pay, the proportion of male and female employees who receive bonus pay, and the gender ratio for each quartile of a company's wage distribution). Reports do not distinguish statistics by occupation or rank and use a broad definition of employee (including part-time and agency workers). Nonetheless, both studies find a reduction in the gender pay gap of around 2 percentage points (14-19%).

Studies of transparency laws in Germany, Austria and Slovakia, however, do not find improvements in the gender pay gap. In Germany the pay transparency law implemented in 2018 allows workers employed in firms with more than 200 employees to ask their employers for information about the median full-time equivalent monthly earnings of opposite-gender coworkers who do comparable work. Employers must provide this information to those who ask within 3 months, so long as there are 6 co-workers who perform comparable work (with leeway on what is considered comparable work). Employees cannot reveal the acquired pay information to others, including those working within the same firm. Seitz and Sinha (2022) and Brutt and Yuan (2022) find that the law does not impact the gender pay gap nor wages (with a precisely estimated null effect).

Exploring the limited effect of the German transparency policy Seitz and Sinha (2022) conduct a survey in the German Socio-Economic Panel in 2019 and find that nearly 50% of respondents were aware of the policy (men and women were equally aware). However, the incidence of requests is very low; only 1% of men and 2.7% of women asked for pay information from their employers.³⁶ Thus it may be that the legal right to request information isn't sufficient for providing workers with the information needed for change.³⁷

³⁶ Seitz and Sinha (2022) find that over 80% of respondents said they were unlikely to request pay information in the future (no gender difference). While finding that women are slightly more inclined to request information, they report being less comfortable doing so. Employees also reported reasons for not asking for salary information. Men were more likely to say they would not ask for pay information because they considered their salary to be fair, and women were more likely to report not doing so because it would hurt their image and career opportunities.

³⁷ Brutt and Yuan (2022) conduct a laboratory experiment to explore the impact of wage transparency when information on peer earnings is provided exogenously versus endogenously. They find that exogenously provided information increases earnings relative to a control treatment with no information on peer earnings, but that endogenously provided information has no impact. Interestingly the gender pay gap does not vary significantly with information being provided exogenously or endogenously

Wage transparency legislation in Austria has also had a limited effect on the gender pay gap. The law has two components. First, it mandates firms with more than 150 employees to produce an internal bi-annual pay-gap report which lists the mean or median salaries by occupation and gender (information in the report is proprietary information). Second it requires that job advertisements state the minimum wage employers are willing to pay to workers, with the wage at least corresponding to the collective bargaining agreement that applies to the vacancy. Evaluating the impact of the first component of this law, Gulyas et al (2023) and Boheim and Gust (2021) find no impact of the internal pay reporting requirement on the average gender gap in pay. Frimmel et al (2022) use public employment vacancy postings to study the impact of the second component of Austria's pay-transparency law, wage posting, and again find a statistically insignificant reduction in the gender gap in earnings, this time along the entire earnings distribution.³⁸ Cullen and Pakzad-Hurson (2023) note that the muted response to Austrian transparency legislation may result from the nearly universal rates of unionization, and the very limited room for individual negotiation.

Skoda (2022) evaluates a similar legislation implemented in Slovakia in 2018 which required “the fixed component of pay” to be included in job ads and prohibited employers from hiring someone at a rate lower than the one posted. Fines for employer violations are high, up to 100,000 EUR. Using data from the major online job search platform and social security records, the study shows that the policy led to a 3% increase in the wages of new hires, driven by an increase in wages among firms that did not post pay prior to the reform. There is, however, no differential effect on the pay of men and women.³⁹

The different forms of transparency legislation implemented around the world have shown mixed impact on the gender pay gap. Policies revealing detailed individual-level salaries, such as those implemented in the public sector in Canada and the US, have unambiguously reduced gender differences in pay. Less informative policies, or policies where information can be endogenously acquired have had more mixed results, with several initiatives being ineffective in reducing the gender pay gap. Changing transparency, however, does not just affect negotiation expectations and aspirations, there are many other potential responses that need to be considered. Some of these include potential changes in productivity, job satisfaction, and bargaining power.

A concern frequently noted when discussing the revelation of salary is that this can negatively impact job satisfaction, morale, well-being, and even quit rates (e.g. Luttmer, 2005; Card et al 2012, Breza et al, 2018; Mas 2017, Perez-Truglia 2020). Cullen and Perez-Truglia (2022) conducts a clever field experiment in a large Southeast Asian Bank to study whether wage transparency may be demotivating. Junior analysts received information about the compensation of colleagues at

³⁸ See also Bamieh and Ziegler (2022).

³⁹ See also Arnold et al (2022) for evidence that the Colorado law on posting pay in job ads increased the wages posted.

their level or at a higher more senior level. Prior to the intervention, junior analysts were poorly informed about the salary of their senior colleagues and systematically underestimated seniors' compensation. Exogenously varying access to information on compensation by others, the study shows that information on seniors' salary is highly motivating for junior analysts who upon learning about their salary misperception work harder. By contrast, it is demotivating to learn that peers secure higher than expected pay. That is, horizontal wage transparency (information on peers' wages) can be demotivating, while vertical wage transparency (information on senior's wages) can help to motivate employees as they aspire to advance in the organization.

Further exploring the broader impact of pay transparency, Cullen and Pakzad-Hurson (2023) show that it may shift bargaining power from workers towards firms, thus reducing average wages. The study develops a theoretical model of dynamic wage bargaining under incomplete information to study the general equilibrium effects of wage transparency policies. A key insight to the reduction in the workers' bargaining power is that a transparent negotiated pay increase will trigger demands from other employees, causing employers to refuse raising any individual wage to avoid costly renegotiations with others. With the loss in bargaining power, there is a decrease in average wages. The model also predicts that the negative effect of transparency on wages is greater when workers hold individual bargaining power, and smaller when workers are unionized or in markets with posted wages.

Cullen and Pakzad-Hurson (2023) test the theoretical predictions of their model, by evaluating the impact of "right of workers to talk" policies implemented in US states between 2000 and 2016. These policies allowed workers to discuss salary information. Consistent with the model, they find that transparency decreased private sector wages by approximately 2%, with smaller effects for occupations with high unionization rates.⁴⁰

Cullen and Pakzad-Hurson's (2023) predictions align well with results seen in the literature. For example, Bennedsen et al (2022) find that the decrease in the gender pay gap documented in Denmark results from a decrease in the wage growth for men and no change in the wage growth of women. Further they find that overall pay and productivity decrease, leaving firm profits unchanged.⁴¹ Similarly Duchini et al (2022) and Blundell (2021) show in the UK that a decline in men's real wages drives the reduction in the gender pay gap. Again, this reduction in cost is accompanied by suggestive evidence of decreased productivity, and no overall impact on firm

⁴⁰ For context, the authors argue that a freeze in nominal wages during the same time period would have generated a comparable decrease in average annual real wages (2.8%). The authors also show that accounting for unionization rates helps reconcile the mixed impact of legislative changes documented in the literature. For a study that examines the impact of "right of workers to talk" policies on the gender gap in base and variable pay see Sockin and Sockin (2023). The study shows the policy led to a reduction in the gender gap in base pay but found no such impact on variable pay.

⁴¹ Bennedsen et al (2022) also show that more women are hired and promoted in firms affected by the policy.

profits.⁴² Frimmel et al (2022) similarly find in Austria that the insignificant decrease in the gender pay gap results mainly from a decrease in men's real wages.⁴³ Finally, Baker et al (2023) finds in some specifications that slower growth of men's salaries drives the decreased gender pay gap in academic salaries in Canada. Thus, the evidence suggests that in contrast to the effect intended, transparency often reduces the gender gap in pay, not by improving conditions for women, but rather by worsening them for men.

It will be of interest in future work to explore what gives rise to the slower wage growth for men. While it is compelling to see the evidence as supportive of transparency depressing worker bargaining power as suggested by Cullen and Pakzad-Hurson (2023), it may be of interest to also consider that a similar depressive effect is seen in the study by Major et al. (1984), where information on others' compensation decreased men's entitlement and salary requests (absent any bargaining opportunity).

Providing an excellent overview of the pay transparency literature, Cullen (2023) abstracts from the impact on the gender pay gap and emphasizes the broader impact of the policy. She distinguishes between three types of pay transparency policies: horizontal, vertical, and cross-firm pay transparency initiatives. Horizontal pay transparency refers to initiatives revealing information about differences in pay between co-workers in the same role (peers). Vertical pay transparency sheds light on differences in pay across individuals who have different seniority, and cross-firm pay transparency reveals pay differences between firms. In practice, pay transparency initiatives often fall under more than one category. While horizontal pay transparency has been the aim of most pay transparency legislation, Cullen (2023) argues that the latter two are more likely to improve employee outcomes. Although horizontal pay transparency can decrease pay inequality between co-workers, it tends to depress employee motivation, bargaining power and wage growth. Vertical pay transparency, on the other hand, increases knowledge of compensation associated with advancement leading to more accurate and optimistic beliefs which can in turn improve performance. Cross-firm pay transparency, on the other hand, by revealing the compensation in other organizations, can encourage job search, negotiation for higher compensation, and wage competition between firms.

There is substantial variation in the wage transparency interventions that organizations and governments have adopted. While detailed information on wages reduces the gender pay gap, the evidence is more mixed when it comes to less informative policies. The broad interest in this topic

⁴² Blundell (2021) finds no overall change in stock market returns, Duchini et al (2022) find a short-lived drop in firms targeted by the policy. See also Gamage et al (2020) for a study of wage transparency in the UK showing that pay reports in academia reduced the gender pay gap in faculty salaries by 0.62 percentage points (4.38%, via improvements in women's wages).

⁴³ Frimmel et al (2022) also find that when workers have high bargaining power (when jobs are immediately available, not immediately filled, and the firm signals willingness to negotiate and pay more), female wages increase and male wages do not change leading to a significant reduction in the gender pay gap.

is shedding light not only on the intended consequences of these policies, but also on unintended ones. As transparency policies are implemented it is critical that both are taken into account. It is also important to consider how information is presented and how accessible it is. If legislation solely provides the right to information, it may not be sufficient to change the negotiated outcomes. With recent legislation in both the US and Europe we will soon gain a much better understanding of how these policies impact the gender wage gap and overall compensation.

4. Conclusion

Men more than women succeed when faced with negotiation opportunities in the labor market. Efforts to reduce the gender pay gap have led to initiatives aiming to reduce gender differences in negotiation or in the impact such differences have on outcomes. Growing interest in this topic, along with many recent adoptions of initiatives, has improved the data available to evaluate the effectiveness of these policies.

Reviewing the literature we focus first on individual-level initiatives that largely aim to change how often and how women negotiate. The evidence shows serious challenges to these types of interventions. Encouraging women to mirror the negotiation behavior of men is likely to backfire, because women face different societal expectations than men. Women who take a more aggressive and confident approach to negotiation may experience backlash. The observed gender differences in negotiation could well reflect that men and women face different conditions when negotiating. Hence, attempts to alter women's behavior could well fail.

An approach that may be more effective in reducing gender differences in outcomes is one that modifies the conditions of the negotiation. Increasingly such institutional initiatives are being adopted both voluntarily and through legislative action. Reviewing the literature on banning negotiation or salary history requests, as well as that on wage transparency, suggests that such institutional initiatives are effective in reducing the gender pay gap; while some effects are small or null, others show a substantial improvement. Research to date suggests that initiatives aimed to 'fix-the-institution' are more effective in equalizing outcomes than those aimed to 'fix-the-women.'

In embracing institutional design there are however grounds for cautious and carefully designed adoption. This is because tensions within the individual programs may challenge long-term success and because specific design details can impact both the effectiveness and unintended consequences of the policy. While initial evidence on banning negotiations or salary history requests show reduced gender pay gaps, upholding a negotiation ban will be difficult in the presence of retention challenges, just as the effectiveness of salary history bans depends on whether voluntary disclosures can be restricted. Similarly, the effectiveness of transparency legislation, likely hinges on the salary information being exogenously provided. Giving employees only the right to request

information limits transparency and has proven to be rather ineffective. Further, the adopted institutional design must account for the broader impact of the policy. It is insufficient to assess only the impact on the gender pay gap, as the interventions may have unintended negative consequences. For example, while somewhat mixed there is concerning evidence of decreased overall wage growth in response to both salary history bans and to horizontal wage transparency, where the latter may result from reduced employee bargaining power and/or negative effects on worker morale and productivity. By understanding how these institutional interventions impact employee and employer incentives in a general equilibrium sense, we will be able to design policies that help secure equal compensation for equal work, while at the same time reducing the potential negative impacts of such policies.

Cullen (2023) serves as an excellent example of efforts to develop effective interventions. Critical insights are gained by first demonstrating that horizontal pay transparency may equalize wages by depressing overall wage growth, and second showing that vertical- and cross-firm transparency policies help address these shortcomings by improving firm competition, employee aspirations, and bargaining power. Growing efforts to secure pay-equity will help inform alternative and more effective policies that not only improve equity but also efficiency and employee wellbeing.

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