In the
United States Court of Appeals
For the Seventh Circuit

No. 06-2213

ELEANOR BAYLIE and FRANCES L. SMITH,

Plaintiffs-Appellants,

v.

FEDERAL RESERVE BANK OF CHICAGO,

Defendant-Appellee.

Appeal from the United States District Court for the
Northern District of Illinois, Eastern Division.
No. 98 C 1186—**William J. Hibbler**, *Judge*.

ARGUED JANUARY 3, 2007—DECIDED FEBRUARY 14, 2007

Before EASTERBROOK, *Chief Judge*, and POSNER and WOOD, *Circuit Judges*.

EASTERBROOK, *Chief Judge*. This appeal presents the tail end of a class action in which employees accused the Federal Reserve Bank of Chicago of race, sex, and age discrimination. Four years ago the district court decertified the class and allowed employees to pursue individual claims. Only two remain for resolution on this appeal. The district judge concluded that these two had not established even a *prima facie* case of discrimination and granted summary judgment to the Bank.

Although only two employees' claims remain for decision, their brief proceeds largely as if a class continued to seek systemic relief. Plaintiffs rely heavily on the report of an expert who concluded that black employees were less likely to be promoted than white employees. They maintain that this report is enough by itself to require a trial. Going to the opposite extreme, the Bank contends that statistical evidence is never relevant outside a class action or a suit by a public agency on behalf of employees as a group. Both of these positions misunderstand the role of statistical inference.

Most contentions in litigation are empirical rather than axiomatic. Propositions of fact are arrived at by inductive rather than deductive means. All inferences are statistical—whether implicitly or explicitly does not matter. A plaintiff who accuses Supervisor X of discrimination because he never has promoted a black person, and often says disparaging things about black workers, is drawing a statistical inference: that if X has been indifferent to race, then selections from the pool of employees eligible for promotion would have included some black workers, and in particular would have included the plaintiff. Likewise the proposition "9 of 10 people exposed to sarin die within 20 minutes, so sarin is deadly" is a statistical inference, one so obvious that no expert is needed to show causation. But the inference often may be elusive, and then someone trained in the analysis of numbers will help.

Professional statistics is a rigorous means to analyze large numbers of events and inquire whether what appear to be patterns really are the result of chance (and, if not, which variables are associated with which outcomes). Suppose we know that 20,000 of 100,000 persons exposed to high dosage x-rays eventually develop cancer, and that 19,500 of 100,000 persons not so exposed develop cancer. Should we attribute the apparent excess risk of 500

cancers to the x-ray, or might it have some other cause? Is this excess risk real or an illusion caused by errors in measurement and analysis, the sort of variance that may occur by chance? A statistical analysis may be able to answer these questions—and, if the answer is yes, the knowledge that high-dosage x-rays increase the risk of cancer may inform a decision whether the benefits of the procedure are worth the extra risk. But it will not tell us whether a given person who develops cancer did so because of the x-ray; only 2.5% of cancers can be attributed to the radiation, so 97.5% of all cancers, even among persons exposed to high-dosage x-rays, have other causes. This is the sense in which statistics are more helpful in a pattern-or-practice case, where a judge will be asked to direct the employer to change how it makes hiring or promotion decisions.

In individual cases, studies of probabilities are less helpful. Suppose 1,000 employees apply for 100 promotions; 150 of the workers are black and 850 white. If all are equally qualified and the employer ignores race, then 85 white workers and 15 black workers will be promoted, plus or minus some variation that can be chalked up to chance. Suppose only 10 black workers are promoted. Is that the result of discrimination or chance? Econometric analysis (an application of statistical techniques) may suggest the answer by taking into account both other potentially explanatory variables and the rate of random variance. See *Mister v. Illinois Central Gulf R.R.*, 832 F.2d 1427 (7th Cir. 1987); Federal Judicial Center, *Reference Manual on Scientific Evidence* 83-227 (2d ed. 2000); Paul Meier, Jerome Sacks & Sandy L. Zabell, *What Happened in Hazelwood: Statistics, Employment Discrimination, and the 80% Rule*, 1984 Am. Bar Foundation Research J. 139, 158-70; Thomas J. Campbell, *Regression Analysis in Title VII Cases*, 36 Stan. L. Rev. 1299 (1984).

When the answer is positive (discrimination occurred; the conclusion is statistically significant) it cannot reveal with certainty whether any given person suffered. In this example, 150 black workers applied for promotion; 10 were promoted and the other 140 were not. But for discrimination, 15 would have been promoted and 135 not. Which of the 140 non-promoted employees would have received the other 5 promotions? The statistical analysis does not tell us—and in civil litigation, where the plaintiff's burden is to show more likely than not that he was harmed by a legal wrong, data of this kind will not get a worker over that threshold.

Statistical analysis is relevant in the technical sense that it "has a tendency to make the existence of [a material] fact . . . more probable or less probable than it would be without the evidence." Fed. R. Evid. 401. But data showing a small increase in the probability of discrimination cannot by itself get a plaintiff over the more-likely-than-not threshold; it must be coupled with other evidence, which does most of the work. A disappointed worker could ask for damages measured by the lost opportunity: each of the 140 disappointed workers might receive as damages 5/140 of the extra income enjoyed by those who received promotions. That's the loss-of-a-chance measure of damages. See *Doll v. Brown*, 75 F.3d 1200 (7th Cir. 1996). But it is more suited to class-wide litigation, and our two plaintiffs have not requested this remedy.

What statistics did these plaintiffs offer—the kind that permit a sound inference in an individual case (our examples of Supervisor X and exposure to sarin) or the kind that may support class-wide equitable relief but are only marginally relevant when an individual plaintiff seeks an award of damages? Plaintiffs' expert analyzed all non-managerial workers at the Bank between 1995 and 2000. Workers as a whole enjoyed a probability of about 0.25 of being promoted to a higher pay grade each year

(stated otherwise, the average worker was promoted once every four years). Coefficients in an econometric regression implied that black workers had about a 0.20 probability and white workers about a 0.27 probability, and after controlling for other variables the expert concluded that 5/7 of this difference (or a 0.05 chance of promotion each year) was unaccounted for by any hypothesis other than race. In other words, the average white worker received an extra promotion every 20th year compared with the average black worker, holding constant factors (such as education) other than race. The Bank's experts questioned whether this result is statistically significant (that is, whether the difference is a result of chance rather than race) and whether it is meaningful for most of the workers. It turns out that the most frequent "promotion" is from temporary to full-time work. If the analysis is limited to persons (such as plaintiffs) already working at the Bank full time, then black workers are slightly more likely than white workers to be promoted in any given year.

Given the consequence of restricting the data set to full-time workers, this econometric analysis offers our two plaintiffs no support. Even presented as plaintiffs' expert did, rolling the temporary-to-full-time promotions into the data, the study doesn't provide plaintiffs with much assistance. These two plaintiffs applied for several promotions annually. If race affects one promotion every 20 years, and workers seek three promotional opportunities a year, then there is one chance in 60 that a given application would have been successful if the applicant were white rather than black. Over many years and many employees this effect could be substantial—which is why such analysis is helpful in class actions—but in a single employee's case it does very little to get the claim over the more-likely-than-not threshold. A worker can't say simply: "I've been here 20 years, so I'm entitled to one

extra promotion." All of that time except the most recent 300 days falls outside Title VII's statute of limitations. See *National Railroad Passenger Corp. v. Morgan*, 536 U.S. 101 (2002). Analysis thus must proceed vacancy-by-vacancy in an individual case, not career-by-career.

If a plaintiff had evidence suggesting that the probability that race accounted for a given turn-down was (say) 49.8%, then the addition of the statistical analysis would push the probability past 50%. In other words, the expert's conclusion in this litigation could serve as a tie-breaker. But first there would have to *be* a tie—and plaintiffs' evidence does not come close to making this case a tossup that statistics might decide in their favor. Cf. *Sun v. University of Illinois*, No. 06-2438 (7th Cir. Jan. 16, 2007), slip op. 23-26 (considering statistical evidence in an individual case but finding that the data did not create a material dispute).

Frances Smith began as a staff assistant in 1977 and after multiple promotions reached the rank of "senior examiner" in 1994. Smith's applications for further advancement have been denied, and her principal argument is that she is no less qualified for promotion than white "senior examiners" who the Bank did promote to higher grades (though not different titles; "senior examiner" is the highest in the progression). In addition to contending that the econometric analysis is enough to create a jury issue, Smith maintains that the district judge was too demanding in requiring her to show that the white employees to whom she compared herself were comparable in every respect.

The judge may well have asked too much of comparability analysis, see *Crawford v. Indiana Harbor Belt R.R.*, 461 F.3d 844 (7th Cir. 2006), but that doesn't matter. The Bank explained why it passed Smith over: pay grades higher than Smith's are awarded only to examiners who

do substantial field work (that is, examine books in the banks that the Federal Reserve regulates), and Smith has declined to accept a position as a full-time field examiner. Nothing in the record suggests that this explanation is a lie, so, even if Smith has made out a *prima facie* case, no reasonable jury could find the Bank's explanation to be a pretext for discrimination. The case is not close; the statistical study cannot tip the balance.

Eleanor Baylie has worked for the Bank as a secretary since 1964; her most recent promotion, to a grade 9 position, was in 1988. Since then she has applied for multiple positions, none of which is secretarial, in grades 10 and above. The positions for which she was passed over have titles such as "control specialist" and "production coordinator"; it is impossible to tell from these titles, or the parties' briefs, the duties of these positions and whether Baylie would be competent to perform them. Baylie asserts that she is at least as well qualified as the workers who received these promotions, but her brief contains no details about who received the promotions, after what process. It does not contain citations to the portions of the record bearing on her individual claim (as opposed to the statistical analysis). There is accordingly no reason to believe that race or sex played a role in the decisions.

Although, as we observed in *Crawford*, a district judge should not insist that the other employees to whom a plaintiff compares herself be identically situated, there must be a reasoned basis for thinking the comparator close enough in material ways so that a reasonable fact-finder could think that race (sex, or another covered attribute) was the difference that the employer perceived. When despite ample opportunity for discovery the plaintiff makes no serious effort to show that the favored worker was similarly situated except with respect to race (sex, and so on), the district judge properly concludes that

a *prima facie* case of discrimination has not been established.

So it is here. Baylie's opening brief does not tell us who received the promotions she sought or in what respects the applicants were like (or unlike) her. Her reply brief devotes one page to that subject, but the effort is too little and too late. Baylie obviously believes in her own skills, but employers make comparative rather than absolute judgments. Because Baylie has not tried to show in the necessary detail that race rather than an employer's honest evaluation of comparative skills accounts for the decisions, the Bank was entitled to summary judgment in its favor.

Plaintiffs' other arguments have been considered but do not require discussion. The judgment is affirmed.

A true Copy:

Teste:

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Clerk of the United States Court of Appeals for the Seventh Circuit