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INTEREST OF *AMICI CURIAE*

The labor economists and statisticians named below teach, write and testify about discrimination in the workplace. They have spent a considerable amount of time thinking, writing, teaching and testifying about the labor economics and statistical issues before the Court. A partial list of their scholarship concerning these issues appears as an Appendix. Based on this expertise, *amici* argue that Petitioner has not presented a balanced picture concerning the statistical proof offered in support of and in opposition to class certification, and concerning the use of statistical formulas in the second stage of any possible trial to identify persons entitled to awards and the amounts of those awards. *Amici* respectfully submit this brief so as to offer this Court a more balanced presentation of these two issues.¹



SUMMARY OF ARGUMENT

Two unrelated issues raised by this case are of interest to labor economists and statisticians.

¹ All of the parties in this case have consented to the filing of this brief. No counsel for any party to this case authored any part of this brief and, other than *amici* on whose behalf this brief is submitted and their counsel, no person or entity contributed money or services to the preparation and submission of this brief.

The first is the appropriate level of analysis to address whether claims raise questions common to class members as required for class certification by Federal Rule of Civil Procedure 23(a)(2). In this case, each side's expert performed a series of statistical analyses designed to isolate gender disparities in promotions to management positions and in pay for both hourly and salaried employees. Plaintiffs' expert performed the analyses for each of Wal-Mart's 41 regions and ascertained whether the resulting gender coefficients were consistently adverse to women across regions. Wal-Mart contends that this level of analysis does not establish that the claims raise common issues, and instead asserts that separate regressions had to be run for each of Wal-Mart's approximately 3,500 stores because that was the level at which the decisions being challenged supposedly were made.

Wal-Mart's proposed rule that analyses must be at the purported level of the decision-making is wrong for at least four reasons. It would effectively bar many if not most class actions in employment pattern-or-practice cases because the number of decisions made by most managers is insufficient to perform meaningful statistical analyses. Even if analyses could be run, they would have low statistical power, and looking to whether they showed statistically significant disparities would potentially miss patterns that are apparent when viewing the pattern of disparities across larger units of the workforce as a whole. Also because of the low statistical power, such

analyses would be easily distorted by variations among individuals producing statistical “noise” that appropriately should be discounted in assessing commonality. Finally, Wal-Mart’s rule ignores the effect that higher officers may have on decision-making of their subordinates.

Wal-Mart’s proposal also is undercut by the facts of this case. Its own expert did not perform store-by-store regressions for any of the three types of claims: she performed the analyses for one claim at the level of “substores” within stores, and the regressions for the other two claims using units broader than stores. Thus, she did not believe that analyses of whether the claims in this case raise common issues had to be performed store by store. Second, the district court found that Wal-Mart’s relevant personnel policies were the same throughout the company and that, under those policies, the challenged pay and promotion decisions were either made or subject to review at the district and region levels.

These considerations suggest that there cannot be a simple rule, either for all pattern-or-practice cases or this case, for determining how to conduct statistical analyses as to whether the claims raise questions common to the class. Discretion is required, both as to the appropriate units for analysis and as to whether the analyses reflect a common pattern. The district court should weigh the evidence and decide on the proper units for analysis and on whether the analyses of those units reflect common results.

In this case, the district court considered the appropriate factors and decided that the analysis of plaintiffs' expert was adequate to show that the claims raised questions common to the class. Wal-Mart has not challenged the district court's fact-finding, just its conclusions. This Court has no basis to alter the facts or, consequently, the conclusions.

The other issue addressed in this brief is whether, if a class is certified and plaintiffs prove a pattern or practice of discrimination at the first stage of trial, a statistical model may be used to identify class members entitled to back pay relief and the amount of that relief. Wal-Mart argues that it is entitled under Title VII, 42 U.S.C. §§ 2000e *et seq.*, to individualized proceedings as to each class member seeking relief and that any attempt to dispense with those proceedings by substituting a statistical formula would elevate procedural convenience over substantive rights in violation of the Rules Enabling Act.

Wal-Mart ignores that Title VII also creates the substantive right to prove that an employer has engaged in a pattern or practice of discrimination and, except in rare circumstances, the right to a back pay award when illegal discrimination is found. Class members will be entitled to backpay awards if Wal-Mart is found liable in this case, not because of the procedural decision to certify a class, but because of Wal-Mart's violation of the substantive provisions of Title VII.

This Court stated almost 35 years ago that individualized relief “usually” will be accorded in pattern-or-practice cases through individualized proceedings. “Usually” does not mean “always.” The Court should recognize that computerized data and calculating power have increased the explanatory power of statistical models of personnel decisions tremendously since then, and permit use of those models at the second stage of certain pattern-or-practice cases when doing so would promote the “just, speedy and inexpensive determination” of the lawsuit.

When certain factors exist, a statistical model is likely to produce more just results than would a series of individual adjudications in the second stage of a pattern-or-practice case:

- The claims and remedies sought are such that relevant data will reasonably be in the possession of or readily available to the employer;
- The employer has collected and retained that data;
- The employer has not recorded definitive objective reasons, such as a test result, as to why particular decisions were made;
- The employer has made sufficient decisions for experts to construct a model with strong explanatory power; and

- The proposed relief does not require balancing of the equities between members of the protected group and other persons.

When these factors exist, a statistical model is likely to be more accurate, and produce more consistent results, than will a series of mini-hearings. This is especially true when the mini-hearings will be before numerous different adjudicators, when the hearings will test many-year-old memories of facts and subjective judgments that may not have seemed important to the decision-maker even when they were made, and when the decision-maker may be retired or dead at the time of the mini-hearing. Reliance on a formula will not, as Wal-Mart contends, give awards to undeserving class members: only women who were actually paid less than statistically comparable men will be entitled to awards. Finally, far more than would a series of individual adjudications, a formula will respect the employer's decision-making by faithfully following the weight that the employer itself gave to every factor (other than sex or other basis for the lawsuit) in setting pay.



ARGUMENT**I. A RIGID RULE CANNOT ESTABLISH THE APPROPRIATE UNIT OF ANALYSIS FOR DETERMINING THE COMMONALITY OF AN EMPLOYER'S DECISIONS, AND THE COURT SHOULD DEFER TO THE DISTRICT COURT'S FACT-FINDING IN THIS CASE**

Wal-Mart proposes an overly rigid standard for determining whether statistical evidence supports a conclusion that the commonality requirement of Federal Rule of Civil Procedure 23(a)(2) has been satisfied that would bar class actions in almost all pattern-or-practice employment discrimination cases² and is at odds with well-established statistical and labor economics principles. The Court should reject Wal-Mart's mechanistic approach to class certification issues, defer to the district court's fact-finding, and conclude that Plaintiffs have presented statistical evidence that supports the commonality determination in this case.

Expert witnesses for the parties performed regression analyses of pay rates of Wal-Mart's hourly and salaried employees and pools analyses of certain promotion decisions. In its brief, Wal-Mart discusses only the analyses of pay of hourly employees without even acknowledging the other analyses; we follow its

² The procedure for litigating pattern-or-practice cases is discussed in Part II below.

lead by focusing, although not exclusively, on the hourly pay analyses.

The two experts – Dr. Richard Drogin for the Plaintiffs and Dr. Joan Haworth for Wal-Mart – used different models that yielded, not surprisingly, somewhat different results. For example, Dr. Haworth controlled for various “tainted variables,” *i.e.*, factors that may have been affected by Wal-Mart’s alleged sex discrimination, that Dr. Drogin did not include in his model.³ Yet despite these differences, both experts’ analyses reveal that on a company-wide basis female hourly employees are paid less than male counterparts, even after controlling for all variables: Dr. Haworth’s model merely reduces the disparities found by Dr. Drogin by about 75%, from about 37 cents per hour in 2001 (JA 514a) to 9 cents per hour (JA 1664a), but, like the disparity found by Dr. Drogin, the disparity found by Dr. Haworth is statistically significant.

³ Dr. Haworth controlled for the following factors among others: current department, whether promoted during the past year, current pay group, first pay group, and first pay rate. All of these are classic “tainted variables.” *See generally* RAMONA L. PAETZOLD & STEVEN L. WILLBORN, *THE STATISTICS OF DISCRIMINATION: USING STATISTICAL EVIDENCE IN DISCRIMINATION CASES* § 6.13 (2002) (discussing the issue of “tainted variables”). Her results tell us, not surprisingly, that men and women will have similar pay currently if (a) they were hired at the same pay rate and in the same pay group, (b) are currently in the same pay group, and (c) were (or were not) promoted during the past year. Far from deriving meaningful empirical evidence, she fitted a tautological model.

Wal-Mart seeks to avoid any “question” related to these overall disparities by contending that the pay rate differential is not “common to the class” and therefore that Plaintiffs have not satisfied the commonality requirement of Rule 23(a)(2). Its argument is that different subgroups of the proposed class might experience different patterns of decisions. For example, in 80% of the subgroups, the decisions might have been completely neutral, while in the other 20%, the decisions might be generally adverse to women. The 20% of the subgroups may be completely driving the overall pay disparities. According to Wal-Mart, this variance among subgroups would mean that the decisions were not common.

Whether there is sufficient variance in results among members of a group that the commonality requirement is satisfied is a legal question. Statistical analyses cannot definitively answer the question; they can, however, shed light on the proper answer.

In this case, both experts performed a large number of regression analyses in an attempt to shed light on the question. Wal-Mart focuses on only one of the differences in the models of the two experts, *i.e.*, the level of the organization for which the regressions were performed. Dr. Drogin performed separate regressions for each of Wal-Mart’s 41 regions (each with roughly 80 stores) and compared the results. Wal-Mart argues that, instead of regional analyses, a store-by-store analysis is absolutely mandatory because the pay decisions supposedly were “made by individual managers at the store level.” (Wal-Mart Br.

at 24.) It contends that Dr. Drogin's region-level analyses constitute improper aggregation of disparities across the stores within each region.⁴

Wal-Mart's argument suffers from the fact that its own expert, Dr. Haworth, did not perform regressions for each of Wal-Mart's approximately 3,500 stores. She analyzed pay decisions for hourly employees for up to three "substores" per store. *Dukes v. Wal-Mart Stores, Inc.*, 222 F.R.D. 137, 156 (N.D. Cal. 2004).⁵ As a result, "Dr. Haworth performed approximately 7,500 separate regression analyses." *Id.* She did not report analyses of pay decisions for most salaried positions, but for those she did, she performed analysis on a company-wide basis because there were insufficient observations to perform them at the district level at which, she asserts, the decisions were made. (JA 1409a-39a.) Most of her promotion analyses were done on a company-wide basis. (JA 1511a-13a.)

Aside from the conflict with its own expert, Wal-Mart's idea that analyses of commonality must be performed at the purported decision-making level is flawed for at least four reasons. First, it would doom class actions in many, if not most, pattern-or-practice

⁴ Actually, Dr. Drogin's analyses are not "aggregated" at all. He simply used broader units of analysis than did Dr. Haworth.

⁵ She separately analyzed up to six specialty departments within each store, but aggregated the results of the specialty departments to a single "substore."

cases, for an empirical reason that has nothing to do with the commonality of the practices. In many companies, managers of twenty persons or fewer make personnel decisions, which may be subject to the company's policies or practices and/or review by higher level managers. Sophisticated multivariate regression analyses cannot be performed on such small samples. If analysis must be performed at the purported decision-making level, statistically meaningful results could not be shown and a class action could not be supported.

Second, even if the groups are large enough for regressions to be run, it is likely that looking at the statistical significance of the results for each of the small groups would miss obvious patterns because of the low statistical power of each separate analysis. For example, consider ten persons who each flip a coin three times and get three heads. The probability that, purely as a result of chance, 30 fair coin flips would yield 30 heads is extremely small, less than one in one billion, creating grave doubt that these are "fair" flips generated by a neutral process. But if, following Dr. Haworth, we consider the flips by each person (or in this case each individual "substore") separately, the probability that three coin flips would yield three heads as a result of chance alone is relatively large (about one out of eight), which in statistical terms would not be "statistically significant." In other words, in each of the 30 "substores," the discrepancy between the actual and expected number of heads is not statistically significant, and there is

therefore no basis for believing that the coin in each “substore” is unfair. In this case, Dr. Haworth’s splintering of the hourly workforce into about 7,500 substores caused her pay analyses to suffer from low *statistical power*. The statistical power of an analysis is the probability that the test “will declare an effect when there is an effect to declare. This chance depends on the size of the effect and the size of the sample.” David H. Kaye & David A. Freedman, *Reference Guide on Statistics*, in FEDERAL JUDICIAL CENTER, REFERENCE MANUAL ON SCIENTIFIC EVIDENCE, 83, 125-26 (2d ed. 2000). Other things being equal, the statistical power of a significance test will be lower when the size of the sample (*i.e.*, the number of observations under consideration) is smaller.⁶

Third, even if the sample size (or the number of employees in each “substore”) is large enough for regressions to yield statistically significant results, the smaller the sample size, the more variation, or “noise,” is likely to be observed. Even in a company with a practice of discrimination common to all units, some variation in how much women were

⁶ Courts recognize that an expert who divides a workforce into many small groups and performs analyses on each without then reaggregating the outcomes is engaged in a “divide and conquer” strategy. As one Court of Appeal stated: “[T]his was an unfair and obvious attempt to disaggregate that data to the point where it was difficult to demonstrate statistical significance. By fragmenting the data into small sample groups, the statistical tests became less probative.” *Capaci v. Katz & Besthoff, Inc.*, 711 F.2d 647, 654 (5th Cir. 1983).

disadvantaged in different subgroups would occur. For example, even if all Wal-Mart employees were given the identical discriminatory test, there almost certainly would be gender differences in scores among “substores” or stores because of differences among the employees in each unit. The smaller the units, the greater will be the variability. In this case, Dr. Drogin found statistically significant disparities in every region, while Dr. Haworth found much more variability, and a much lower percentage of statistically significant disparities, when analyzing those disparities by substores. The fact of variability should be taken into account not only in determining the units to analyze, but also in interpreting the results.

Finally, at least in this case Wal-Mart’s argument is at odds with organizational theory and the fact-finding of the district court. The district court found that compensation decisions for hourly employees are made by store managers but are subject to review at the district or regional levels, that compensation decisions for salaried employees are made at the district or regional levels, and that all promotion decisions being challenged (except for promotions to one non-salaried position) are made at the district or regional levels. *Dukes v. Wal-Mart Stores, Inc.*, 222 F.R.D. 137, 146-48 (N.D. Cal. 2004). Even if store manager decisions on the pay of hourly employees were not subject to review, the pay of the store managers themselves is set by regional managers. Through the power to reward and punish store managers, regional managers can set the tone for all of

the stores in their regions and may influence the decisions of their store managers. As several courts of appeals have stated, “when a major company executive speaks, ‘everybody listens’ in the corporate hierarchy.” *Slattery v. Swiss Reinsurance Am. Corp.*, 248 F.3d 87, 92 (2d Cir. 2001); *Morse v. Southern Union Co.*, 174 F.3d 917, 922 (8th Cir. 1999); *Ercegovich v. Goodyear Tire & Rubber Co.*, 154 F.3d 344, 355 (6th Cir. 1998); *Ryder v. Westinghouse Elec. Corp.*, 128 F.3d 128, 133 (3d Cir. 1997).

For all of these reasons, there cannot be a simple rule that statistical analyses relevant to the commonality determination must be performed at the decision-making level. Indeed, instead of arguing for variance among members of a proposed class based on decision-making or other organizational units, an employer may argue that subgroups defined by other characteristics, such as facilities, job types, or job levels, must be evaluated for variance.⁷

But assuming, in a particular case, such as here, that the parties analyze variance of results based on organizational units, a court should consider not only the level at which decisions purportedly are made,

⁷ The employer should have the burden of identifying the subgroups to be evaluated for variance. If the plaintiffs have the burden to anticipate which types of characteristics the employer will argue must be evaluated to determine if the results are sufficiently similar, their expert may have to perform a very large number of unnecessary analyses on any and all potential subgroups that could be formed.

but also issues such as practicability of analyses at various levels, statistical power of results at different levels, and the potential influence of officials above the decision-makers on the decisions in question. Statistical power considerations suggest that, when there is a legitimate choice between two possible levels of analysis, an expert generally should use the broader level.⁸ On the other hand, use of broad units of analysis may be improper if the disparities in the results for men and women vary too much among subunits of the broader unit. In a stab in that direction, Dr. Haworth performed so-called “Chow” tests that tested whether the entire *set* of coefficients for *all* of the variables in her analysis (not just sex) differed in a statistically significant way among the various substores. This type of test does not say

⁸ Empirical labor economists, who seldom have access to company-specific, let alone store-specific, data, are comfortable with broad analyses. The scholarly literature on labor markets is replete with examples of empirical studies – subjected to careful peer review, and published in eminent scholarly journals – studying general patterns, including sex differences in pay, *without* taking account of the multiplicity of decision-makers and decision processes involved in pay decisions. For example, in studying pay in the labor market as a whole, researchers have often used Census and other survey data concerning employees working at a vast number of different employers that do not differentiate among different employers, decision processes or decision-makers. *See, e.g.,* JACOB MINCER, SCHOOLING, EXPERIENCE AND EARNINGS (1974) (the seminal work on empirical analysis of earnings data); Joseph G. Altonji & Rebecca M. Blank, *Race and Gender in the Labor Market*, in HANDBOOK OF LABOR ECONOMICS 3143 (Orley C. Ashenfelter & David Card, eds., 1999) (a survey of empirical work on race and sex differences in pay).

anything about whether the *sex* coefficients in her regressions varied significantly from one unit to the next. Not surprisingly, the courts below rejected Wal-Mart's Chow-test argument, *Dukes I*, 222 F.R.D. at 158; *Dukes v. Wal-Mart Stores, Inc.*, 603 F.3d 571, 608 n.32 (2010), and Wal-Mart has seemingly abandoned it here.

In this case, the district court weighed the relevant factors. It considered Wal-Mart's policies, the levels at which decisions were made and reviewed, the levels at which Dr. Drogin and Dr. Haworth performed their analyses, the number of analyses performed by each expert, and the results of the Chow test performed by Dr. Haworth. It concluded that Dr. Drogin's analyses based on the 41 regions had adequately supported the conclusion that the claims raised issues common to the class.

That conclusion was not an abuse of the district court's discretion. Of course, the district court also may not have abused its discretion if it had decided to rely on analyses performed at the district, store, or "substore" level to evaluate whether the claims raised questions common to the class. It is possible that analyses performed at a level other than Wal-Mart's 41 regions would have led the court to conclude that a class should not be approved, even after it accounted for the expected variations in results as smaller units of analysis were used. But the district court's conclusion was consistent with statistical and labor economics theory, and should not be disturbed on the basis of Wal-Mart's arguments.

II. STATISTICAL MODELS MAY BE USED IN THE SECOND STAGE OF PATTERN-OR-PRACTICE CASES TO IDENTIFY CLASS MEMBERS ENTITLED TO AWARDS AND THE AMOUNTS OF THEIR AWARDS

An employer violates Title VII if it engages in a pattern or practice of discrimination. If a pattern or practice of illegal discrimination exists, second stage trial proceedings are required to identify the individuals harmed by the discrimination and the nature of their relief. Title VII does not specify the nature of those second stage proceedings. In appropriate cases, the best procedure is to identify the individuals entitled to relief and the quantum of relief for each of them through a statistical formula. If a pattern or practice of discrimination is found during the first stage, this is a paradigmatic case for use of statistical models instead of a large number of separate adjudications to afford individualized relief during the second stage.

A. Title VII Authorizes Pattern-or-Practice Cases Without Specifying How the Second Stage Should Be Conducted

Congress expressly authorized the Equal Employment Opportunity Commission to bring a civil action if it “has reasonable cause to believe that any person or group of persons is engaged in a pattern or practice of resistance to the full enjoyment of any of the rights secured by [Title VII], and that the

pattern or practice is of such a nature and is intended to deny the full exercise of the rights [described under Title VII].” 42 U.S.C. § 2000e-6(a). Private parties similarly may claim that an employer is engaging in a pattern or practice of discrimination, and “the elements of a prima facie pattern-or-practice case [brought by the government] are the same in a private class action.” *Cooper v. Federal Reserve Bank of Richmond*, 467 U.S. 867, 876 n.9 (1984).

Title VII does not specify how pattern-or-practice cases are to be tried, and this Court created the framework in *International Brotherhood of Teamsters v. United States*, 431 U.S. 324 (1977). In the first stage, the plaintiff must establish “by a preponderance of the evidence that [] discrimination [is] the company’s standard operating procedure – the regular rather than unusual practice.” *Id.* at 336, 360. If the plaintiff succeeds, a court “may then conclude that a violation has occurred and determine the appropriate remedy,” such as “an injunctive order against continuation of the discriminatory practice.” *Id.* at 361. If the plaintiff “seeks individual relief for the victims of the discriminatory practice, a district court must *usually* conduct additional proceedings after the liability phase of the trial to determine the scope of individual relief.” *Id.* (emphasis added). Under the usual rubric, during those additional, or second stage, proceedings, the plaintiff presents evidence showing that the employer made the type of decision under challenge as to an individual employee (for example, in *Teamsters*, that “the individual

discriminatee unsuccessfully applied for a job”), and “the burden then rests on the employer to demonstrate that the individual” was not harmed by the “policy of discriminatory decisionmaking.” *Id.* at 362.

By use of the word “usually,” this Court indicated that a series of individual adjudications would not necessarily comprise the second stage, just as *McDonnell Douglas Corp. v. Green*, 411 U.S. 792 (1973), did not “inflexibl[y]” create “the only means of establishing a prima facie case of individual discrimination.” *Teamsters*, 431 U.S. at 358. Whether a series of individual adjudications is the most appropriate procedure in any given case should be determined by whether it is the best procedure “to secure the just, speedy, and inexpensive determination” of the action. Fed. R. Civ. P. 1. Incontestably, use of a formula in a case like this one would make the resolution of the lawsuit far more speedy and far less expensive than would a series of individual adjudications. The overriding question, however, is whether use of a formula also will be likely to produce more just results.

To produce just results, the appropriate procedure should be the one best suited to awarding appropriate back pay to persons injured by a pattern or practice of illegal discrimination while avoiding awards to persons uninjured by the discrimination. “[G]iven a finding of unlawful discrimination, backpay should be denied only for reasons which, if applied generally, would not frustrate the central statutory purposes of eradicating discrimination throughout the economy and making persons whole

for injuries suffered through past discrimination.” *Albemarle Paper Co. v. Moody*, 422 U.S. 405, 421 (1975). The Court should “avoid interpretations of Title VII that deprive victims of discrimination of a remedy, without clear congressional mandate.” *Washington County v. Gunther*, 452 U.S. 161, 178 (1981).

In some pattern-or-practice cases (the parameters of which are discussed in section B below), a statistical model is more likely than a series of individual adjudications to identify with appropriate accuracy the persons injured by a proven pattern or practice of discrimination and the amounts of their awards. This makes a statistical model a more “just” procedure for the second stage of those pattern-or-practice cases.

Wal-Mart argues in its brief that the class should not have been certified because the size of the class would preclude a series of individual adjudications at the second stage and thereby would alter the requirements of substantive law in violation of the Rules Enabling Act, 28 U.S.C. § 2072(b). Class certification supposedly would do so by freeing plaintiffs of their obligation to prove, individual class member by individual class member, the existence of an unlawful employment practice and Wal-Mart’s discriminatory animus and depriving Wal-Mart of its right to put forward its defenses vis-à-vis each individual. (Defs. Br. at 38-44; *see also* Amicus Br. of Cal. Employment Law Council (“CELC”), at 11-12.) But the existence of a claim based on a pattern or practice of discrimination is a matter of substantive, not procedural, law. If

a second stage occurs, it will be because Wal-Mart is found to have violated that substantive law by engaging in a pattern or practice of discrimination. Indeed, if the government had brought this case, class certification would not have even been an issue, *see General Tel. Co. of the Northwest, Inc. v. Equal Employment Opportunity Comm'n*, 446 U.S. 318, 325 (1980),⁹ and yet the parties would be facing the same question of what are the appropriate second stage proceedings. The Rules Enabling Act is not implicated at all by a decision as to the nature of second stage proceedings in pattern-or-practice cases.

B. In Appropriate Cases, A Statistical Formula Should Identify the Persons Injured by a Pattern or Practice of Discrimination and the Amounts of Their Relief

“Our cases make it unmistakably clear that ‘(s)tatistical analyses have served and will continue to serve an important role’ in cases in which the existence of discrimination is a disputed issue.” *Teamsters*, 431 U.S. at 339 (quoting *Mayor of Philadelphia v. Educational Equality League*, 415 U.S. 605, 620 (1974)). Regression analyses frequently are used in employment discrimination cases to derive a formula

⁹ Private parties face a more difficult burden than the government in litigating pattern-or-practice cases because they also have to show entitlement to proceed under Rule 23.

showing the average relationship between an employment outcome (e.g., pay or promotions) and factors, or independent variables, that may be related to it (e.g., sex, race, years of service, performance ratings, prior work experience, and education). See, e.g., *Bazemore v. Friday*, 478 U.S. 385, 401 (1986) (holding that regression analysis constituted admissible evidence in support of pattern-or-practice claim even though it did not include “all measurable variables thought to have an effect on salary level”); *Thornburg v. Gingles*, 478 U.S. 30, 61-62 (1986) (explaining position of United States and appellants in case challenging legislative redistricting that “only multiple regression analysis, which can take account of other variables which might also explain voters’ choices . . . , can prove that race was the primary determinant of voter behavior”). In appropriate pattern-or-practice cases, regression analyses can serve to distinguish persons injured by a pattern or practice of discrimination from those who were not and to calculate the amounts of the awards for the injured persons.

Five factors, several of which did not exist in *Teamsters* when this Court directed a series of individual adjudications, are relevant to whether regression analyses can serve this role:

- The claims and remedies sought are such that relevant, objective data will reasonably be available, generally because it is in the employer’s possession. A claim of illegal discrimination in termination decisions, for

example, may require consideration of mitigation evidence post-termination that is not likely to be in the possession of the employer. Similarly, a request for compensatory damages may require consideration of data concerning the impact of the alleged discrimination outside the knowledge of the employer.

- The employer has collected and retained that relevant data. The expert reports in this case suggest that Wal-Mart has computerized data on employees' demographics (*e.g.*, race, age, sex), tenure (*e.g.*, years of service, time in current job, leaves), organizational location (*e.g.* job, department, store, district, region) performance review ratings, and compensation. The record in *Teamsters* does not reveal the types of data that the defendants collected and retained, but very few (if any) employers collected and retained the same quantities of data about their employees in the 1960s and 1970s that large employers collect today.¹⁰
- There is not a single, non-discriminatory objective reason for the employer's decision, such as a test result, in which case sophisticated statistical analyses would be

¹⁰ In the days before the computer age when *Teamsters* was written, not only would there have been far less data with which to conduct a regression analysis, but computers would have lacked the power to conduct the types of sophisticated multivariate analysis that can be performed today.

unnecessary. In this case, as in many pattern-or-practice cases brought over the past twenty years, plaintiffs claim that the employer's practices were excessively subjective. The alternative to a statistical formula is numerous individual adjudications in which witnesses give testimony about subjective decisions made many years before – in this case ten or more years before. Many of the decisions undoubtedly seemed mundane at the time to the decision-makers, who of course may, at the time of the hearing, be retired, ill or even dead.¹¹

- The employer has made sufficient decisions for experts to construct a model with strong explanatory power. In general, the larger the number of decisions, such as pay decisions,

¹¹ Courts have held that individualized hearings are not required, nor warranted, where the employer's conduct would reduce efforts to reconstruct individually what would have happened in the absence of discrimination to a "quagmire of hypothetical judgments." *Pettway v. American Cast Iron Pipe Co.*, 494 F.2d 211, 260 (5th Cir. 1974). In such cases, courts have concluded that allocating relief based upon statistical analyses "has more basis in reality . . . than an individual-by-individual approach." *Id.* at 263. Seven circuits have explicitly accepted this approach. See *Shipes v. Trinity Industries*, 987 F.2d 311, 316 (5th Cir. 1993); *Stewart v. Gen. Motors Corp.*, 542 F.2d 445, 452-53 (7th Cir. 1976); *Hameed v. Int'l Ass'n of Bridge, Structural and Ornamental Iron Workers*, 637 F.2d 506, 520 (8th Cir. 1980); *Domingo v. New England Fish Co.*, 727 F.2d 1429, 1444-45 (9th Cir. 1984); *Pitre v. Western Electric Co.*, 843 F.2d 1262, 1274 (10th Cir. 1988); *Pettway v. American Cast Iron Pipe Co. (Pettway V)*, 681 F.2d 1259, 1266 (11th Cir. 1982); *Segar v. Smith*, 738 F.2d 1249, 1289-91 (D.C. Cir. 1984).

that can be analyzed, the more precise or accurate the measurement of the effects of the determinants of the decisions. It is unclear how many decisions were at issue in *Teamsters*, but the company employed under 400 class members, not all of whom expressed desire for line-driving jobs, making the number of decisions many orders of magnitude less than in this case, *Teamsters*, 431 U.S. at 331-32;

- The proposed relief does not require balancing of the equities between members of the protected group and other persons. In *Teamsters*, the government sought appointment of at least some class members to line driving jobs and improvement of their seniority status relative to other employees. This required the district court to strike an “equitable balance . . . between the statutory rights of victims and the contractual rights of nonvictim employees.” *Id.* at 376. This type of balancing is incompatible with use of a statistical formula. Where the injured parties seek only back pay, however, such balancing is unnecessary.

When most or all of these factors exist, identification of injured parties and determination of award amounts through statistical analyses in second stage proceedings are likely to produce more just results than would a series of individual adjudications. As to pay discrimination claims, such as those in this case, those regressions can show not only whether there were statistically significant disparities in the

compensation of members of the protected group compared to other employees, but also which employees were paid less than expected by the model and by how much they were underpaid. And as to promotion discrimination claims, those regressions can show which members had the highest likelihood of being promoted to any vacant positions. Such regression formulas – and the pay adjustments resulting from it – would be tailored to the circumstances and characteristics of each individual woman in the litigation.

As a very simple illustrative example,¹² consider an analysis that took account of pay in relation to two factors: years of service and performance evaluation. One possible result for such an analysis would be that pay per month equals $\$4500 + (\$75 \times \text{years of service}) + (\$120 \times \text{performance evaluation score})$. The coefficients, or “weights,” placed on the factors in the regression depend entirely on the employer’s own pay-setting behavior. In the example, the employer’s actual decisions reflect that it places more value on a higher performance score than it does on an extra year of service, regardless of whether that is the employer’s stated policy.

¹² The examples below assume a single regression in which awards are determined based on the amount by which a woman’s compensation was below the predicted value. In fact, statistical modeling could be done in multiple ways and the judge would determine which approach was appropriate for any particular case.

Inserting each female employee's years of service and performance evaluation score into the regression formula would yield the predicted pay for each of them. For example, a woman with ten years of service and a performance evaluation score of 4 would have predicted pay of \$5,730 ($4500 + (75 \times 10) + (120 \times 4)$). Finally, comparing the difference between the pay predicted for this woman with her actual pay would yield the shortfall or excess for her. If the woman's actual pay was \$5,000 per month, then the shortfall would be $\$5,730 - \$5,000 = \$730$, and she would be entitled to back pay; if her actual pay was equal to or greater than \$5,730, she would receive no award.¹³

Of course, the example, which considers pay adjustments based on only two characteristics, is for illustrative purposes only. Because Wal-Mart's computerized data and hard-copy files include information on many characteristics, the actual pay adjustments for Wal-Mart's female employees could be based on the entire set of these characteristics.¹⁴

¹³ There is no need for individualized eligibility hearings in addition to the formula. *See Segar*, 738 F.2d at 1289-91; *EEOC v. O & G Spring & Wire Forms Spec. Co.*, 38 F.3d 880 n.9 (7th Cir. 1994); *Shipes*, 987 F.2d at 316; *Liberles v. County of Cook*, 709 F.2d 1122, 1136 (7th Cir. 1983); *EEOC v. Chicago Miniature Lamp Works*, 640 F. Supp. 1291, 1298-1300 (N.D. Ill. 1986) and 668 F. Supp. 1150, 1151, 1153 n.7 (N.D. Ill. 1987).

¹⁴ The *amicus* brief of the CELC complains (at 7 n.5) that "a female meat cutter with one year of experience, hired at \$15 per hour, on the same day that a male meat cutter with 20 years of experience is hired at \$16 per hour, will be statistically presumed to be a discrimination victim and entitled to back pay.

(Continued on following page)

Although this procedure would correct the effect of sex on pay as revealed in the data, it would in all other respects faithfully follow the weight that the employer itself gave to every other factor in setting pay.

This procedure is more likely to yield just results when the five factors above exist than would a series of individual adjudications. The results would likely be more accurate and consistent across individuals than would a series of individual adjudications. The second stage formula would be derived only after both sides had an opportunity to present testimony from their experts and other witnesses, and the resulting formula presumably would reflect the best thinking of both sides. It is unlikely that a decision emanating from a mini-hearing – not a full-fledged trial, *see Dukes v. Wal-Mart Stores, Inc.*, 222 F.R.D. at 175-76 (explaining that second stage proceedings “typically consist of mini-hearings presided over by a special master or the court”) – would prove more accurate in

The potential discriminatees would receive back pay according to formula, with no opportunity for the defendant to prove the absence of discrimination.” However, this ignores the fact that, to the extent that information on non-Wal-Mart job experience is not contained in Wal-Mart’s electronic database, the parties may use paper personnel records such as job application forms to code information on prior work experience (not only in total, but also by type of occupation and industry) and incorporate this information into the “formula” used for determining back pay. Thus, the defendant has ample opportunity to develop a formula to “prove the absence of discrimination,” if no discrimination exists.

evaluating ten year or older memories of subjective decisions. Indeed, to produce just results, the mini-hearing process would require the same type of regression analysis that would underlie a formula. Using the example posited by the CELC, if a male meat cutter was paid more than an otherwise comparable female meat cutter and Wal-Mart's explanation was that he had 19 more years of pre-Wal-Mart experience, it would be necessary to evaluate the data to determine the extent, if any, to which Wal-Mart actually valued pre-company experience, unless the factfinder simply credited the company's testimony about the value placed on pre-company experience.

The use of a formula also would produce more just results than a series of individual adjudications because a large percentage – almost certainly the majority – of persons injured by the pattern or practice of discrimination would hesitate to engage in mini-hearings or full-fledged trials against their employer. Courts recognize that employees often are hesitant to sue their employers even if they have valid claims. *See, e.g., EEOC v. Fed. Exp. Corp.*, 558 F.3d 842, 849 (9th Cir. 2008) (explaining that EEOC “may file a charge when a victim of discrimination is reluctant to file a charge for fear of employer retaliation”); *Caridad v. Metro-North Commuter R.R.*, 191 F.3d 283, 295 (2d Cir. 1999) (“[T]here are many reasons why a victimized employee may be reluctant to report acts of workplace harassment”); *Marshall v. A & M Consol. Indep. Sch. Dist.*, 605 F.2d 186, 190 (5th Cir. 1979) (explaining that Congress allowed

Secretary of Labor to sue for Fair Labor Standards Act violations partly because it “will secure wages for the many employees who are reluctant to sue their employer”).

Finally, use of a formula would be fair because it ensures consistency of results. Everyone with the same set of characteristics would be treated in exactly the same way; everyone with different sets of characteristics would be treated differently, to the extent warranted by the regression-derived salary formula.

For these reasons, the district court should be allowed to adopt a formulaic approach to dispensing backpay relief if Wal-Mart is found to have engaged in a pattern or practice of discrimination.



CONCLUSION

Amici do not have a professional interest in whether the Court affirms or reverses the class certification decision. *Amici*, however, urge the Court to (1) reject the argument that regressions had to be performed on a store-by-store basis to establish whether the claims raised issues common to the class, and (2) permit use of a statistical model to identify those class members entitled to receive backpay awards and calculate the amounts of their awards,

if Wal-Mart is found liable for engaging in a pattern or practice of sex discrimination.

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Respectfully submitted,

MICHAEL D. LIEDER, ESQ. SPRENGER + LANG PLLC 1400 Eye Street NW, # 500 Washington, DC 20005 Tel: 202.772.1159 Fax: 202.332.6652	DANIEL B. EDELMAN, ESQ.* KATZ, MARSHALL & BANKS, LLP 1718 Connecticut Ave. NW, Sixth Floor Washington, DC 20009 Tel: 202.299.1140 Fax: 202.299.1148 edelman@kmblegal.com
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**Counsel of Record*

Counsel for Amici Curiae:

*Mark R. Killingsworth
Jonathan S. Leonard
Janice Madden
Bernard Siskin
Alex Vekker*

APPENDIX

Each of the *amici* has served as an expert witness in multiple pattern-or-practice employment discrimination cases. The affiliations and selected scholarship of the *amici* are:

MARK R. KILLINGSWORTH, PH. D.

Affiliation

Professor of Economics
Department of Economics, Rutgers University

Three Publications on Related Topics

Comparable Worth and Pay Equity: Recent Developments in the United States, CANADIAN PUBLIC POLICY, Vol. 28 (Supplement), 2002, pp. S171-S186

Analyzing Employment Discrimination: From the Seminar Room to the Courtroom, 83 AMERICAN ECONOMIC REVIEW 67-72 (1993)

Heterogeneous Preferences, Compensating Wage Differentials and Comparable Worth, 102 QUARTERLY JOURNAL OF ECONOMICS 727-742 (1987)

JONATHAN S. LEONARD, PH. D.

Affiliation

George Quist Chair in Business Ethics
Haas School of Business at the University
of California at Berkeley

Three Publications on Related Topics

(with D. Levine and A. Joshi) *Do Birds of a Feather Shop Together? The Effects on*

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Performance of Employee's Similarity with One Another and with Customers, 25 JOURNAL OF ORGANIZATIONAL BEHAVIOR 731-54 (2004)

(with T. Kochan, et al.) *The Effects of Diversity on Business Performance: Report of the Diversity Research Network*, 42 HUMAN RESOURCE MANAGEMENT 3-21 (2003)

Wage Disparities and Affirmative Action, AMERICAN ECONOMIC REVIEW, Papers and Proceedings 86 (May 1996)

JANICE F. MADDEN, PH. D.

Affiliations

Robert C. Daniels Term Professor of Urban Studies, Regional Science, Sociology, and Real Estate
University of Pennsylvania

Econsult Corporation
Founding Principal

Three Publications on Related Topics

MOMMIES AND DADDIES ON THE FAST TRACK (2004)

CHANGES IN INCOME INEQUALITY WITHIN U.S. METROPOLITAN AREAS (2000)

THE ECONOMICS OF SEX DISCRIMINATION (1972)

BERNARD R. SISKIN, PH. D.

Affiliations

Affiliate and Former Director
LECG

App. 3

Adjunct Professor of Law School
Temple University

Three Publications on Related Topics

(with J. Trippi) *Employment Discrimination Litigation: Behavioral, Quantitative, and Legal Perspectives,* in STATISTICAL ISSUES IN LITIGATION, ch. 5 (2005)

(with J. Staller) WHAT ARE THE CHANCES? (1989)

Utilizing Statistics in Discrimination Cases, LITIGATION HANDBOOK SERIES (2001)

ALEXANDER VEKKER, PH. D.

Affiliations

Vice President
Econsult Corporation

Visiting Faculty
Department of Economics,
University of Pennsylvania

Publication on Related Topic

(with Michael Morris) *An Alternative Look at Temporary Workers, Their choices and the Growth in Temporary Employment,* JOURNAL OF LABOR RESEARCH. Vol. 22(2) (Spring 2001)
