

PAY DIFFERENCES IN THE ABSENCE OF
DISCRIMINATION: LEGISLATIVE FALLACIES AND
STATISTICAL TRUTHS

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*The [Equal Pay] Act does not prohibit variations in wages; it prohibits discriminatory variations in wages.*¹

INTRODUCTION

“**T**here are lies, damned lies, and statistics,” so the saying goes,² but what are we to make of legislatures and courts that ignore mathematical truisms and impute discriminatory motives to statistical inevitabilities? This is a unique and increasingly relevant concern with the Equal Pay Act (EPA) and corresponding state law litigation.³ Because large pay differences abound among employees in the *same* demographic group doing similar work, the failure to distinguish between these benign differences and discriminatory sources of inequality will lead to attributing liability and exaggerated remedies in instances where no discrimination has occurred.⁴ For example, the laws of at least seven states require employers to account for the entirety of any pay difference between employees of different demographic groups or face liability.⁵ But, as we will explain, this standard generally will be impossible to satisfy regarding all employees in any demographic group, making liability all but inevitable.⁶

Because equal pay laws typically confer strict liability, once a plaintiff proves a pay difference exists between protected demographic groups, an employer is presumed to have acted discriminatorily unless it establishes one of the affirmative

¹ Hein v. Oregon Coll. Educ., 718 F.2d 910, 916 (9th Cir. 1983).

² “The phrase was popularized in the United States by Mark Twain (among others), who attributed it to the British prime minister Benjamin Disraeli. However, the phrase is not found in any of Disraeli’s works and the earliest known appearances were years after his death. Several other people have been listed as originators of the quote, and it is often attributed to Twain himself.” *Lies, Damned Lies, and Statistics*, WIKIPEDIA, https://en.wikipedia.org/wiki/Lies,_damned_lies,_and_statistics [https://perma.cc/WK3R-NEHK] (last visited Feb. 20, 2023).

³ See Daniela Porat, *State Equal Pay Laws Will Alter Litigation Landscape*, LAW360 (Mar. 13, 2023, 9:46 PM), <https://www.law360.com/employment-authority/articles/1585145/state-equal-pay-laws-will-alter-litigation-landscape> [https://perma.cc/X32F-KKLX].

⁴ See Daniela Porat, *State of Pay: Approaches to Gender-Based Disparity*, LAW360 (Aug. 13, 2021, 2:56 PM), <https://www.law360.com/employment-authority/articles/1412768/state-of-pay-approaches-to-gender-based-disparity> [https://perma.cc/8TNG-GPHH] (citing practitioner’s argument that employers will continue to face challenges “because of the myriad of [sic] circumstances, contexts and compensation systems among different employers and even different workers in one company”).

⁵ CAL. LAB. CODE §§ 1197.5(a)(1)(D), (3) (West 2023) (“The one or more factors relied upon account for the entire wage differential.”); COLO. REV. STAT. § 8-5-102(1)(c) (2022) (“[E]ach factor relied on in subsection (1)(a) of this section accounts for the entire wage rate differential. . . .”); 820 ILL. COMP. STAT. ANN. 112/10(a)(4)(C) (West 2023) (“accounts for the differential”); MD. CODE ANN., LAB. & EMPL. § 3-304(c)(7)(iii) (West 2022) (“accounts for the entire differential”); N.J. STAT. ANN. § 10:5-12(t)(4) (West 2023) (“[O]ne or more of the factors account for the entire wage differential. . . .”); WASH. REV. CODE ANN. § 49.58.020(3)(a)(iii) (West 2023) (“Account for the entire differential. More than one factor may account for the differential.”); OR. REV. STAT. § 652.220(2)(I) (West 2022) (“Any combination of the factors described in this paragraph, if the combination of factors accounts for the entire compensation differential.”).

⁶ See Porat, *supra* note 3. Most of the following discussion will be in terms of sex discrimination because that is prohibited by the Equal Pay Act and corresponding state law; however, the same considerations apply to comparisons between all demographic groups.

defenses specified by statute.⁷ Yet, pay differences within the same job prevail *within* any demographic group, and the overwhelming evidence is that these differences are not entirely accounted for by factors designated as affirmative defenses.⁸ But if employers are unable to account entirely for pay differences *within* any demographic group, premising a finding of discrimination on a similar inability to account for pay differences *between* demographic groups makes little sense. From this perspective, many of the most recent equal pay laws passed in various states are not “anti-discrimination laws” but laws that prohibit unaccounted-for pay differences, whether or not they stem from discrimination.⁹

Additionally, in drawing pay comparisons between members of different demographic groups, it must be determined whether an employer is obligated to pay all employees the same as the best-paid member of an allegedly favored group, or just the average—or perhaps median—member of that group. In other words, must Jane be paid the same as *any* Tom, Dick, or Harry, or the average or median of the three?¹⁰ We will explain that the *any* Tom, Dick, or Harry rule (i.e., the single comparator rule) permits an employee to cherry-pick her comparator, which leads to extreme results that could not have been intended by courts or legislatures.

⁷ This is especially important because when considering a plaintiff's prima facie evidence, courts are required to be mindful of the “broad remedial purpose” of the Equal Pay Act. 29 C.F.R. § 1620.14(a) (2022). *See also* 29 C.F.R. § 1620.34 (2022) (“These rules and regulations shall be liberally construed to effectuate the purpose and provisions of this Act and any other Act administered by the Commission.”).

⁸ This is particularly true of states, such as Massachusetts, that limit the “permissible” set of factors that legitimately may account for pay differences. As we demonstrate, factors iv through vii fail to account for a large portion of the pay differences among employees in any demographic group, raising the question of why the failure to account for similar differences between advantaged and disadvantaged groups is a reasonable measure of pay discrimination. *See, e.g.,* MASS. GEN. LAWS ch. 149, § 105A(b) (West 2023) (“No employer shall discriminate in any way on the basis of gender in the payment of wages, or pay any person in its employ a salary or wage rate less than the rates paid to its employees of a different gender for comparable work; provided, however, that variations in wages shall not be prohibited if based upon: (i) a system that rewards seniority with the employer; provided, however, that time spent on leave due to a pregnancy-related condition and protected parental, family and medical leave, shall not reduce seniority; (ii) a merit system; (iii) a system which measures earnings by quantity or quality of production, sales, or revenue; (iv) the geographic location in which a job is performed; (v) education, training or experience to the extent such factors are reasonably related to the particular job in question; or (vi) travel, if the travel is a regular and necessary condition of the particular job.”).

⁹ *See* Porat, *supra* note 3 (quoting Melinda Koster, chair of Sanford Heisler Sharp LLP's discrimination and harassment practice group, “[i]n this new equal pay landscape, there are going to be more questions about whether factors that have historically been recognized as neutral defenses against pay disparities are in fact discriminatory”).

¹⁰ Jurisdictions that permit comparisons to *any* Tom, Dick, and Harry are said to follow the “single comparator rule,” which allows a plaintiff to identify the particular employee of the opposite sex deemed an appropriate comparator. *See, e.g.,* *Eisenhauer v. Culinary Institute of America*, No. 19-cv-10933 (PED), 2021 WL 5112625 (S.D.N.Y. Nov. 3, 2021) (determining that “identifying a single comparator would be sufficient to make a prima facie case”), *aff'd in part on other grounds and remanded*, 2023 U.S. App. LEXIS 27508 (2d Cir. Jan. 26, 2023). *But see* *Cantu v. Google LLC*, No. 21CV392049 (Santa Clara Sup. Ct., Feb. 19, 2023) (denying Defendant's Motion to Strike Private Attorneys General Act claim) (concluding that the plaintiff need not find a “specific, appropriate comparator” at the pleading stage, although it determined that “at some point . . . Plaintiff will need to show specific, relevant comparators”).

I. A FRAMEWORK FOR DEFINING EQUAL PAY¹¹

Part I posits a model of a hypothetical non-discriminating employer to serve as a benchmark against which unequal pay allegations can be assessed. Because this hypothetical employer should be judged a non-discriminator by any reasonable standard, equal pay laws and judicial decisions that nevertheless would find this employer liable for pay discrimination or required to respond to a prima facie case have overreached.

Consider a thought experiment in which a company hires only male and female twins. Each brother and sister have exactly the same job-related qualifications, experience, and training, and possess equally all other productivity-related traits. Each pair of siblings is paid precisely the same, so there is no pay difference between the siblings. As a result, there are an equal number of men and women at each pay level. The average pay of males and females must be the same, as well as the median pay or any other measure describing the distribution of pay between these groups. Mathematically, these groups of males and females are known as “equal subsets” of the employee population.¹²

Notwithstanding this equality, an employee of either sex may be able to prove a prima facie case of unequal pay, as construed by several courts and some legislatures.¹³ The scenario described above is depicted in a simple diagram in Figure 1, which indicates an employee’s pay as a function of his or her experience with the employer. Each point on the graph represents two employees—twin siblings—who are paid exactly the same. But not all pairs of siblings are paid equally—Bob and Mary, who are paid the same, may be paid less than Steve and Barbara, who also are paid the same as each other.¹⁴ Even employees with the same experience may be paid differently, but for reasons unrelated to sex.¹⁵ We know this about our hypothetical because for every male who is paid above average, his sister is paid the same. The same is true for every female who is paid less than others—she has a brother who suffers the same fate.

¹¹ Although this discussion focuses on gender pay differences, the same framework and observations would apply to pay differences regarding racial, ethnic, and other protected groups. For convenience, we use illustrative examples of gender pay comparisons throughout this Article.

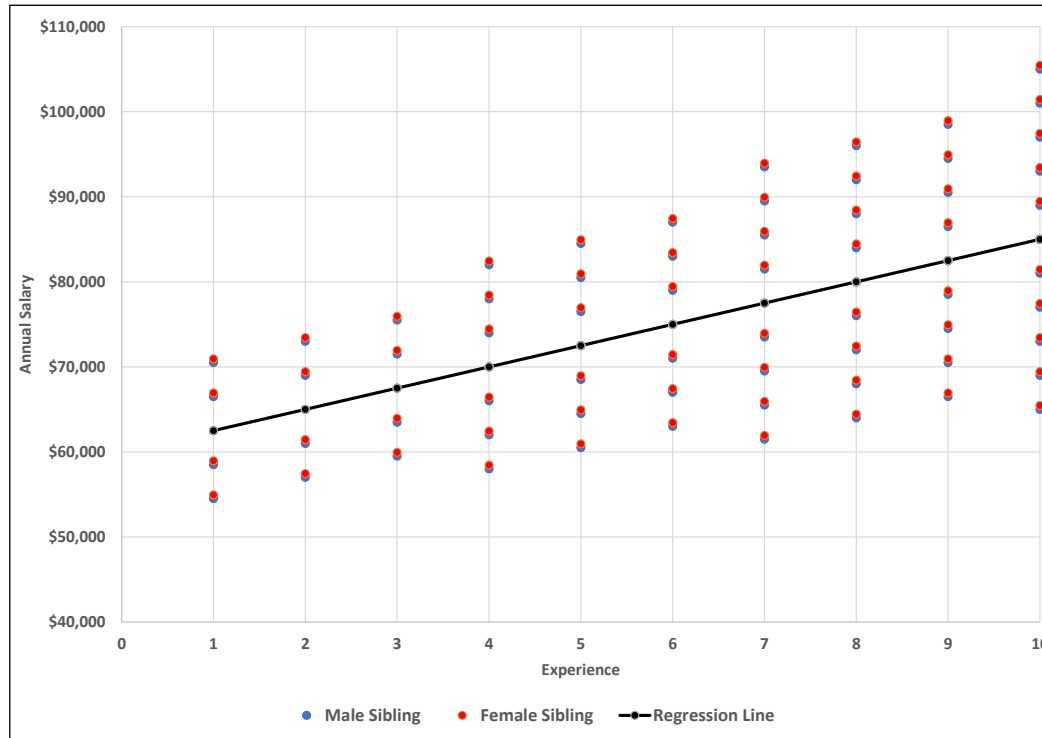
¹² See, e.g., Pamini Thangarajah, *Subsets and Equality*, LIBRETEXTS: MATHEMATICS, www.math.libretexts.org [<https://perma.cc/GWK7-G9EH>] (last visited Mar. 29, 2023).

¹³ This is true under the simplest circumstances. In a dynamic workplace, employees are hired, resign, and are promoted and disciplined. An employee’s hypothetical twin may join or leave the company, or get promoted out of the group of comparators, thereby destroying the balance that otherwise would prevail, through no fault of the employer.

¹⁴ This dispersion in pay is included in our example to capture the variations in pay that are described more fully in Part III.

¹⁵ See, e.g., Porat, *supra* note 3 (quoting Liz Washko, co-chair of Ogletree Deakins Nash Smoak & Stewart PC’s pay-equity practice group, “[i]t’s easy enough to say on a particular day that one person is paid more than another, but digging into the reasons for that is complicated for both sides”).

FIGURE 1. HYPOTHETICAL EMPLOYEE'S PAY AS A FUNCTION OF EXPERIENCE



A well-conceived law should permit this employer to escape liability and, importantly, should not permit a female plaintiff to premise a prima facie case on the fact that some male comparator is paid more.¹⁶ In this example, every highly paid male has a sister paid exactly the same, and each lower-paid female has a brother who earns what she earns. Judicial rulings that would find a prima facie case under these circumstances conflate mere pay differences with discriminatory pay differences. Whether this non-discriminating employer will ultimately escape liability depends on its ability to prove these pay differences reflect a factor other than sex, and in at least seven states the employer must account fully for these pay differences. Ironically, in a single-comparator jurisdiction, this employer cannot defend by proving all siblings are paid the same.

The Supreme Court construes the Equal Pay Act's prohibition against unequal pay to apply irrespective of the employer's discriminatory motivations.¹⁷ The offense consists of paying an employee less than an employee of the opposite sex and failing to account for this pay difference in neutral terms. But this creates a false dichotomy; either pay differences are discriminatory, or they can be accounted for by one of the four affirmative defenses. This excludes the nondiscriminatory, but unaccounted for, differences in pay of our benchmark case. In that example, some female employees are paid less than both males and other females,

¹⁶ We refer to whether an equal pay law recognizing no liability in a case in which men and women who are identical siblings are paid the same, notwithstanding the general dispersion in pay, as the "sibling test." See *infra* Part VI.

¹⁷ *Ledbetter v. Goodyear Tire & Rubber Co.*, 550 U.S. 618, 641 (2007), *superseded by statute*, Lilly Ledbetter Fair Pay Act of 2009, Pub. L. No. 111-2, 123 Stat. 5.

for reasons unrelated to sex, but which may not satisfy one of the affirmative defenses prescribed by the EPA or its state law counterparts.¹⁸

Figure 1, described above, does double-duty because each point is assumed to represent the pay of hypothetical male and female siblings. Accordingly, it depicts the range of inequality that exists among males performing similar work, and because each male has an identical female sibling, the same dispersion in pay exists among female employees. Although it is reasonable to assume that pay differences among males do not reflect gender bias, empirical studies of pay differences among males fall well short of accounting in neutral terms for the entirety of these pay differences (i.e., reasons recognized as affirmative defenses under equal pay laws).¹⁹ Consequently, it is wrong for unexplained pay differences of the same magnitude that arise between men and women to be construed as (conclusive) evidence of sex discrimination. Rather, it is the *differential* ability of neutral factors to account for pay differences that may evidence discrimination under the EPA and state equal pay laws.

II. THE FEDERAL EQUAL PAY ACT

The Equal Pay Act was enacted in 1963, as an amendment to the Fair Labor Standards Act, to ensure equal pay to men and women engaged in interstate commerce who perform equal work.²⁰ More specifically, the law provides:

No employer having employees subject to any provisions of this section shall discriminate, within any establishment in which such employees are employed, between employees on the basis of sex by paying wages to employees in such establishment at a rate less than the rate at which he pays wages to employees of the opposite sex in such establishment for equal work . . .²¹

The EPA defines “equal work” in terms of the skill, effort, and responsibilities a job requires, which is performed under similar working conditions.²² The Act broadly defines the compensation it covers to include salary, overtime pay, bonuses, life insurance, vacation and holiday pay, cleaning or gasoline allowances, hotel accommodations, reimbursement for travel expenses, and benefits.²³

¹⁸ This observation raises the question of whether the nondiscriminatory but unaccounted for differences in pay between men and women are large enough to undermine the method of proof required by these statutes. *See infra* Part III.

¹⁹ 29 C.F.R. § 1620.13 (2022). *See infra* Part VI and accompanying citations to empirical studies regarding residual differences in earnings among males that remain after accounting for job-related differences.

²⁰ For guidance regarding the pertinent considerations determining who is engaged in interstate commerce, see 29 C.F.R. §§ 1620.1–1620.7 (2022).

²¹ 29 U.S.C. § 206(d)(1) (2018).

²² 29 C.F.R. § 1620.13 (2022).

²³ *See* 29 C.F.R. § 1620.10 (2022).

The Department of Labor was charged with issuing regulations interpreting the statute.²⁴ These are elaborated in the Code of Federal Regulations, which better illustrates what equal skill, effort, and responsibility do not mean rather than explaining, for example, when two jobs, although distinct, are presumed to require the same skill.²⁵ The regulations also fail to indicate how skills are to be measured and compared. The following is illustrative:

29 C.F.R. § 1620.15 Jobs requiring equal skill in performance.

- (a) In general. The jobs to which the equal pay standard is applicable are jobs requiring equal skill in their performance. Where the amount or degree of skill required to perform one job is substantially greater than that required to perform another job, the equal pay standard cannot apply even though the jobs may be equal in all other respects. Skill includes consideration of such factors as experience, training, education, and ability. It must be measured in terms of the performance requirements of the job. If an employee must have essentially the same skill in order to perform either of two jobs, the jobs will qualify under the EPA as jobs the performance of which requires equal skill, even though the employee in one of the jobs may not exercise the required skill as frequently or during as much of his or her working time as the employee in the other job. Possession of a skill not needed to meet the requirements of the job cannot be considered in making a determination regarding equality of skill. The efficiency of the employee's performance in the job is not in itself an appropriate factor to consider in evaluating skill.
- (b) Comparing skill requirements of jobs. As a simple illustration of the principle of equal skill, suppose that a man and a woman have jobs classified as administrative assistants. Both jobs require them to spend two-thirds of their working time facilitating and supervising support-staff duties, and the remaining one-third of their time in diversified tasks, not necessarily the same. Since there is no difference in the skills required for the vast majority of their work, whether or not these jobs require equal skill in performance will depend upon

²⁴ The Department of Labor initially had enforcement responsibilities until 1979 when the enforcement responsibility was transferred to the EEOC (*see* Proclamation No. 12144, 44 Fed. Reg. 37193 (June 26, 1979)). *See also* EEOC v. Hernando Bank, Inc., 724 F.2d 1188, 1192 (5th Cir. 1984) (“The plan thus effected a valid transfer of governmental authority to enforce the Equal Pay Act from the Secretary of Labor to the EEOC.”).

²⁵ *See, e.g.*, 29 C.F.R. § 1620.14 (2022) (“Testing equality of jobs[:] (a) In general. What constitutes equal skill, equal effort, or equal responsibility cannot be precisely defined. In interpreting these key terms of the statute, the broad remedial purpose of the law must be taken into consideration.”).

the nature of the work performed during the latter period to meet the requirements of the jobs.²⁶

Importantly, the regulations are silent regarding the Tom, Dick, and Harry question raised above, yet this issue is critical in identifying violations of the EPA. The question is whether a plaintiff can prevail by proving she is paid less than *any* higher paid male or must she demonstrate as well (or instead) that females as a group are paid less than a comparable group of males. As framed by many courts, the issue is whether a plaintiff can prove an EPA violation by referencing a single male comparator or if she must also demonstrate that women generally suffer in comparison to the larger group of similarly situated males.²⁷ We refer to this as the “single-comparator question.”

The Ninth Circuit appears to be the first appellate court to address the issue in *Hein v. Oregon Coll. of Educ.*²⁸ The case was brought by female faculty members of the college who complained they were paid less than male comparators. To decide the case, the Ninth Circuit had to determine whether the trial court correctly considered the pay of just one higher-paid male performing similar work, or if the pay of all comparable males was the appropriate benchmark.

The appellate court rejected the single comparator, finding the pay of other similarly situated males also must be considered. It explained why it rejected one cherry-picked male as a comparator:

We do not believe that the Equal Pay Act is subject to such manipulation. The Act does not prohibit variations in wages; it prohibits discriminatory variations in wages. If it should turn out that Dr. Campbell earns more than males performing substantially equal work, it is axiomatic that the Equal Pay Act does not afford her relief. We thus agree with the Eighth Circuit that “a comparison to a specifically chosen employee should be scrutinized closely to determine its usefulness.” There were 13 men teaching in the Physical Education Department at the time of suit, yet the plaintiffs here, as in *Heymann*, chose a single employee for comparison apparently because he was the highest paid employee performing substantially equal work, not because he was the only comparable employee.

We believe that the proper test for establishing a prima facie case in a professional setting such as that of a college is whether the plaintiff is receiving lower wages than the average of

²⁶ 29 C.F.R. § 1620.15 (2022).

²⁷ Matthew J. Gagnon, *Equal Pay Litigation Trends Update: One Comparator, Two Comparators, Three Comparators, More? Courts Revisit the One-Comparator Rule*, SEYFARTH (July 12, 2022), <https://www.seyfarth.com/news-insights/equal-pay-litigation-trends-update-one-comparator-two-comparators-three-comparators-more-courts-revisit-the-one-comparator-rule.html> [https://perma.cc/JCG7-PAN2] (examining how courts are resolving the ambiguity of whether “an equal pay plaintiff [can] establish his or her prima facie case of pay discrimination by pointing to just one comparator who was paid more, even though there are other comparators who were paid less or whose pay would otherwise contradict that narrative”).

²⁸ 718 F.2d 910 (9th Cir. 1983).

wages paid to all employees of the opposite sex performing substantially equal work and similarly situated with respect to any other factors, such as seniority, that affect the wage scale. This recognizes that in a professional setting, wage variations may stem from a multitude of factors that do not implicate sex discrimination. This conclusion is also in harmony with the language of the Equal Pay Act, which requires comparison to “employees” of the opposite sex. The Act speaks of employees only in the plural.²⁹

Based on this reasoning, the Ninth Circuit concluded that “Dr. Campbell [the female plaintiff] may establish a prima facie case only if her wages are less than the average paid to Mr. Boutin, Mr. Carey, and any other appropriate male comparator. The average male wage, if still above the wages paid to Dr. Campbell, should also be used as the benchmark figure for damages calculation.”³⁰ This last observation will be highly relevant to the discussion in subsequent sections.

But other courts failed to follow the Ninth Circuit’s lead. For example, a federal district court in Michigan found a plaintiff established a prima facie case under the EPA on the basis of a single comparator.³¹ The Second, Third, Fourth, Fifth, and Eleventh Circuits also balked at following the Ninth Circuit.³² The position of Second Circuit courts on this issue was recently affirmed by the Southern District of New York, which noted that precedent shows “identifying a single male comparator is sufficient to make out a prima facie case prior to trial.”³³ The court stated that its interpretation was consistent with other Second Circuit decisions as well.³⁴

The single-comparator rule was considered by a federal district court in the Western District of Pennsylvania. After reviewing decisions in the Third Circuit, the court rejected the argument that a plaintiff must prove she was paid less than the average of comparable males. “To the Court’s knowledge, this [average] rule has almost never been adopted in this Circuit. To the contrary, several district courts in this Circuit have held that a plaintiff may elect “one single comparator if they so choose.”³⁵

²⁹ *Id.* at 916 (first quoting *Heymann v. Tetra Plastics Corp.*, 640 F.2d 115, 122 (8th Cir. 1981); and then citing *Melanson v. Rantoul*, 536 F. Supp. 271, 291 (D.R.I. 1982)). Note that *Heymann*, was decided under Title VII of the Civil Rights Act of 1964. *Heymann* also involved comparisons among blue-collar workers so its holding should have applicability beyond the “professional setting” referenced in *Hein*. Additionally, the empirical literature discussed below indicates that the degree of dispersion in earnings is greater among the highly educated, as the Ninth Circuit suggests, but exists to a lesser degree among those with less education.

³⁰ *Id.* at 917. See *Melanson*, 536 F. Supp. at 291.

³¹ *Morrow v. L & L Prods.*, 945 F. Supp. 2d 835, 846 (E.D. Mich. 2013).

³² The cases supporting this conclusion are identified in this and subsequent paragraphs.

³³ *Eisenhauer v. Culinary Inst. of Am.*, 2021 U.S. Dist. LEXIS 212822, at *15 (S.D.N.Y. 2021), *aff’d on other grounds*, 84 F.4th 507 (2d Cir. 2023).

³⁴ *Id.* at *14–16.

³⁵ *Barthelemy v. Moon Area Sch. Dist.*, 2020 U.S. Dist. LEXIS 67990, at *37 n.29 (W.D. Pa. 2020).

A similar rule appears to prevail in the Fifth Circuit. In *Mullinex v. University of Texas Austin*,³⁶ the magistrate judge reviewed Fifth Circuit precedents and concluded: “[t]herefore, under Fifth Circuit precedent, a plaintiff need only identify one comparator in a position requiring equal skill, effort, and responsibility under similar working conditions as the plaintiff.”³⁷

This same view has been advanced by the United States Equal Employment Opportunity Commission (EEOC),³⁸ which has relied on its guidance to explain in recent amicus filings, “[t]here is no requirement that the complainant show a pattern of sex-based compensation disparities in a job category.”³⁹ Similarly, in *EEOC v. Maricopa Cnty. Cmty. Coll. Dist.*, the court found that the existence of higher-paid women in the same job category as the male comparators ‘does not ... defeat the plaintiff’s prima facie showing of wage discrimination.’⁴⁰ The California Court of Appeals decision in *Allen v. Staples, Inc.* confers similar latitude on plaintiffs who sue under its equal pay statute.⁴¹ Defenders of this approach argue that this latitude is important not only because of the EPA’s remedial purposes, but also because a requirement for a plaintiff to identify more than a single comparator could create a significant burden that then undermines such remedial purposes.⁴²

Our objective in citing these cases is not to provide a comprehensive review of precedent nor state law, but to demonstrate we are not tilting at

³⁶ No. 19-cv-01203-LY, slip op. at 8 (W.D. Tex. Nov. 19, 2021).

³⁷ *Id.* at 8 (first quoting *Weaver v. Basic Energy Servs., L.P.*, 578 F. App’x 449, 451 (5th Cir. 2014) (“[Plaintiff] ‘must identify *someone* with circumstances ‘nearly identical’ to her own, such that the court can evaluate her claim of unfair treatment.”) (emphasis added); then citing *Vasquez v. El Paso Cnty. Cmty. Coll. Dist.*, 177 F. App’x 422, 425 (5th Cir. 2006) (holding that plaintiff failed to show a prima facie case where he did not identify “any evidence that suggests a *female* in a similar position earned a higher wage than he did.”) (emphasis added); and then citing *Gillis v. Turner Indus.*, 137 F.3d 1349 (5th Cir. 1998) (holding that a prima facie case was not shown when Plaintiff “did not submit any evidence that she had been treated differently on the basis of gender than any other similarly situated *employee* of the opposite sex.”) (emphasis added)).

³⁸ See U.S. EQUAL EMP. OPPORTUNITY COMM’N, No. 915.003, EEOC COMPLIANCE MANUAL § 10-IV: COMPENSATION DISCRIMINATION IN VIOLATION OF THE EQUAL PAY ACT (2006) (explaining that a prima facie case under the EPA requires showing, inter alia, that “the complainant receives a lower wage than paid to an employee of the opposite sex in the same establishment”); *id.* § 10-IV(E)(1) (“A prima facie EPA violation is established by showing that a male and a female receive unequal compensation for substantially equal jobs within the same establishment. A complainant cannot compare herself or himself to a hypothetical male or female; rather, the complainant must show that a specific employee of the opposite sex earned higher compensation for a substantially equal job.”).

³⁹ *Id.*

⁴⁰ 736 F.2d 510, 515 (9th Cir. 1984). This text is excerpted from the Brief of the Equal Employment Opportunity Commission as Amicus Curiae in Support of Plaintiff-Appellant at 24, *Eisenhauer v. Culinary Inst. of Am.*, 2023 U.S. App. LEXIS 27508 (2d Cir. 2023) (No. 21-02919). See also Patrick Hoff, *EEOC Asks 2nd Circ. to Revive Culinary School Pay Bias Suit*, LAW360 (Mar. 11, 2022, 6:57 PM), <https://www.law360.com/employment-authority/articles/1473230> [http://perma.cc/N8S2-4V7V].

⁴¹ 84 Cal. App. 5th 188, 195 (2022) (citing *Dubowsky v. Stern*, 922 F. Supp. 985, 990 (N.J. 1996)). But as we have seen, federal courts are divided on this issue and this California trial court chose to rely on an opinion of a New Jersey district court, interpreting Eleventh Circuit law, rather than the Ninth Circuit’s opinion in *Hein v. Oregon Coll. of Educ.* 718 F.2d 910, 916 (9th Cir. 1983).

⁴² See Porat, *supra* note 3.

windmills—a point we deem essential because the implications of the single-comparator rule are profound. The following example demonstrates that a rule that may seem sensible when applied to an individual plaintiff is a folly when applied in aggregate litigation.⁴³ The problem is illustrated in the following table, which indicates the annual pay of each hypothetical employee. The question is which employees can state a claim under the EPA by means of the single-comparator rule? Note that Mary and Sarah are paid more than Bob, and the average pay of females is \$94,500 and the average pay of males is \$85,000 (average pay for both men and women is \$90,000).

TABLE 1. HYPOTHETICAL PAY CHART

NAME	PAY
MARY	\$100,000
JOHN	\$100,000
SARAH	\$90,000
TOM	\$90,000
JANE	\$80,000
BOB	\$80,000

Under the single-comparator rule, the answer is everyone but John and Mary. Female employees can point to John as their comparator and prove a prima facie case. But if the employer attempts to remediate these pay differences by paying Sarah and Jane the same as John, then Tom and Bob can compare themselves to their female counterparts and state a claim as well. This employer avoids defending against a prima facie case only by paying all employees the same salary. The single-comparator rule therefore motivates employers to extinguish pay differences, not pay discrimination.

III. THE “ENTIRE DIFFERENTIAL” RULE CONFERS LIABILITY IN THE ABSENCE OF DISCRIMINATION

Despite the generosity of the single comparator rule, a consensus remains that the Equal Pay Act, and its state counterparts, have been ineffective in eliminating pay discrimination. This view is stated explicitly in the legislative findings accompanying the 2015 amendments to California’s Equal Pay Act.

California has prohibited gender-based wage discrimination since 1949. Section 1197.5 of the Labor Code was enacted to redress the segregation of women into historically undervalued occupations, but it has evolved over the last four decades so that it is now virtua-

⁴³ *But see* *Tyson Foods, Inc. v. Bouaphakeo*, 577 U.S. 442, 455 (2016) (“the Rules Enabling Act’s pellucid instruction that use of the class device cannot ‘abridge . . . any substantive right.’”); *see also* Rules Enabling Act, 28 U.S.C. § 2072(b) (2018).

lly identical to the federal Equal Pay Act of 1963. However, the state provisions are rarely utilized because the current statutory language makes it difficult to establish a successful claim.⁴⁴

Although California boasted of enacting the toughest equal pay law in the nation,⁴⁵ its inspiration was not necessarily home grown. Beginning in 1997, Congress has regularly considered amendments to the federal Equal Pay Act and Title VII of the Civil Rights Act of 1964. The recurring title of these proposed amendments has been the Paycheck Fairness Act, which over the years was reintroduced, each time with expansive modifications. In each instance, the intent was to remove “[a]rtificial barriers to the elimination of discrimination in the payment of wages on the basis of sex [that] continue to exist more than three decades after the enactment of the Fair Labor Standards Act of 1938 and the Civil Rights Act of 1964.”⁴⁶ Although the earliest proposed amendments did not change the gender pay comparisons required by the Act, they sought to add compensatory and punitive damages to the law’s backpay remedy.

The version of the bill introduced in 2001 was the first in a series of proposals to heighten the employer’s burden in proving that a gender pay differential was attributable to “any factor other than sex.” It would delete “any” from the forgoing and substitute in its place “bona fide.” It then would define a bona fide factor in terms associated with disparate impact claims under Title VII. To wit: this factor must be job-related and consistent with business necessity, and the employer’s defense would fail if the plaintiff established there was a less-discriminatory alternative available to the employer.⁴⁷ In addition, the proposed amendment eliminated the requirement that pay comparisons must be limited to employees in the “same establishment.”⁴⁸

These amendments were included in bills introduced in each subsequent congressional session through 2015, when a change was introduced that resonates through the present. Rather than placing the burden on the plaintiffs to demonstrate that equally effective pay-setting criteria would result in a smaller pay gap, the proposed amendment would require employers to prove that job-related criteria that account for a gender difference in pay account for the *entire* pay difference, or else the affirmative defense fails. Compare the text of the 2013–2014 version of the amendment with the 2015–2016 version, in which the added text is italicized.

The bona fide factor defense described in subparagraph (A)(iv) shall apply only if the employer demonstrates that such factor (i) is not based upon or derived from a sex-based differential in compensation; (ii) is job-related with respect to the position in question; and

⁴⁴ Act of Oct. 6, 2015, ch. 546, S.B. No. 358, 2015 Cal. Stat. 4605. Prior to amendment the state law resembled the federal Equal Pay Act.

⁴⁵ See P. McGreevy & C. Megerian, *California Now Has One of the Toughest Equal Pay Laws in the Country*, L.A. TIMES (Oct. 6, 2015, 8:15 PM), <https://www.latimes.com/local/political/lame-pc-gov-brown-equal-pay-bill-20151006-story.html> [<https://perma.cc/37RQ-F7M9>].

⁴⁶ H.R. 2023, 105th Cong. § 2(4)(A) (1997).

⁴⁷ H.R. 781, 107th Cong. § 3 (2001).

⁴⁸ *Id.*

(iii) is consistent with business necessity. Such defense shall not apply where the employee demonstrates that an alternative employment practice exists that would serve the same business purpose without producing such differential and that the employer has refused to adopt such alternative practice.⁴⁹

The bona fide factor defense described in subparagraph (A)(iv) shall apply only if the employer demonstrates that such factor (i) is not based upon or derived from a sex-based differential in compensation; (ii) is job-related with respect to the position in question; (iii) is consistent with business necessity; and (iv) *accounts for the entire differential in compensation at issue*. Such defense shall not apply where the employee demonstrates that an alternative employment practice exists that would serve the same business purpose without producing such differential and that the employer has refused to adopt such alternative practice.⁵⁰

This revision has influenced legislation beyond what one normally expects from a frequently rejected amendment and has been adopted by at least seven state legislatures. The same year the requirement to account for “entire differential” was introduced in Congress, it was proposed in the California legislature and quickly signed into law.⁵¹ This was followed more recently by amendments passed by legislatures in six additional states, and similar provisions are pending elsewhere.⁵²

IV. THE “ENTIRE DIFFERENTIAL” AS REQUIRED BY SEVEN STATES

These sections review the seven states that have limited the factors considered for the bona fide defense by requiring the employer to show that it accounted for the entire differential in compensation at issue.

*A. The California Rule*⁵³

The California Fair Pay Act enumerates four affirmative defenses to an employee’s prima facie case of pay discrimination. The one with broadest applicability requires an employer to prove the pay differential results from “[a] bona fide factor other than sex, such as education, training, or experience....[t]he one

⁴⁹ H.R. 377, 113th Cong. § 3(a)(3)(B) (2013–2014).

⁵⁰ H.R. 1619, 114th Cong. § 3(a)(3)(B) (2015–2016).

⁵¹ Act of July 18, 2018, ch. 127, A.B. No. 2282, 2018 Cal. Stat. No. 2255 (made effective Jan. 1, 2019).

⁵² See *infra* Part IV. See, e.g., S.B. 742, 113th Gen. Assemb., Reg. Sess. (Tenn. 2023) (allowing a bona fide factor defense if the employer “account[s] for the entire wage differential.”).

⁵³ CAL. LAB. CODE §§ 1197.5(a)(1)(D), (3) (West 2023).

or more factors relied upon account for the entire wage differential.”⁵⁴ What is unclear and unguided by regulations is whether an employer that can *partially* account for the wage differential nevertheless is liable for the differential in its entirety or just the portion unaccounted for. As an example, suppose a male employee is paid \$10,000 more than a female employee performing substantially similar work. At trial, the employer is able to account for \$8,000 of that differential. Is the employer liable for the remaining \$2,000 or, having failed to establish the defense in its entirety, is it liable for \$10,000?⁵⁵

B. *The Colorado Rule*⁵⁶

Colorado’s affirmative defenses against wage discrimination are even more circumscribed. It prohibits paying employees of one sex less than an employee of the opposite sex for substantially similar work, but limits an employer’s affirmative defense to a short list of permissible considerations:

- (1)(a) That the wage rate differential is based on:
 - (I) A seniority system;
 - (II) A merit system;
 - (III) A system that measures earnings by quantity or quality of production;
 - (IV) The geographic location where the work is performed;
 - (V) Education, training, or experience to the extent that they are reasonably related to the work in question; or
 - (VI) Travel, if the travel is a regular and necessary condition of the work performed; ... and
- (c) That each factor relied on in subsection (1)(a) of this section accounts for the entire wage rate differential.

As we will explain, these enumerated factors would be most unlikely to account for the entire wage differential among employees of the *same* sex, and they therefore provide a dubious benchmark for determining whether pay differences between male and female employees are discriminatory. This statute too is silent regarding whether the failure to account for the entire wage difference defeats the affirmative defense or whether the employer that accounts for a fraction of the wage difference mitigates liability to that extent.

C. *The Illinois Rule*⁵⁷

⁵⁴ *Id.*

⁵⁵ A number of the states have historically issued opinion letters, notably California, to address such uncertainties. Perhaps some additional clarity could be provided by that means. See Keith E. Sonderling & Bradford J. Kelley, *The Sword and the Shield: The Benefits of Opinion Letters by Employment and Labor Agencies*, 86 MO. L. REV. 1171 (2021).

⁵⁶ COLO. REV. STAT. § 8-5-102(1)(c) (2022).

⁵⁷ 820 ILL. COMP. STAT. ANN. 112/10(a)(4)(C) (West 2023).

The Illinois Equal Pay Act provides a defense to wage differences between employees of the opposite sex if the employer proves the following:

- (4) a differential based on any other factor other than: (i) sex or (ii) a factor that would constitute unlawful discrimination under the Illinois Human Rights Act, provided that the factor:
 - (A) is not based on or derived from a differential in compensation based on sex or another protected characteristic;
 - (B) is job-related with respect to the position and consistent with a business necessity; and
 - (C) accounts for the differential.⁵⁸

The Act is silent regarding the consequence of only partially accounting for sex or racial pay differences.

*D. The Maryland Rule*⁵⁹

Maryland also requires an employer's affirmative defenses to account for the entire pay difference:

- (c) Except as provided in subsection (d) of this section, subsection (b) of this section does not prohibit a variation in a wage that is based on:
 - (1) a seniority system that does not discriminate on the basis of sex or gender identity;
 - (2) a merit increase system that does not discriminate on the basis of sex or gender identity;
 - (3) jobs that require different abilities or skills;
 - (4) jobs that require the regular performance of different duties or services;
 - (5) work that is performed on different shifts or at different times of day;
 - (6) a system that measures performance based on a quality or quantity of production; or
 - (7) a bona fide factor other than sex or gender identity, including education, training, or experience, in which the factor:
 - (i) is not based on or derived from a gender-based differential in compensation;
 - (ii) is job related with respect to the position and consistent with a business necessity; and
 - (iii) accounts for the entire differential.

*E. The New Jersey Rule*⁶⁰

⁵⁸ *Id.*

⁵⁹ MD. CODE ANN., LAB. & EMPL. § 3-304(c)(7)(iii) (West 2022).

⁶⁰ N.J. STAT. ANN. § 10:5-12(t)(4) (West 2023).

New Jersey lists five elements to its affirmative defense to pay differences:

- (1) That the differential is based on one or more legitimate, bona fide factors other than the characteristics of members of the protected class, such as training, education or experience, or the quantity or quality of production;
- (2) That the factor or factors are not based on, and do not perpetuate, a differential in compensation based on sex or any other characteristic of members of a protected class;
- (3) That each of the factors is applied reasonably;
- (4) That one or more of the factors account for the entire wage differential; and
- (5) That the factors are job-related with respect to the position in question and based on a legitimate business necessity. A factor based on business necessity shall not apply if it is demonstrated that there are alternative business practices that would serve the same business purpose without producing the wage differential.

As in her sister states, New Jersey's statute is silent as to whether an employer that fails to account for the entire pay difference is liable for only the unaccounted-for portion of the pay difference.

*F. The Oregon Rule*⁶¹

Oregon also limits employers to an exclusive set of affirmative defenses:

- (a) An employer may pay employees for work of comparable character at different compensation levels if all of the difference in compensation levels is based on a bona fide factor that is related to the position in question and is based on:
 - (A) A seniority system;
 - (B) A merit system;
 - (C) A system that measures earnings by quantity or quality of production, including piece-rate work;
 - (D) Workplace locations;
 - (E) Travel, if travel is necessary and regular for the employee;
 - (F) Education;
 - (G) Training;
 - (H) Experience; or
 - (I) Any combination of the factors described in this paragraph, if the combination of factors accounts for the entire compensation differential.

⁶¹ OR. REV. STAT. ANN. § 652.220(2)(I) (West 2022).

As noted previously, it will be the rare case in which employers who have not adopted a compensation system that rigidly ties pay to prescribed metrics can account fully for pay differences within any demographic group, let alone between groups. Indeed, the overwhelming evidence is to the contrary, as discussed in Part III. This statute is also silent regarding the employer's failure to account for the entire compensation differential.

G. *The Washington Rule*⁶²

Washington is more expansive than Oregon in providing, in addition to a list of explicit considerations that excuse pay differences between the sexes, a catch-all phrase, permitting pay differences reflecting “bona fide job-related factors”:

- (3)(a) Discrimination within the meaning of this section does not include a differential in compensation based in good faith on a bona fide job-related factor or factors that:
 - (i) Are consistent with business necessity;
 - (ii) Are not based on or derived from a gender-based differential; and
 - (iii) Account for the entire differential. More than one factor may account for the differential.
- (b) Such bona fide factors include, but are not limited to:
 - (i) Education, training, or experience;
 - (ii) A seniority system;
 - (iii) A merit system;
 - (iv) A system that measures earnings by quantity or quality of production; or
 - (v) A bona fide regional difference in compensation levels.
- (c) A differential in compensation based in good faith on a local government ordinance providing for a minimum wage different from state law does not constitute discrimination under this section.
- (d) An individual's previous wage or salary history is not a defense under this section.
- (e) The employer carries the burden of proof on these defenses.

Washington is the only state that explicitly provides that an employer that partially accounts for a pay difference is liable only for the portion that is unaccounted for: “[i]f any employee receives less compensation because of discrimination on account of gender in violation of this section, that employee is entitled to the remedies.⁶³ In such action, however, the employer shall be credited with any compensation which has been paid to the employee upon account.”⁶⁴

⁶² WASH. REV. CODE ANN. § 49.58.010 (West 2023).

⁶³ *Id.* §§ 49.58.060, 49.58.070.

⁶⁴ *Id.* § 49.58.010.

V. THE “ENTIRE DIFFERENTIAL” RULE MAKES LIABILITY VIRTUALLY INEVITABLE

The problem with a strict liability rule regarding pay discrimination is that the same pay differences these statutes prohibit between the sexes are commonplace among employees of the same sex, even those performing similar work.⁶⁵ This observation applies to comparisons by race, ethnicity, and other demographic groups encompassed by the equal pay laws of the seven states. These within-group differences in pay obviously do not arise “on the basis of sex” or any other demographic characteristic. As important, within-group differences are not entirely explained by measurable considerations.⁶⁶ Yet the equal pay laws of seven states establish liability when pay differences of similar magnitude are found for unexplained reasons *between* members of different demographic groups.

The “entire differential” rule introduces a quantitative dimension to what employers must prove to defend against a claim of unequal pay. In the absence of an “entire differential” requirement, an employer might be able to prevail by establishing an employee’s pay is less than a putative comparator based on a variety of unmeasured considerations, such as unexplained absences, poor attention to detail, inattention to customers, frequent errors, excessive tardiness, etc. These sources of pay inequality could be introduced anecdotally. Although a plaintiff might dispute these characterizations, and whether the pay difference is commensurate with these deficiencies, the evidence regarding these deficiencies would be submitted to the jury, which could consider the question holistically.

The seven states recognize a successful defense to an equal pay violation only if the employer is able to account *quantitatively* for the entire pay disparity. However, these statutes are silent regarding how this accounting is to be made. Legislators appear to envision a labor market in which a non-discriminating employer sets an ascertainable “price” for an employee’s job-related qualities, such as education, tenure, and general labor market experience, then accurately measures the quantity of each and every trait and pays according to this formula. In this imaginary case, it is simple to determine whether an employee is paid similarly to others and—because all objective differences have been considered and weighed—it may be reasonable to consider discrimination a primary reason for any remaining pay difference.

For example, an employer may determine that each additional year of education should provide an employee \$10,000; an additional year of experience, an additional \$5,000; an additional year of general labor market experience, an additional \$3,000; and no other attributes, skills, or behaviors are valued. If so, then all employees would be perfectly aligned by these metrics, and discrimination would be indicated to the extent a pay differential between demographic groups remained after accounting for these metrics.⁶⁷

⁶⁵ See Porat, *supra* note 3.

⁶⁶ *Id.*

⁶⁷ Of course, this assumes that the appropriate compensation formula is explicit. Otherwise, although each factor may be explicit, an employer may value experience differently when it is accompanied by higher education, or vice versa. This illustrates that the determinants of pay may be “interactive,” meaning that a simple enumeration of pay-related factors would be insufficient.

But that is not how employees are compensated and few, if any, employers base compensation solely on factors so readily measurable.⁶⁸ For example, how many additional dollars should be paid to the employee who is always punctual relative to one who invariably is late? Is a higher salary to be paid to the employee at the top of his or her college class than to a colleague who finished at the bottom? If so, how large is a permissible differential and how is it determined? Reasonable minds may differ, and the data discussed below indicate that in fact pay differs in these ways, both among employees in the same demographic group and between employees in different demographic groups. Thus, differences in compensation are relevant measures of discrimination between groups only to the extent they exceed what would prevail *within* the allegedly more favored group.

Although education, training, and experience affect pay, employers rarely maintain a price list regarding the value of these factors. Rather, particularly in litigation under Title VII, employers challenged to explain their pay structure generally rely on data to determine the implicit price they pay for each of the job-related characteristics of their employees. A common methodology for ascertaining those prices is multiple regression analysis.⁶⁹ As an example, that method can estimate how much, on average, one additional year of workforce experience increases an employee's pay, controlling for other neutral influences. The same is true for other job-related factors.

But these imputations are approximate for a variety of reasons: data are misreported, the employer may consider the nature of an employee's experience in addition to the number of years, and employers must weigh how closely an employee's current position resembles their previous jobs. Also relevant are labor market conditions in locations where employees are hired, which may be more localized than any published data reflect. As a consequence, no statistical model regarding any demographic group will provide a perfect fit—it will err by overstating what some employees are expected to earn and understating what others should be paid. This will be true among employees in the *same* demographic group, as well as employees in different demographic groups. Indeed, every statistical estimation procedure explicitly measures the extent of unaccounted-for (perhaps random or unmeasurable) causes of pay differences.⁷⁰

The amounts by which the statistical model fails to account for each employee's pay rate is known as the residual variance, which is akin to a margin of error. These residuals will be positive and negative in equal measure, corresponding to those whose pay differs from the estimates of the statistical model. Yet the statutes in the seven states identified above, if read literally, would brand all

⁶⁸ We concede an exception exists in the unionized sector of the economy, where unions long have sought to take “wages out of competition.” See Kim Moody, *A Pattern of Retreat: The Decline of Pattern Bargaining*, LAB. NOTES (Feb. 16, 2010), <https://labornotes.org/2010/02/pattern-retreat-decline-pattern-bargaining> [<https://perma.cc/MF68-4ZJG>] (“The age-old goal of unions has been to ‘take wages out of competition,’ as an economist put it more than a hundred years ago.”); see also Lawrence Mishel, *The Structural Determinants of Union Bargaining Power*, 40 INDUS. LAB. REL. REV. 90 (1986).

⁶⁹ See, e.g., Daniel L. Rubinfeld, *Reference Guide on Multiple Regression*, in REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 303 (3d ed. 2011).

⁷⁰ In ordinary least-squares regression, a common estimation procedure, the ratio of the “explained” variance in the dependent variable, in our case, earnings, relative to the overall variance, is denoted as “R-squared.” *Id.* at 355.

those with negative residuals—roughly one-half of all employees—as “discriminatees.”

VI. THE EMPIRICAL EVIDENCE REGARDING THE “ENTIRE DIFFERENTIAL”

The fallacy baked into “entire differential” laws is that, in the absence of discrimination, all employees who perform work requiring substantially the same skill, effort, and responsibility would be paid the same, subject to the defenses enumerated in these laws. But that presumption is false, as proven by the wide range in pay among white males who perform similar work. These differences are ubiquitous for reasons unrelated to gender or race, since they are common among white males, and they are unaccounted for in their entirety even in the detailed studies cited below, in which white males are stratified by a narrow occupational definition, their level of education, and full-time, full-year employment.

Consider a slight variation of the statistical model posed by Professors Kaye and Freedman:⁷¹ $\text{salary} = a + b \times \text{education} + c \times \text{experience} + e$.⁷² This model may be used to estimate the additional salary associated with additional education (b), and experience (c), relative to a baseline of (a), the hypothetical pay of those whose education and experience are zero. These parameters often are estimated using ordinary least-squares regression.⁷³ The term (e) is referred to as an “error” term and is included because “[s]alaries are not going to be predicted very well by linear combinations of variables such as education and experience.”⁷⁴ The value of (e) indicates the amount by which an individual’s pay differs from expected pay according to the model (the model’s predictions).⁷⁵ The difference between actual pay and estimated or predicted pay is referred to as the regression residual.⁷⁶ With regard to any individual in the sample, the residual is an estimate of (e), the “error” in accounting for the pay of that individual.⁷⁷ The residual from a linear regression model can be calculated for each individual and must sum to zero across all individuals, as a necessary feature of ordinary least-squares estimation.⁷⁸

Although typically it is supposed that the residuals from a regression model are the outcomes of a random process, it is well known that “the summary effect of the excluded variables shows up as a random error term in the regression model, as does any modeling error” so “[t]echnically, the omission of explanatory

⁷¹ David H. Kaye & David A. Freedman, *Reference Guide on Statistics*, in REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 211, 280 (3d ed. 2011).

⁷² We omit the “gender” term from the Kaye-Freedman model because we will refer solely to estimates regarding the pay of males.

⁷³ Kaye & Freedman, *supra* note 71, at 280.

⁷⁴ *Id.*

⁷⁵ *Id.*

⁷⁶ *Id.* at 295 (“Residual: The difference between an actual and a predicted value. The predicted value comes typically from a regression equation, and is better called the fitted value, because there is no real prediction going on.”).

⁷⁷ Rubinfeld, *supra* note 69, at 352 (defining the error term as “[a] variable in a multiple regression model that represents the cumulative effect of a number of sources of modeling error.”).

⁷⁸ See, e.g., PETER KENNEDY, A GUIDE TO ECONOMETRICS 49 (6th ed. 2008) (“[T]he sum of the OLS residuals . . . equals zero.”).

variables that are correlated with the variable of interest can cause biased estimates of regression parameters.”⁷⁹

There is strong evidence that the residual or unaccounted variance in pay reflects far more than the effects of discrimination. Although these nondiscriminatory influences often are not directly observed or even observable, they cast shadows on the dispersion in pay, even among males, that mark their presence. For example, it is well-documented that the residual variance is greater among males with the highest levels of education and experience, and smaller among those with the least education and experience. Further, the residual earnings variance does not increase uniformly with experience, but is lower within cohorts of employees who left school within the past seven to ten years, compared to those with less or more experience since leaving school.⁸⁰

An additional set of findings casts further doubt on the usefulness of residual differences as a measure of discrimination. Researchers have performed numerous studies in which they considered an expanded list of employee and job characteristics, included as affirmative defenses in the state statutes we have identified. For example, the quality of schooling, as well as the years of schooling,⁸¹ an employee received has been shown to influence that employee’s subsequent earnings. Similarly, both an employee’s willingness to move to a higher-paying job, as well as the impediments to mobility, affect an employee’s compensation.⁸² To cite a third example, the socioeconomic environment in which an employee was raised may influence future earnings.⁸³

These studies are significant because, in the absence of data that captures these considerations, these influences will manifest as unaccounted-for differences in pay rather than omitted determinants. Because the unaccounted-for portion of pay differences inevitably will reflect the influence of legitimate, omitted factors, as well as any discriminatory treatment, it is impossible to disentangle the two. Consequently, this makes it impossible to distinguish the effects of omitted considerations from the effects of the employer’s discrimination. Attributing the

⁷⁹ Rubinfeld, *supra* note 69, at 314 n.32.

⁸⁰ See, e.g., Jacob Mincer, *The Distribution of Labor Incomes: A Survey With Special Reference to the Human Capital Approach*, 8 J. ECON. LITERATURE 1 (1970); Jacob Mincer & Solomon Polachek, *Family Investments in Human Capital: Earnings of Women*, 82 J. POL. ECON. S76 (1974) (explaining gender differences in the residual variance in earnings). It is important to note that patterns described in this Article, and generally in the economics literature, apply to the natural logarithm of earnings, which essentially considers earnings differences in percentage terms, thereby controlling for scale effects.

⁸¹ See, e.g., Paul Wachtel, *The Effects on Earnings of School and College Investment Expenditures*, 58 REV. ECON. & STAT. 326 (1976); Terence J. Wales, *The Effect of College Quality on Earnings: Results from the NBER Thorndike Data*, 8 J. HUM. RES. 306 (1973); Burton A. Weisbrod & Paul Karpoff, *Monetary Returns to College Education, Student Ability, and College Quality*, 50 REV. ECON. & STAT. 491 (1968).

⁸² See Jacob Mincer, *Family Migration Decisions*, 86 J. POL. ECON. 749 (1978).

⁸³ JERE R. BEHRMAN ET AL., SOCIOECONOMIC SUCCESS: A STUDY OF THE EFFECTS OF GENETIC ENDOWMENTS, FAMILY ENVIRONMENT, AND SCHOOLING 14 (D.W. Jorgenson et al. eds., 1980) (“Whether or not some measure of ability is included, generally significant coefficients are obtained for socioeconomic background variables related to the parents such as their income, occupational status, and education.”).

entire unexplained difference to “discrimination” is therefore arbitrary and likely overstates the true extent of discrimination.

Residual earnings therefore should be viewed as the component of earnings that cannot be explained by observed factors available to the statistician. The size of this residual will be specific to each individual in the statistical sample. For some, the residual will be large and positive in that they are paid much more than the statistical model predicts. For others, the residual may be large and negative in that they are paid much *less* than the model predicts. Just as with pay, the residual differences in pay will have both an average and a variance.

Economists measure dispersion in residual earnings in percentage terms to account for the effects of inflation in a time series and the effects of scale in a cross-section—that is, a \$10 an hour pay difference should be viewed differently among employees who average \$20 per hour than those who average \$100 per hour. In publicly available data there is considerable dispersion in residual earnings. For example, using Census (American Community Survey) data from 2016–2020, and comparing men in the same occupation and state, with the same level of educational attainment, and the same age, a man at the 75th percentile of the earnings distribution earns 87.2% more than a man at the 25th percentile of the earnings distribution.⁸⁴ Economists attribute much of the variation in residual earnings between observationally equivalent workers to unobserved differences in workers’ skills and productivity.

Since at least the early 1990s, economists have found that earnings inequality has been increasing. The increase is partly due to factors that are readily observed and measured, such as the growing earnings differential between college graduates and high school graduates (or workers without a high school diploma). However, much of the growth in inequality is due to growing dispersion in residual earnings, meaning the underlying cause is unmeasured and unknown. An influential paper by Lemieux corroborated that dispersion in earnings is higher for more experienced—meaning older—and highly educated workers.⁸⁵ The aging of the US workforce between the 1980s and the 2000s, and the increase in the share of the workforce with a college degree, increased the share of workers in the United States with relatively high dispersion in residual earnings and decreased the share of workers with low dispersion in residual earnings.

Since Lemieux’s paper, many authors have reported similar findings. For example, Autor, Katz, and Kearney state that “changes in the distribution of education or experience of the labor force can lead to changes in wage dispersion” because “earnings trajectories fan out as workers gain labor market experience. Hourly wage dispersion is also typically higher for college graduates than for less-educated workers.”⁸⁶

⁸⁴ The corresponding difference for women is 74.7%. This general calculation was based off data collected over five years by the U.S. Census Bureau. See *American Community Survey 2016–2020 5-Year Data Release*, U.S. CENSUS BUREAU (Mar. 17, 2022), <https://www.census.gov/newsroom/press-kits/2021/acs-5-year.html> [<https://perma.cc/2MHG-7NF9>].

⁸⁵ Thomas Lemieux, *Increasing Residual Wage Inequality: Composition Effects, Noisy Data, or Rising Demand for Skill?*, 96 AM. ECON. REV. 461, 462 (2006).

⁸⁶ David. H. Autor et al., *Trends in US Wage Inequality: Revising the Revisionists*, 90 REV. ECON. & STAT. 300, 313 (2008).

An important finding in Lemieux's study is that, all else equal, residual pay inequality is higher for men than it is for women. For example, after grouping workers in his data by potential experience and educational attainment categories,⁸⁷ he finds that the dispersion in pay for men is higher in percentage terms than for women within each group. This finding is critical to our argument because it questions the wisdom of relying on unaccounted-for pay differences as a measure of discrimination when the demographic group with largest unaccounted for differences in pay is the least likely to have experienced discrimination.

This finding regarding the relative dispersion in earnings is so pivotal to our argument against "entire differential" statutes that we have investigated this empirical foundation further. For purposes of this Article, we use the Census's American Community Survey data for the period of 2016 to 2020 to compare the dispersion in residual earnings for men and women within similar educational attainment and potential experience groupings as Lemieux used in his study of pay inequality. We first estimate annual earnings regressions for men and women who were full-time and full-year employees, using age, educational attainment, occupation, and state of residence as explanatory factors. We then obtain residual earnings for each worker and calculate the standard deviation (the square-root of the variance) of residual earnings for men and women in different educational attainment and potential experience groups. For most educational attainment and potential experience groups, we found significantly greater dispersion in residual earnings for men than for women.

Table 2 shows an example of our results for 2016–2020 and compares them to Lemieux's earlier findings for 2000–2002. We focus on high school graduates and college graduates grouped into categories of 1–10, 11–20, and 21–30 years of potential experience. We also compare the dispersion in residual earnings across all men and all women, regardless of educational attainment and potential experience.

We find that the dispersion in residual earnings is 11.2% higher for men than women, among all full-time and full-year workers, while Lemieux found the dispersion in pay was 8.2% higher for men. Within each education and potential experience group, we find the dispersion in residual earnings is between 5.7% and 12.7% higher for men. This shows that pay differentials that cannot be attributed to previously considered explanatory factors are relatively more important for men than women.

⁸⁷ *Id.* at 303–05.

TABLE 2. MALE–FEMALE DIFFERENTIAL IN RESIDUAL EARNINGS DISPERSION

GROUP	LEMIEUX	2016–2020
OVERALL	8.1%	11.2%
HIGH SCHOOL GRADUATE 1–10 YEARS POTENTIAL EXPERIENCE	9.7%	7.5%
HIGH SCHOOL GRADUATE 11–20 YEARS POTENTIAL EXPERIENCE	7.4%	5.7%
HIGH SCHOOL GRADUATE 21–30 YEARS POTENTIAL EXPERIENCE	6.7%	9%
COLLEGE GRADUATE 1–10 YEARS POTENTIAL EXPERIENCE	10.9%	9.3%
COLLEGE GRADUATE 11–20 YEARS POTENTIAL EXPERIENCE	3%	12%
COLLEGE GRADUATE 21–30 YEARS POTENTIAL EXPERIENCE	8.8%	12.7%

These results reflect comparisons between men and women in the workforce at large, yet all equal pay laws premise liability on whether employees are paid equally by the same employer. It behooves us, therefore, to consider studies of the dispersion in pay based on matched employer and employee data. That research finds substantial dispersion in pay within the typical firm, which also has grown over time. Most studies using US data rely on longitudinal data from either the Census Bureau or the Master Earnings File within the Social Security Administration. Most researchers use the empirical methodology developed by Abowd, Kramarz, and Margolis to estimate the impact of both worker characteristics and firm policies and practices on earnings inequality.⁸⁸ The research shows that a substantial majority of earnings inequality in the economy is due to the dispersion in pay within firms. For example, Lazear and Shaw state that the empirical evidence indicates “there is very high wage dispersion within firms.”⁸⁹ Abowd, Haltiwanger, and Lane find “tremendous variation in the dispersion of log wages within firms” so that a one-standard deviation pay differential at a firm with “low” within-firm pay dispersion still amounts to a 49% earnings differential among employees at the firm.⁹⁰

A relatively recent study using longitudinal data from the Master Earnings File shows that about one-third of the increase in earnings inequality between 1978 and 2013 occurred within firms.⁹¹ The other two-thirds of the increase in inequality was due to increased pay differences between firms caused by increased sorting of workers into firms, and separation of high-wage and low-wage workers across firms. Importantly, for our purposes, the authors report some empirical results separately by men and women and find higher dispersion in pay for men relative to women even after accounting for whether a worker is employed at a high-wage or low-wage firm. For example, they find that between 2007 and 2013, the standard deviation, that is, the dispersion, of pay among men

⁸⁸ John M. Abowd et al., *High Wage Workers and High Wage Firms*, 67 *ECONOMETRICA* 251 (1999).

⁸⁹ Edward P. Lazear & Kathryn L. Shaw, *Wage Structure, Raises, and Mobility: An Introduction to International Comparisons of the Structure of Wages Within and Across Firms*, in *THE STRUCTURE OF WAGES: AN INTERNATIONAL COMPARISON* 1, 11 (Edward P. Lazear & Kathryn L. Shaw eds., 2009).

⁹⁰ *Id.* at 91. “Log” refers to the natural logarithm and this measure is commonly used in studies of earnings. Log differences essentially measure percentage differences.

⁹¹ Jae Song et al., *Firming Up Inequality*, 134 *Q.J. ECON.* 1, 1 (2019).

was eleven percent higher than the standard deviation of pay among women.⁹² In other words, the pay differential among men is significantly larger than the corresponding pay differential among women. While Song, Price, Guvenen, Bloom, and von Wachter use a different approach to measuring pay inequality than Lemieux, they also find that, all else equal, pay differentials among men tend to be larger than pay differentials among women.

In summary, the empirical evidence we have considered provides no support for adopting an “entire differential” approach to measure pay discrimination. Inherent in the regression approach commonly used to measure pay differences, is the construct that roughly one-half of all persons in the sample will have negative, unexplained differences relative to the model’s prediction. Further, the size of these unexplained differences depends on the extent to which nondiscriminatory reasons for gender differences in pay are amenable to measurement. Finally, the magnitude of unaccounted-for pay differences is greater among men than women, suggesting that an unmeasured, nondiscriminatory component of pay differences looms large in pay comparisons even *within* groups of employees for reasons unrelated to gender. These findings suggest that unaccounted-for differences in pay should be anticipated in comparisons between demographic groups as well. Whether these between-group differences evidence discrimination depends on whether they are greater than what would be found under nondiscriminatory circumstances. Although estimating the latter may pose challenges, we are confident that these unaccounted-for differences would be greater than zero, the value implied by “entire differential” statutes.

VII. TOWARDS A SENSIBLE INTERPRETATION OF EQUAL PAY LAWS

In our view, a reasonable interpretation of the equal pay mandate must pass the sibling test described above. Any interpretation that fails this test unjustly will confer liability on non-discriminating employers. As we have explained, the two villains of this piece are the single-comparator rule and the entire differential rule.

Reforming the single-comparator rule is relatively simple because the doctrine is judge-made. Whatever its merits when applied to an individual employee, it overstates an employer’s potential liability to a group of employees. As demonstrated above, it fails the sibling test by making pay differences, as well as pay discrimination, unlawful.

One fix is to recognize an additional prong to the elements of proof. If a plaintiff were required first to prove that women as a group are paid significantly less than their male counterparts, the cause of action would satisfy the sibling test. No employer who paid siblings equally would be required to rebut a prima facie case because the average pay of male and female employees would be the same. In addition, the employee still must prove that *some* comparator of the opposite sex was paid more. In rebutting that proof, the employer would be able to contest the aptness of that comparison and adduce evidence, both statistical and anecdotal,

⁹² *Id.* at 35–37. This is based on dispersion in pay among men and women from both observed and unobserved worker characteristics that do not change over time, accounted for by a person-specific fixed effect.

that accounted for—in neutral terms—the difference in pay. This is a simple change that would eliminate an obvious problem.

Remedying the “entire differential” rule requires courts to read more into the statute than appears at first blush. But courts must strain to avoid interpretations that yield absurd results.⁹³ And, as we have seen, if interpreted literally, the “entire differential” would violate the sibling rule and confer liability on a non-discriminating employer regarding large swaths of its workforce—an unreasonable result. Instead, courts should acknowledge that the failure to explain the entire differential affects approximately half the employees in any demographic group—those who inevitably fall below the regression line. The relevant question is whether any particular demographic group falls *disproportionately* (relative to the favored group) below the pay level predicted by the regression.

For example, male and female siblings who are paid less than predicted by the model would fall equally far from the regression’s prediction. Accordingly, the employer should not be liable because it failed to account for the entire pay difference. But if females, as a group, were to lie farther below predicted values than their male counterparts, then the failure to account for the entire differential should result in liability. Thus, it is only when the enumerated defenses provide a *poorer* approximation to the pay of females than males that the “entire differential” rule should to that extent provide the measure of liability.⁹⁴

Activist courts may take things a step further and rule these laws unenforceable based on vagueness and impossibility doctrines.⁹⁵ It is beyond the scope of this Article to consider the intricacies of these defenses, but we sketch out the arguments as follows. Although vagueness arguments traditionally were confined to criminal statutes, Professor Eugene Volokh has written that the Supreme Court’s decision in *FCC v. Fox Television Stations*,⁹⁶ “is a reminder that even non-criminal rules can be struck down as unconstitutionally vague,”⁹⁷ thus this constitutional principle may apply to the equal pay laws we have considered. Professor Michael J. Zydney Mannheimer argues that the impossibility doctrine is akin to the “vagueness prohibition.”⁹⁸ As an example, consider a law that would penalize those unable to solve the equation $50X=0$ for positive values of X , which has no solution. Analogously, “[w]here a legislature has compelled compliance with unknowable facts or entirely subjective impressions of third parties, it has, in effect, commanded the impossible.”⁹⁹

⁹³ See, e.g., CAL. CIV. CODE § 3531 (West 2023) (“The law never requires impossibilities.”).

⁹⁴ There are formal, statistical tests that can decide whether the residual variance regarding pay differences among women exceeds the residual variance among males, and similarly for other demographic comparisons.

⁹⁵ E.g., CIV. § 3531.

⁹⁶ 576 U.S. 239 (2012).

⁹⁷ Eugene Volokh, *The Void for Vagueness Doctrine / Fair Notice Doctrine and Civil Cases*, VOLOKH CONSPIRACY (June 21, 2012, 12:19 PM), <https://volokh.com/2012/06/21/the-void-for-vagueness-fair-notice-doctrine-and-civil-cases/> [<https://perma.cc/2GXS-9G3H>]. See also the examples of civil cases cited therein.

⁹⁸ Michael J. Zydney Mannheimer, *Vagueness as Impossibility*, 98 TEX. L. REV. 1049, 1050 (2020).

⁹⁹ *Id.* at 1054.

The “entire differential” rule falls prey to this doctrine. Although we have noted that multiple regression analysis is a common vehicle for estimating the determinants of pay differences, it is agnostic regarding the variables that are appropriate in making that determination. In other words, multiple regression does not come equipped with a standard model of pay that can be applied by each employer, just as no yardstick describes what is to be measured. Moreover, even if there is a consensus on the considerations that are included in the regression equation, the measure of compensation may be entered in either an arithmetic or semi-logarithmic form,¹⁰⁰ and the determinants of pay often are considered in their linear or quadratic forms.¹⁰¹ But what if one form of the regression entirely accounts for the differential, but an alternative model does not? Is it for the jury to select the model that is most apt? One certainty is that no form of the regression will account for the entire pay difference in each group of substantially similar jobs.

This is what Professor Zydney Mannheimer refers to as liability premised on the failure to conform to normative standards.

A number of the [Supreme] Court’s cases, especially its earlier ones, have involved statutes that require conformance of one’s conduct to certain objective facts. Whether a statute has been deemed vague has largely depended upon whether those facts were knowable, in which case the statute was considered not vague, or unknowable, in which case the statute was considered vague.¹⁰²

Another reason equal pay laws may be problematic is that the appropriate statistical model changes as employees come and go or change roles within their companies, and thus the model to which the employer must conform its behavior changes as well.¹⁰³

¹⁰⁰ See, e.g., Jacob Mincer, *The Distribution of Labor Incomes: A Survey with Special Reference to the Human Capital Approach*, 8 J. ECON. LITERATURE. 1, 9–10 (1970).

¹⁰¹ *Id.* at 17 n.28.

¹⁰² Zydney Mannheimer, *supra* note 98, at 1103–04.

¹⁰³ Although a court or jury may be capable of deciding this issue, indeed they must if it is handed the case, this delegation of decision-making raises questions regarding the separation of powers and the delegation of authority from the legislature to the judicial branch. *Id.* at 1051 (“vague statutes violate separation-of-powers and rule-of-law principles by delegating too much authority to police, prosecutors, judges, and juries to make law, a core legislative function.”). An alternative avenue of attack might be premised on the potential conflict between the mandates of these equal pay laws and the provisions of Title VII. See Allan G. King, *Does Title VII Preempt State Fair Pay Laws?*, 32 A.B.A. J. LAB. & EMP. L. 65 (2016).

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