Are Pay Equity Policies Justified?

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ABSTRACT: This article identifies the lack of policy analysis as a major research gap in pay equity policies. Applying a policy analytic approach, the article applies comparative empirical evidence to the tasks of problem structuring and policy prescription as well as to three different evaluation methods: effectiveness, cost-effectiveness, and benefit-cost analysis. The results show that pay equity policies lack fundamental justification as public policies. Implications for research and policy revision follow.

In the postwar era, the changing roles of women and men in the workforce of major industrial economies raised questions about whether gender discrimination explained differential wage rates at the macroeconomic, sectoral, or organizational levels. Responding to these concerns, many industrial countries, as well as their subnational governments, enacted pay equity policies designed to eliminate any discriminatory bias in wage rates.

The Organisation for Economic Co-operation and Development (OECD) found that, as of 2021, twenty-seven member countries had pay equity legislation in place, and a further eight had embraced the idea through regulation (OECD 2021b). Among those thirty-five countries, nine—Canada, Finland, France, Iceland, Norway, Portugal, Spain, Switzerland, and Sweden—had taken the most aggressive approach by requiring private sector companies to carry out mandatory regular pay auditing processes with both pay-difference reporting and follow-up remediation of those differences. In the United States, several states do likewise.

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All thirty-five countries have imposed some sort of financial or regulatory penalties, as well as legal risk, for noncompliance with pay equity policies.

Public policies are generally justified in terms of removing public harms or unlocking unrealized public benefits. Thus, a key aspect of public policies is evaluating whether they have achieved their stated goals. Despite the pervasive and long-standing role of pay equity policies in OECD employment regimes, there have been few attempts to evaluate whether those policies are justified by their measured effects and associated costs. This is particularly unusual because pay equity policies, which generate measurable economic costs and benefits, seem ripe for policy analysis.

The aim of this article is to fill the gap in missing policy analyses on pay equity. After a discussion on the absence of policy analysis in existing literature, this article applies the standard methods of the policy analytic framework introduced by William Dunn (2018). The main finding is that there is little evidence to suggest that pay equity policies have achieved results that justify their call upon public and private resources, including their infringements on individual freedom and their state-enforced misandry. This article concludes with implications for policy revision and a call for further research on pay equity policies.

MISSING ANALYSIS

Scholarly research on pay equity policies has been mostly about background economic and social conditions and prominent political debates. The distinctive questions that can be raised by policy analysis have been conspicuously absent. An early exception was the 1993 book *Incomparable Worth: Pay Equity Meets the Market*, in which the public policy economist Steven Rhoads, through case studies of policy implementation in Minnesota, Australia, and the United Kingdom, concluded that pay equity policy responded to a nonproblem and that its implementation was costly, ineffective, and confusing: "To adopt it as public policy would bring us a more acrimonious politics and a much weaker economy. Women—and men—would both be losers" (Rhoads 1993, 246). In the thirty years since Rhoads, there has been no notable critical policy analysis of pay equity policies.

As a result, research on pay equity policies often lacks the information used for policy analytic justification. In 2014, for instance, the European Commission issued a report advocating a full range of mandatory pay equity policies. Its "impact assessment" claimed that gender discrimination was widespread in the European Union, that without pay equity policies it would remain unchanged, and that the proposed policies would yield hundreds of millions of euros worth of net economic benefits per year. Despite citing evidence showing a 2 percentage point decline in the gender wage difference in the European Union between 1995 and 2005, the report asserted that "there is no other evidence available that would point to any likelihood of a more than marginal decrease in the gender pay gap and specifically its discrimination component without any EU action" (European Commission 2014, 24). The report was rejected twice by the Regulatory Scrutiny Board of the EU for failing basic policy analysis principles. Only after most of the initial findings had been removed was the report accepted (European Commission 2021b). On the baseline trend, for instance, the final report modestly asserted: "It seems unlikely that without any positive intervention through binding measures, the rate of reduction of the unexplained part of the gender pay gap – which covers possible discrimination – could accelerate" (European Commission 2021a, 25-26).

There is a vast amount of literature on gender differences in wages. But this is not the same as policy analysis on pay equity. Many scholars believe that the analytic justification of pay equity policies is so obvious that any concrete analysis is unnecessary. For others, policy analysis is overlooked because of a normative commitment to the statistical equality of male and female wages as a matter of "human rights." These advocates regularly describe gender wage differences as "persistent," "stubborn," and "concerning." An International Labour Office (ILO) working paper, for instance, argued that conventional net benefit calculations were extraneous to the primary justification: "This does not mean that, in case benefits outweigh costs, such cost-benefit considerations should become the main reason for promoting pay equity" (Chicha 2006, 29, iii). England, while admitting that pay equity policies might require expensive new employment policies to counter their effects on labor demand as well as new "management labor committees" to counter the corruption and gaming of job evaluation systems, nonetheless considered all such cost calculations ultimately irrelevant: "The prospect of ending the unfair and systemic devaluation of work because it is done by women makes the reform worthwhile" (1992, 297, 292, 300).

The policy response to any social harm—preventing murder for instance—is calibrated to optimize the use of public resources. This requires policy analytic data about the problem, the solutions, the effectiveness, and the costs and benefits. Moreover, even if an alleged "bad" involves a human right, this does not change the need for analysis. There are, after all, many human rights and none that can be fully realized without negative consequences for other human rights and for broader human flourishing. As Vining and Weimer note, "Because it is always valuable and important to understand the efficiency consequences of government interventions, including social policy interventions, there is no normative reason why these fundamental principles of [benefitcost analysis] (and more generally welfare economics) should not apply to social policy" (2010, 1).

Policy analysis is a distinctive language for generating useful information about public policies (see figure 1). It simplifies the policy challenge into a series of stages corresponding to the policy process. The analysis begins with a current harm or unrealized public benefit, stated in real or monetary units (-B or -\$B). It then identifies an optimal policy (P_B) that would eliminate that harm or realize that benefit. In the implementation stage, it examines the actual results of the policy in terms of public gains (B^*) and whether those results have been achieved in an efficient manner with respect to costs ($\$C/B^*$). Finally, it widens the scope to include indirect costs and benefits in a total costs versus total benefits comparison ($\$TC/\TB^*).

FIGURE 1: THE LOGIC OF POLICY ANALYSIS



PROBLEM STRUCTURING

The declared problem that pay equity policy is intended to address is "pay discrimination" against women in the workplace. In primary usage, this refers to the allegedly systematic tendency of employers to pay women less, or to slot them into lower-paying positions, *without justification based on productivity differences*. This, in turn, is attributed to sexist cultural norms and gender stereotyping.

In a competitive labor market, pay discrimination should not exist since employers not burdened by sexism and stereotypical thinking could easily boost profits by hiring more affordable female laborers and slotting them into more demanding positions while saving on labor costs. This extra demand would, over time, raise the wages for women until there were no above-normal profits to be made. As Grybaite notes: "Labour market discrimination models. . . . suggest that the practice of discrimination is costly to firms [because they would lose female workers] but it remains unclear how the described models of discrimination can persist in a competitive market" (2006, 90). Thus the persistence of alleged pay discrimination must assume a market failure, such as a lack of labor mobility or inflexible wages for women, that protects sexist cultural norms and gender stereotyping consistently across all sectors, jurisdictions, and times. The market-failure approach rests on a claim that while it may be efficient and rational for individual firms to discriminate (because they can save on labor costs), it is economically inefficient at the macroeconomic level. This is because those costs do not equalize as demand for female workers rises, and the result is sub-optimal supply and productivity from females (Smith and Bettio 2008). Yet with the increase in female managers and self-employed women, as well as highly competitive and decentralized labor markets, this account lacks plausibility. As Richard A. Epstein put it: "Labor markets are intensely competitive, so the claim about systematic pay gaps has to assume both that female managers are hostile to women's economic welfare and that competitive markets are massively inefficient in matching people with positions" (2015, 21).

In secondary usage, which has become more common, "pay discrimination" further refers to the alleged penalty against women in the job market as a result of being caregivers or having other unpaid social responsibilities. This forces women into systematically less productive jobs or causes them to be less productive in similarly demanding jobs, resulting in lower wages. In this case, there is no market failure. Rather, there is an alleged *equity failure* since the inescapable positional disadvantages for women are not being remedied by government action.

Both dimensions of pay discrimination are usually included in problem definitions by pay equity advocates. As a result of this broad approach, pay discrimination is usually measured simply as the difference between the median or mean wages of women and men, whether within an organization, a sector, or an economy. The ILO cites this gender wage difference as "one indicator that is frequently used" as a measure of the policy problem and of the need "to take the necessary measures to eliminate it" (Chicha 2006, 3). Similarly, Judy McGregor et al. describe New Zealand's economy-wide gender wage difference as "stubbornly persistent" and as requiring "a renewed political determination" (2017, 5, 15).

Yet by conflating *market-related* and *equity-related* dimensions, the policy problem thus defined suffers from a type I error, saying that something is part of the problem when it is not. Since market failures and equity failures refer to different causes, they are subject to different potential solutions. Moreover, the admixture of the two means that a policy solution such as pay equity may be applied to a policy problem for which it is unsuited. A woman who chooses a less demanding or more flexible position in order to spend more time with children substitutes labor for childcare at her preferred level. If the woman is paid the same as men in more demanding and less flexible positions, then the income effect (causing the mother to spend more time at home) will usually dominate the substitution effect (causing the mother to work more). This is why in their study of a 60 percent random sample of all Finnish women giving birth between 2001 and 2009, Eva Österbacka and Tapio Räsänen find that cash allowances for women to stay home with children (like a pay equity-type wage bonus) prolong maternity leave longer than subsidized public childcare (a relative price change) (2022; see also Mahringer and Zulehner 2015).

Moreover, a full equity audit would have to include the inequities faced by males, such as shorter life expectancy and the much higher probability of dying or being injured on the job. Finally, an assertion of market failure in wage setting due to "unfair" results based on subjective assessments of value would presumably apply to intramale and intrafemale comparisons as well, leading inexorably to the conclusion that only state-run centralized wage setting can be justified.

In any case, cross-national comparative evidence of the gender wage difference shows a steep decline in all countries since 1975 (figure 2). The average difference in male and female wages expressed as a percentage of male wages across the OECD fell from 29 percent in 1986 to 12 percent in 2020. The six major industrial countries highlighted in figure 2 were chosen because of their different policy approaches over this period. Time series regression explains 96 percent of the mean decline from 31 percent to 18 percent for these six countries from 1985 to 2019, indicative of a strong temporal trend. An exponential trendline fit of the OECD average shows a natural deceleration as the difference approaches zero (which highlights the oddity of the concern raised by the revised European Commission report that without more pay equity policies, the rate of decline would not accelerate).

In some instances, the difference has disappeared altogether: Gregory Lewis, Jonathan Boyd, and Rahul Pathak (2018) found that, in state governments in the U.S. for 2011 to 2015, Asian women earned exactly the same as white men. Nationally in the U.S. in 2021, Asian women also earned virtually the same as non-Hispanic white men and outearned men altogether with a gender earnings difference of 10 percent (in favor of Asian women) (WB 2021). Chinese, Taiwanese, Indian, and Malaysian women in the U.S. earned more than non-Hispanic white men on average in 2015–19. The only thing that Robin Bleiweis, Jocelyn Frye, and Rose Khattar, as pay equity advocates, manage to say about this obvious anomaly to their discrimination narrative is that the "numbers hide a more complex story about the rich diversity within the Asian community" (2021, 4). Women in 2018 outearned men in several jobs in the U.S. including merchandiser, logistics manager, and military officer (Abdel-Raouf and Buhler 2021, 67, table 5.5). In Slovenia, the gender wage difference is regularly close to zero, or even negative.



FIGURE 2: GENDER WAGE DIFFERENCE IN OECD COUNTRIES

Source: Data from OECD, Gender wage gap (indicator), OECD iLibrary, accessed August 22, 2023, https://www.doi.org/10.1787/7cee77aa-en. Difference between male and female median wage as a percentage of male median-wage, full-time employees.

A large amount of literature seeks to decompose this raw gender wage difference in order to determine whether there is a policy problem. The decomposition usually begins with easily identified "work-related characteristics" (WRCs) such as the job itself, seniority, responsibility, experience, and qualifications, leaving an unexplained residual. Sophia Seung-Yoon Lee and Yuhwi Kim (2020) show that South Korea's large difference in pay between genders mainly reflects the strong importance of seniority pay, which favors men, who remain in jobs longer, as well as the strongly gendered division of men and women into regular and irregular jobs, factors which together account for virtually all of the pay difference. In countries where the raw difference is lower, the portion explained by WRCs is less. The WRCs portion was one third, or 4.8 percentage points, of the overall 14.2 percent gender wage difference across twenty-six countries of Europe in 2014 (Boll and Lagemann 2019). Melissa Moyser (2019) finds that the WRCs

portion—made up of education, location, age, job tenure, union status, public or private sector, occupation, and industry—was also about a third, or 4.1 percentage points, of the 13.0 percent gender wage difference in Canada in 2017.

Pay equity advocates cite the unexplained residual as evidence of sexism and thus a policy problem caused by a market failure: "While some compensation disparities may be attributable to differences in occupations, skills, experience, and other legitimate factors," the U.S. Equal Employment Opportunity Commission (EEOC) asserted in 2021, "not all disparities can be explained by such factors and pay inequality *may be* the result of discrimination" (Coleman, Dupont, and Rivera 2021, 1, emphasis added). More assertively, two U.S. federal government analysts insisted in 2015 that "there is no broadly accepted methodology that is able to attribute the entirety of the raw wage gap to factors *other than gender*" (Collins and Feder 2015, 110–11, emphasis added). Bleiweis, Frye, and Khattar (2021) write that bias and discrimination "likely drive more than" the two-thirds unexplained residual.

However, more refined measures at the sectoral or organizational levels find that productivity-related factors can explain most of the residual. The WRCs used in the studies above usually leave out what Richard Beyer, Travis Hensersky, and Adrian Thomas call productivity-relevant employment inputs (PREIs) such as innovation, hours worked, and flexibility (2019, 16). As Epstein summarized the literature: "It is just wrong to assume that any unmeasured variation should be attributed to some undocumented form of discrimination" (2015, 20).

At the most general level in the U.S. economy, gender-neutral jobs tend to have both the *highest* gender wage difference and the *lowest* level of gender discrimination because of the dominance of PREI factors in such fields (Bartnik, Gabriel, and Schmitz 2022). Working hours may alone explain much of the difference (Mannasoo 2022). In the U.S. from 2015–19, 35 percent of white men worked forty-five or more hours per week, compared to 18 percent of white women (Bleiweis, Frye, and Khattar 2021, figure 5). Using a measure of both WRCs and PREIs in a study of 317 managers (283 male, 34 female) in a commercial construction company in the United States, Beyer, Hensersky, and Thomas (2019) find no unexplained gender wage difference. A study of Boston-area train drivers likewise found that the "earnings gap can be explained by

female operators taking fewer hours of overtime and more hours of unpaid time off than male operators" (Bolotnyy and Emanuel 2022, 283). This explains why companies that introduce bonus pay for objectively measured performance do not experience a narrowing of the gender pay difference, as Eunmi Mun and Naomi Kodama (2022) confirm in a study of over 383,000 employees from around 391 companies in Japan from 1997 to 2009.

Studies of gig economy firms Uber, Mechanical Turk, and Skyeng, which allow researchers to observe gender differences in productivity firsthand, have found that there is no unexplained portion of the gender wage difference (Cook et al. 2020; Litman et al. 2020; Dokuka et al. 2022). In a study of 2.1 million of the 2.7 million members of the federal workforce in 2019, 44 percent of whom were women, the U.S. General Accounting Office (GAO) found that the 6 percent gender earnings difference was likely a result of WRC factors such as pregovernment service and PREI factors such as individual performance choices. This raised the question of "whether a gender pay gap continues to exist among federal workers," it noted (2020, 2). Marriage alone can explain more than half of the raw gender wage difference in the U.S., operating through both visible WRCs and less visible PREIs (Abdel-Raouf and Buhler 2021, 19, figure 2.5).

These studies indicate that there is no policy problem of *market-related* gender discrimination. In the words of Les Sillars (1995), it is a "UFO Fallacy," ascribing a descriptive fact to some invisible alien force rather than to more visible and plausible factors. There is little evidence to support the view that employers systematically and consistently pay women less, or slot them into less productive jobs, as a result of gender discrimination. In the face of this evidence, one must ascribe a radically limited degree of agency to women in order to claim that pay differences do not reflect preferences and productivity.

This, of course, does not preclude problem structuring centered on episodic or sporadic discrimination in wage-setting and labor mobility, something that discrimination tribunals are intended to remedy. Nor does it preclude the possibility of problem structuring around equity-related failures pertaining to the positionality of women as caregivers, something addressed by multiple other policies.

PAY EQUITY AS POLICY PRESCRIPTION

If the claim of broad, systematic, and enduring gender-based discrimination in wages is difficult to sustain, then broadly applied pay equity policies—which mandate higher wages for women when their wages are deemed to fall below some comparator group—would fail as an optimal policy choice because their forecast effects would be small to nil. Even the least intrusive pay equity laws, as reflected in the ILO's Equal Remuneration Convention of 1951, that require equal pay for identical jobs within the same organization (such as a male and female toll gate collector) might be unnecessary and thus not cost justified.

Unsurprisingly, most OECD countries have preferred marketpreserving policies that encourage flexible labor markets and expand opportunities for women by occupation and career trajectory, in effect targeting episodic market-failures and more systemic equity failures. Noting the rapid decline in the gender wage difference in the complete absence of pay equity legislation in South Korea, for instance, the OECD recommends only marketpreserving policies such as paid maternity leave and easier reintegration following care absences (Yang 2022). Several jurisdictions have also introduced "employee right to ask" (what others in the organization are earning) and other pay transparency laws, such as requiring companies to audit and publish salaries in an organization by rank and gender. Others have passed laws prohibiting employers from asking about previous salaries in order to avoid locking in gendered wage differences, as well as bans on "no poaching" and "noncompete" clauses that potentially limit female labor mobility. An experimental study on manufacturing workers in an industrial estate in Vietnam for 2014 suggests that policies to reduce the risks and costs of salary negotiations could reduce the gender wage difference there by 29 percent (Maitra, Neelim, and Tran 2021), a decentralized and market-preserving approach.

Nonetheless, pay equity laws with increasingly distant comparator groups in different occupations, as well as different organizations with increasingly harsh remedies against employers deemed to have unequal pay have become *more* common even as the measured gender wage difference has declined. Current law in California, for instance, requires industry-level economic value comparisons be made and makes employers liable to legal action even if a plaintiff has suffered no harm. In an analysis of the value of costume designers (a position dominated by females) and production designers (a male-influenced position) in the Hollywood film industry, Steven E. Williams and Jon M. Werner argued, using surveys from the industry, that the jobs were "substantially similar" despite the reported 30 percent gender pay difference in base salaries between the two professions as reported by their guilds in 2016. Yet, to reach this conclusion, they gave all components of each job equal weight without justification. In particular, while costume designers at the top ranks had very challenging personal contacts with actors, lower ranking costume designers had none. By contrast, production designers at all ranks had significant personal contacts with others, including actors. Meanwhile, the complexity and problem-solving demands on top level production designers were ranked higher than that for costume designers. Production designers also had safety credentialing and management responsibilities that costume designers did not.

The paradox, then, is that pay equity policies have not only persisted but also expanded even as the evidence for a policy problem related to market failures has waned. While other policy tools have been added, regulatory pay equity has retained its preeminence in the mix.

POLICY EFFECTIVENESS

Three different evaluation standards—effectiveness, cost-effectiveness, and benefit-cost—will be considered while measuring policy success using program effects.

Policy effectiveness refers to both the ex ante expectations of feasibility—can policy X lead to results Y?—as well as the ex post monitored results, or "pseudoevaluation," of whether policy X *did* lead to results Y. The preeminent challenge of effectiveness analysis is to isolate the discrete contribution of policy X to outcome Y, which raises the well-known scientific problem of choosing between methods that balance internal and external validity.

Many pay equity scholars assume that the correlation of gender wage difference declining with pay equity legislation implies a causal relationship: "The original equal pay legislation triggered a step change in policy and practice towards gender inequality and pay inequality more generally," asserted Jacqueline O'Reilly et al. (2015, 300). Yet at the most externally valid level of cross-national statistical analysis, the similar declines in the measured gender wage difference in table 1 across a wide variety of pay policies must primarily be a result of socioeconomic trends, not pay equity policies. Australia introduced pay equity in 1972 and, in some instances, allowed female pay equity claims without reference to *any* male comparator group by simply making arguments about the inherent "value" of a job (Charlesworth and Smith 2018). But it experienced the slowest change in the OECD.

By contrast, Francine Blau and Lawrence Kahn (2017) found that a composite "gender human capital" index could explain about two thirds of the measured decline in the U.S. gender wage difference between 1980 and 2010. Further, Joanna Tyrowicz and Lucas Augusto van der Velde (2021) found, in a study of thirteen Central and Eastern European countries from 1990 to 2006, that women tend to make relative wage gains with each business cycle, during which they are more likely to enter new fields, take on more demanding positions, and gain performance-based pay raises.

Since 1975, the United Kingdom, South Korea, and Japan, which have only limited pay equity policies for identically situated workers, have experienced *more rapid* declines than places with aggressive pay equity policies. The U.K. has closely tracked the U.S. despite policy differences, although its 1970 equal pay legislation likely had an effect due to collective bargaining and the large size of the public sector (Zabalza and Tzannatos 1985). Japan has repeatedly rejected ILO demands for pay equity policies, instead directing attention to active labor market policies to boost the female labor supply. Moreover, Japanese courts have rarely accepted pay discrimination cases based on "equal value" or "comparable value" claims (Beniyama 2020). Drolet and Mumford found that Canada's gender pay gap followed a trajectory very similar to Britain's despite the difference in their pay equity laws (Drolet and Mumford 2009).

A more sophisticated approach than cross-jurisdiction analysis is to construct a virtual or synthetic counterfactual case from existing cases. This is the strategy followed by Judith McDonald and Robert Thornton in their 2015 study on the effects of Ontario's 1988 pay equity law, which was the most interventionist and comprehensive in the world. The province's gender wage difference fell from 35 percent in 1988 to 21 percent in 2009. The synthetic province, constructed using three provinces with no such policies or limited policies, experienced a slightly *greater* decline over the same period: "We find that despite its broad coverage and proactive nature, there is no indication that the act materially affected the female-male wage gap in Ontario," they conclude. "If Ontario had not enacted the pay-equity act about 20 years ago, the current gender pay gap would be about the same as it currently is" (McDonald and Thornton 2015, 617, 616).

The same conclusion—that Ontario's pay equity policy had no effects—was reached by Michael Baker and Nicole Fortin (2000). In their study, the only sectors where it did affect pay, the effects were *negative* for women, who made less in blue-collar jobs as a result of those jobs being set at wages now tied to less productive "female dominated" jobs, as well as blue-collar female workers having lower PREI effects. In most sectors, the policy had no effect because "comparable worth" is a nonspecific concept that requires employers, many of whom are small, to make impossible judgements across male and female jobs and, as a result, do nothing. A further finding on Quebec was that only women with high levels of education benefited from pay equity policies, a within-gender equity issue relevant to the rise in political rent seeking by increasingly feminized legislatures (Legault 2009).

Pay equity advocates often point to a sharp reduction in the gender wage difference in the public sector as evidence of policy effectiveness. Parbudyal Singh and Ping Peng (2010) applaud Ontario's "bold experiment" as effective because it led to large pay raises for women in the public sector. A United Nations report similarly stated that "mandatory pay equity policy has enjoyed considerable success, especially in the public sector" (Rubery and Koukiadaki 2016, 30). U.S. state-level data confirms that public agencies have a smaller gender wage difference than the private sector, as the study of state governments 1980 to 2015 by Lewis, Boyd, and Pathak (2018) showed. Catherine Reese and Barbara Warner find that "the average pay for women employed in states in which there has been a major pay equity/comparable worth implementation at any point in time is significantly higher than for women employed in non–pay equity states" (2012, 318).

Yet, as the Lewis, Boyd, and Pathak study found, this is because public agencies can impose gendered wages as an outcome without concern for organizational productivity since they operate in a noncompetitive market with a soft budget constraint. A policy is effective when it operates via its *expected* mechanisms, in this case uncovering the alleged systemic underpayment of women through productivity comparisons, and boosts wages as a result. But public sector pay equity exercises are ends-oriented, not means-oriented. They set out to reduce the gender wage difference as an outcome and, unsurprisingly, achieve it. Pay equity policy is intended to unlock and reward the existing productive output of women, not to distort it. While its limited effects in the private sector may be due to undercompliance or irrelevance, its apparent effects in the public sector may be due to cost-free overcompliance and new distortions.

The OECD notes that since new pay equity and pay transparency policies are often phased-in based on organizational size: "these policies are ripe for rigorous, quasi-experimental evaluations with nearly comparable 'treatment' and 'control' groups around the policy threshold" (2021a, 3). One experimental study found that 2017 pay transparency policies in Britain led to a 1.6 percentage point decline in the 8.6 percent gender pay difference via a lowering of male wages (Blundell 2021). Similar experimental evidence is needed to establish the effectiveness of mandatory pay equity policies.

COST-EFFECTIVENESS

Whatever the measured effects of pay equity policies (which as mentioned may be targeting a nonexistent policy problem), these effects tell us nothing about whether such policies are worthwhile. All public action carries costs, and the value of the measured effects depends on determining whether the effects *and* their costs meet minimal standards ("adequacy" analysis), whether the same effects could be achieved at lower costs ("costminimization" analysis), or whether the same costs could be deployed to generate greater public effects through alternative policies ("benefit-maximization" analysis). Here only the compliance costs for firms are considered, leaving discussion of more comprehensive costs for the benefit-cost section.

The first set of costs are administrative costs involved with familiarization with pay equity policies and carrying out an audit of all positions. This audit is then continually updated over time and regularly disclosed under pay transparency and reporting laws. Once the chosen model of job comparisons determines which jobs are equal in value, companies must adjust pay upwards for any female staff being underpaid (most pay equity policies do not allow pay reductions for men). These additional wage costs are then the second level of costs to firms which, when not consistent with PREI or productivity differences, impose deadweight losses. Finally, since the pay audits are invariably subjective and changing, firms are subject to additional legal and arbitration costs if employees, or government agencies, challenge their audit results. Understood as present-value risks, these lead to risk-mitigation costs for the firm, usually in the form of new insurance.

Nancy Stokey (1980) showed that the constant differentiation of skills, tasks, and efforts in jobs means that wage-setting never has a "stable" answer even in the market, much less in the mind of a pay equity auditor. The EEOC, commenting on the compliance costs of pay equity reporting requirements, included in its calculations "time spent by a Chief Executive Officer, who may certify the report for some companies, the attorney who may review it, the senior and junior human resources staff and the software programmer who may oversee and run the reporting system, and finally, administrative staff" (n.d.). The U.S. Chamber of Commerce's estimates of compliance costs on this item were fifteen times higher than the EEOC estimate (Tacchino 2019).

Wage costs can be estimated by looking at EEOC settlement data as well as private sector surveys on average compensation changes after pay equity analysis. While these costs on a per-employee basis are often small, when scaled up to a firm's overall wage bill, they can be significant.

Legal and compliance costs reflect an expected value based on the probability and outcome of a pay equity decision being challenged. The mitigation costs, which all firms bear, will include the investment in defensive data and data analysis (Anderson et al. 2019).

The normal metric used to sum these compliance costs is "median costs per firm." It should be borne in mind that these compliance costs are deeply regressive, hitting small and medium-sized firms three to six times as much on a per-employee basis as large firms (Business NZ and KPMG 2003, 36, table 26).

Summing available data gives the results shown in figure 3. The \$45,000 figure here is notably higher than the \$25,000 per firm (in 2022 dollars) estimated by the EU in 2014 for its own pay equity policies (European Commission 2014, 44), perhaps reflecting

higher legal risks and wage adjustments. For range, a "no-cost" level is assumed for jurisdictions with no pay equity policies and a 50 percent premium for high-cost jurisdictions.

Figure 3: Annual median costs of pay equity compliance per hundred-employee firm in the U.S.

Cost item	Median cost per 100 employee firm per year (USD, 2022)
Administrative costs of internal survey of pay by gender and public disclosure of results	\$13,500
Administrative costs of pay equity comparisons and analysis (outside consultant, average fee)	\$9,000
Wage increases following pay equity analysis or complaint (100 employees, 50 female)	\$10,000
Legal/Arbitration risk costs (0.1 percent annual risk per employee, 100 employees, average \$250,000 legal and award costs)	\$12,500
TOTAL	\$45,000 (\$0 to \$67,500)

Source: Data from EEOC, "Equal Pay Act Charges (Charges filed with EEOC) (includes concurrent charges with Title VII, ADEA, ADA, and GINA) FY 1997–FY 2022," accessed August 25, 2023, https://www.eeoc.gov/data/equal-pay-act-charges-charges-filed-eeoc-includes-concurrent-charges-title-vii-adea-ada-and; Olson (2016); McDonald and Thornton (1998); and Johnson and Plunkett (2017).

An illustration of the results can be done using a standard costeffectiveness analysis chart (figure 4). If the earlier analysis holds, then the cost-effectiveness curve for pay equity policies would be a flat line across the horizontal axis (the most likely case) or even a negative sloping line (the worst case). It is best practice in policy evaluation to bias the findings *against* policy success by using the worst-case scenario (HM Treasury 2022). It is remarkable how pay equity policies are not held to that standard of analysis. Nonetheless, since a best-case scenario of moderate policy effectiveness is being used here, the findings will apply "with stronger reasons" (a fortiori) to the most likely and worst-case scenarios.

The functional form below assumes front-loaded costs, consistent with most public policies, as well as decreasing gains as a natural limit is reached. For scale on the y-axis, the results from McDonald and Thornton (2016) are used to show the maximal effects of Quebec's aggressive pay equity policy (the best-case scenario) tops out at about 4 percentage points per decade, which is also the maximal effects for full policy enforcement cited by the European Commission (2014).



FIGURE 4: COST-EFFECTIVENESS FUNCTION OF BEST-CASE PAY

Briefly then, this chart illustrates why it is challenging for pay equity policies to achieve cost-effectiveness justification, putting aside all of the above questions about the nature of the problem and the effectiveness of the policy. In order to achieve a minimally acceptable impact on the gender wage difference (such as 4 percentage points), a policy would need to impose grave costs (here roughly \$55,000 per firm) in light of evidence about the effectiveness of alternative market-preserving policies. Pay equity policy thus fails cost-minimization criteria. Alternately, the effects of a maximally acceptable cost basis (such as \$40,000) would be just half of the acceptable benefit level, suggesting that the same costs could achieve greater public benefits through other approaches. Pay equity policy thus fails on benefit-maximization criteria. Finally, the absence of a workable pay equity policy that achieves acceptable benefits at acceptable costs means that pay equity policy fails adequacy analysis.

The absence of cost-effectiveness justification for pay equity policies shows why some jurisdictions have scaled back or even eliminated such policies once the costs became evident. In 2007, for instance, India's high court scaled back the broad application of the country's 1976 pay equity act, which (according to the high court) was "creating havoc" because "different groups were claiming parity in pay with other groups" leading to costly strategic and legal behavior with minimal benefits. The court insisted that there

had to be "a clear cut basis of equivalence [between jobs] and a resultant hostile discrimination [by the employer]" in order to gain relief. In effect, this insistence eliminated most of the costs associated with pay equity policies (Fredman 2013, 26–29).

BENEFIT-COST ANALYSIS

A public policy might yet be justified if it were to have large indirect benefits without corresponding indirect costs. These might overwhelm the direct benefit and firm-level cost calculations above, yielding a net expansion of social benefits. These benefits could be used to compensate those who are negatively affected by the policies, thus conforming to a Kaldor-Hicks improvement in which no one is made worse off because the gainers are able to compensate the losers. (Feldman 1998). Of course, this would still beg the question of whether government action is needed to bring about these social benefits. As Ronald Coase (1960) showed, there might exist a voluntary solution where the losers are given compensation payments whose costs are paid out of the large social benefits.

Pay equity advocates often deploy such a "net social benefits" approach (defined as either the *difference between* or the *ratio of* fully accounted-for benefits and costs) to justify the policies. Yet existing examples are often based on simple methodological errors. For instance, pay equity advocates often calculate the increased wages for women following pay equity audits on the benefits side while failing to include, on the costs side, the negative consequences on overall wage levels as well as the firm-level losses of productivity. When correcting for these costs, and looking only at the net effects on women, George Johnson and Gary Solon found that "the preponderance of evidence suggests that substitution elasticities between labor types are sufficiently large that the impact of comparable worth on the labor market status of women would likely be negative" (1986, 207). The same finding on pay transparency laws-often used as complementary regulations to pay equity laws—shows an overall decline in female wages as a result of the laws, even if the gender wage difference narrows slightly (Cullen and Pakzad-Hurson 2021).

The enumeration and measurement of benefits and costs remains deeply undertheorized and well beyond the scope of this short review. But for illustration purposes, the relevant items following the work of Marie-Thérèse Chicha (2006) and of the European Commission (2021a) can be listed along with their estimated magnitudes (figure 5).



FIGURE 5: BENEFIT-COST ANALYSIS ELEMENT STRUCTURING

As figure 5 shows, the multiple and conflicting effects of mandatory pay rises for women are what make it difficult to sustain a case for pay equity policies using benefit-cost analysis. The twice-rejected European Commission report of 2014, for instance, first estimated that "each 1% reduction in the gender pay gap would translate into an increase in the EU gross domestic product (GDP) of 0.1%" (2014, 31). However, a follow-up report reduced the effects to a negligible impact of 0.0 percent to 0.2 percent of GDP for a complete erasure of the gender wage difference—at best a rounding error. The problem with earlier estimates, the EU noted, was they ignored the knock-on effects of paying women more, irrespective of whether those increases were market-consistent: "Accounting only for the wage increase would overestimate the effect at the macrolevel as it could not be excluded that male labour supply/participation would adapt to such a large increase in female earnings (e.g., within households)," it noted. "Firms might also re-adjust wages on male workers in order to mitigate the higher wage costs" (European Commission 2021a, 79).

While there is a plausible theoretical case for net economic benefits, studies at the sectoral level imply net economic losses. For instance, pay transparency laws intended to reduce the gender wage difference in Denmark slowed male wage increases, but only by reducing firm-level productivity (Bennedsen et al. 2022).

In the benefit-cost framework, the question will be whether the broad benefits from an induced increase in demand for female labor (pay equity-driven higher wages at every level of supply) outweigh the broad costs in terms of economic value-added and male labor supply. It will secondly depend on the estimated benefits of reducing gender differences in labor market participation and job choices.

CONCLUSION

The aim of this article has been to apply policy analysis methods to pay equity policies, making use of both existing and new data. The policy analytic approach is a powerful means of clarifying debates on contentious social policies and of establishing agreed standards of success. This is especially the case for pay equity where policy analytic methods have been less common and where most research is overwhelmingly positive in its assessments (an apparent unicorn given the complexities of social policy).

The results show that pay equity policies struggle to establish the sort of ex ante or ex post justifications expected of public policies. The gender wage difference in OECD countries has, in any case, fallen sharply since pay equity policies were first introduced, so the results here may mainly be of historical interest.

Future technology may further reduce the gap (Qing, Chen, and Zeng 2021), or even cause the gap to become negative, raising the question of pay equity policies for men—another reason pay equity advocates might be advised to take more care with rigorous analysis. On the other hand, future technology may also expand the gender wage difference (Caunedo and Keller 2022), bringing sharper attempts to eliminate it. Either way, the results here should have enduring interest.

With the exception of the European Union, no jurisdiction has contemplated the need for the sort of rigorous research that is necessary to sustain public support and ethical justification for pay equity policies. The onus is now on pay equity advocates to show that these policies do more good than harm.

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