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Statistics, the Law and Title VII: An Economist's View

James Gwartney,* Ephraim Asher,** Charles Haworth† and Joan Haworth‡†

Economic analysis is important to the understanding of the employer/employee relationship. Employer decisions on hiring, termination, promotion, and compensation of workers will be determined primarily by economic considerations. Similarly, economic factors will affect the prospective employee's decision on whether to accept a position, seek employment elsewhere, or demand higher wages. Labor market outcomes cannot be fully understood without a working knowledge of the role played by economic forces.

Statistics have long been utilized by economists to identify and measure economic factors that exert an impact in labor markets. In the *Wealth of Nations* (1776), Adam Smith presented wage-rate data on unskilled laborers and skilled craft workers, noting the importance of qualifications (skills) as a source of wage differentials among workers. More recently, economists have utilized advanced statistical procedures such as multiple regression analysis in their efforts to pinpoint the importance of skill-qualification factors. Beginning with Gary Becker's pioneering work,¹ economists have utilized statistics to separate earnings differences caused by skill differentials according to race (or sex) from those resulting from employer discrimination.

Economics and statistics are important tools available to the researcher seeking to measure the presence and significance of employer discrimination. It is only reasonable that they should play a role in legal proceedings concerned with discrimination. Of course, these tools must be utilized within the framework of the law. The legal process may exempt certain discriminatory behavior.² The legal concept of "discrimination" may not exactly coincide with the economists' concept of the term. Thus, the law must define and specify the proper role and

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1 G. BECKER, *THE ECONOMICS OF DISCRIMINATION* (1957).

2 For example, the legal process exempts discriminatory acts committed before the effective date of the prohibitive legislation.

application of economics and statistics in such legal proceedings.

Since the passage of Title VII, the ongoing legal process has been fulfilling precisely this function—defining and specifying the proper role of economics and statistics. Unfortunately, very few lawyers and judges receive training in either economics or statistics. Thus, the application of these tools in Title VII litigation has sometimes been a painful one.

During this evolutionary stage of Title VII law, ambiguity and confusion have often been present. We believe that three important Supreme Court decisions in mid-1977 have made a significant contribution toward the clarification of the law and the specification of economically relevant statistics in Title VII cases. This article will review the evolutionary history of Title VII and analyze both the economic and legal relevance of statistics in this area. Section I focuses on the economic theory that underlies the use of statistics as an indicator of discriminatory behavior. Section II analyzes the Congressional debate prior to the passage of Title VII, focusing on Congressional intent. Section III discusses the momentous Supreme Court case, *Griggs v. Duke Power Co.*,³ because the ambiguity implicit in this decision was a source of confusion throughout the 1971-77 period. Section IV discusses the implications of three landmark mid-1977 Supreme Court decisions⁴ that clarify the proper (and improper) use of statistics in Title VII proceedings. This section also specifies proper statistical comparisons that now take on additional importance in light of these key decisions. Section V discusses the potential relevance of statistical analysis from both economic and legal viewpoints. The final section summarizes the major findings of the article.

I. Economic Theory, Employee Skill, and Employer Discrimination

The economic considerations underpinning employer/employee decision-making are more complex than they may appear to the layman. A firm's cost efficiency and economic survival will be dependent upon its ability to (a) match job assignments and employee skills properly and (b) establish a wage compensation system that provides an incentive for efficient employee behavior. Given the importance of employment decisions, they clearly will not be made haphazardly via random decision-making procedures.

Workers are employed and compensated by firms because they play a vital role in the production process. The productive contribution of employees expands the ability of the firm to produce revenue-generating output. In a market-directed economy, the employer/employee relationship is based on the expectation of mutual gain. The employee will not accept a position unless he perceives that the "job assignment/compensation" conditions are more attractive than the alternatives, including self-employment. Similarly, the employer will not offer the employee a job unless the employer believes that the worker will enhance the firm's output (and revenues) sufficiently to cover the cost of employing the worker. Unless both employee and employer expect to gain, they will not agree to a voluntary exchange.

3 401 U.S. 424 (1971).

4 The three decisions that relate to the proper use of statistics are: *Teamsters v. United States*, 431 U.S. 324 (1977); *United Air Lines v. Evans*, 431 U.S. 553 (1977); and *Hazelwood School Dist. v. United States*, 433 U.S. 299 (1977).

Because of their specialized skills and abilities, some employees will make a greater contribution to the output of the firm than others. For example, the contribution of an All-Star first baseman, such as Steve Garvey of the Dodgers, clearly exceeds that of a less skillful utility infielder who may also be employed by the Dodgers. Thus, when one makes salary comparisons, one would not expect the utility infielder to earn the same salary as Steve Garvey. Even though they may be the same age, work equally hard, and have approximately the same physical characteristics, employers are not blind to the difference between the two. Since Garvey is a more skilled player, the Dodgers and other potential employers are willing to offer Garvey a higher wage than the utility infielder, *i.e.*, one that is commensurate with his greater skill.

This link between employee skills, contribution to output, and wage rates is just as significant in other lines of business as it is in professional baseball. More highly skilled (qualified) employees will be able to command higher wages in the labor market precisely because they are able to make a larger contribution to the output of the firm. For example, wage differentials between unskilled laborers and skilled craftsmen have existed for centuries because the craftsmen consistently accomplish many assignments more satisfactorily and in less time. Lawyers indicate their awareness of the skill-wage link when they implement wage differentials among employees. For example, receptionists generally earn less than skilled legal secretaries.

Economic theory explains the precise link that employers who wish to minimize costs will establish between employee skills and wages. If an employer is minimizing per unit costs, an additional dollar spent on unskilled labor must expand output as much as an additional dollar spent on skilled labor.

Wage differentials among workers possessing different skills will reflect their relative value to the firm. Further, an employer who wants to minimize costs will pay skilled labor a higher wage than unskilled labor if, and only if, the marginal productivity (impact of an additional worker on output) of the skilled workers is sufficient to offset the higher employment cost.⁵ For example, suppose that employment of a skilled craftsman increases the output of a shoe manufacturer by two units, while output can be expanded by one unit if an unskilled laborer is employed. Under these circumstances, if the wage ratio of skilled to unskilled labor is less than two, cost will be reduced by substituting skilled for unskilled labor. Of course, as the employer continues to expand his skilled labor force, the

⁵ This proposition follows directly from the well-known cost minimization theorem in economics. This theorem states that the ratio of the price of a factor divided by its marginal product (*i.e.*, the change in output as the result of employing an additional unit of the factor) must be equal for all factors. Mathematically, the theorem states that when the firm's per unit costs of production are at a minimum, the following condition will exist:

$$\frac{P_a}{MP_a} = \frac{P_b}{MP_b} = \dots = \frac{P_n}{MP_n}$$

where P = the price of the resource,
 MP = the marginal product of the resource, and
 a,b,c,...,n denote the specific resources employed by the firm

See R. DORFMAN, *PRICES AND MARKETS* 88-95 (1978) for a detailed proof of the theorem.

output gains associated with the employment of additional skilled workers will fall.⁶

Carrying the hypothetical further, what would happen if the skilled/unskilled wage ratio were temporarily more than two? If that were the case, the productivity advantage of the skilled workers would be insufficient to merit their employment at such a high wage. It would be less expensive for the shoe manufacturer to hire two unskilled workers, substituting them for skilled workers. Of course, as the employer continues this course of action, the relative marginal productive contribution of the unskilled workers will decline as it becomes increasingly difficult to substitute them for skilled workers. This will eventually bring about a proportional relationship between the skilled/unskilled wage ratio and the skilled/unskilled marginal contribution to output.

While some may find the mechanics of labor economics technical, the implications of using them are both straightforward and logical. Profit-seeking and cost-minimizing firms will have a strong incentive to establish a reward structure that links employee compensation to employee skill (contribution to output). If other factors are equal, employers who do not closely link compensation and employee skill (productivity) will experience higher costs and lower profits than their competitors.

When the skills of employees differ, wage differentials will tend to reflect the skill differentials. Cost-conscious employers will not pay skilled labor twice as much as unskilled labor unless the productive contribution of the former is roughly twice that of the latter. Thus, profit-seeking firms will find it in their interest to establish a roughly proportional relationship between relative wage rates and the relative marginal contribution to output for various skill levels of employees.⁷ Establishing a reward structure of this type is not merely a matter of employer preference, but rather a necessary condition for business efficiency (cost minimization).

In order to implement cost-minimizing employment practices, employers use information regarding employee skills, productivities, and labor market conditions.⁸ It will often be difficult for an employer to evaluate the skills and productive abilities of potential employees accurately. Observation of employee performance and learning abilities on lower level jobs will often be utilized to evaluate the suitability of the employee for higher level positions. In addition, employers will pay heed to the consistency of workers over time, their innovative

6 This declining "marginal productivity" of skilled workers reflects the fact that at first skilled workers will be assigned to those jobs for which their skill is most crucial. As their employment expands, the additional skilled employees will be assigned to positions for which their skills are less and less critical to the efficient performance of the task. Thus, their marginal impact on output will decline as their employment is expanded.

7 It should be noted that an employer who fails to reward the more highly skilled employees will lose them to a cost-minimizing competitor who will. For example, if highly skilled employees are twice as productive as lesser skilled employees, when the skilled/unskilled wage ratio is only 1.5, cost-minimizing employers will offer skilled employees a wage increase so they can attract additional skilled labor and substitute this relatively cheap (in relationship to its productivity) resource for the more expensive (relative to its productivity) unskilled labor. Of course, as the cost-minimizing firms follow this course, their actions will eventually equalize the wage/productivity ratio between skilled and unskilled labor.

8 Employment decision making is not unique with regard to this point. Generally, economic and political decisions are made with incomplete information and under uncertain conditions.

abilities, and personal traits that retard productivity (*e.g.*, absenteeism or drug abuse). If other factors are equal, employees who have established a record of long-term satisfactory performance are more likely to succeed on higher level assignments than newly employed workers who may prove less dependable over the long-term.⁹ Incomplete information, uncertainty as to employee skill level, and inconsistency of employee performance are all factors which raise the employer's risk and hence their cost. However, these factors do not change the basic structural relationship between skills and employee reward. Working within the limitations imposed by real-world conditions, cost-conscious (and profit-seeking) employers have a strong incentive to estimate the productive contribution of employees accurately and to establish a reward structure that reflects the productive skill level of employees. It is extremely important for researchers and legal professionals seeking to identify and measure the impact of employer discrimination on earnings to recognize that the skill-wage link is a necessary condition for cost minimization.

According to the economic concept of labor markets, employment discrimination is present when individuals (or groups) *that are otherwise similar* are treated differently on the basis of a characteristic such as race or sex.¹⁰ In the absence of employment discrimination, economic analysis indicates that the employment experience of equally skilled (qualified) blacks and whites will be similar. Thus, the earnings and promotion rates of equally skilled whites and blacks will be approximately equal. Similarly, the representation of blacks and whites among an employer's work force will be approximately equal to their representation within the labor market pool from which the work force of the employer is drawn.

Discriminating employers may be willing to hire blacks only at a lower wage rate or only into certain positions—particularly low-wage, less-desirable positions. Black employees may have to better demonstrate the prerequisite skills before they are promoted into upper-level positions. Whites with lesser skills than available blacks may be assigned to certain positions. Such discriminatory behavior by an employer will create a racial disparity in earnings, rate of promotion, representation among hires, and in representation within specific occupational categories of the firm.^{11,12}

9 The importance of long-term consistency explains why employers have generally been quite willing to permit seniority to play a central role in the promotion/job assignment decision-making process.

10 The logic of this article applies with equal force to employment discrimination on the basis of race, color, sex, religion, national origin and age. However, for the sake of brevity, henceforth, we will refer only to discrimination on the basis of race.

11 It is interesting to note that discriminatory behavior on the part of employers will increase their production costs. If an employer is paying higher wage rates to whites than to equally skilled blacks, costs would be reduced if the equally productive black employees were substituted for the higher waged whites. Similarly, if an employer favors less skilled (less productive) whites over blacks when assigning workers to a specific position (at an equal wage rate), the cost of producing any given level of output will rise. See Gwartney & Haworth, *Employer Cost and Discrimination: The Case of Baseball* 82 J. POL. ECON. 873 (1974) for both a presentation of the theory and empirical evidence that is consistent with it.

12 When general labor market discrimination reduces the earnings of blacks below that of similarly qualified whites, a nondiscriminating employer paying the same wage to equally skilled (qualified) white and black workers will attract a disproportionate number of blacks. Blacks will find the job opportunities offered by the nondiscriminator more attractive than those available in the general labor market. The opposite will be true for whites. Since the non-

However, disparate employment outcomes according to race may exist for another reason. Given the past employment, educational, and training experience of blacks, the average skill level of the black work force in a labor area (or for a representative firm) is likely to be lower than the average for whites. If this is true, the earnings and promotion rates of whites will be likely to exceed the rates for the less skilled blacks. In fact, cost efficiency would necessarily generate this outcome, even if *similarly skilled* blacks and whites received identical treatment.

Differences in employment outcomes according to race may stem from either differences in the average skill level of white and black employees or employment discrimination. In order to isolate the impact of employment discrimination, adjustment must be made for differences between the average skill level ("qualifications" or "employees merit" in the words of Title VII) of white and black employees. Unadjusted comparisons will not suffice. Labor economics illustrates that proper procedures require the researcher to compare the earnings of blacks and their promotional and hiring opportunities with those experienced by whites *with similar skills*. If blacks earned less, advanced more slowly, or were less likely to be hired than whites with similar skills (qualifications), statistical evidence to this effect suggests that employer discrimination was present. In contrast, if the earnings, promotional, and hiring opportunities of blacks were roughly the same as similarly skilled whites, equal opportunity according to race is implied. It is important to remember that equal employment opportunity may be present even though the data show a significant disparity among the respective *unadjusted* earnings, promotional patterns, or representation ratios. Skill-adjusted comparisons will be necessary before any definitive conclusions can be drawn.

II. Title VII and Congressional Intent

A review of the debate prior to the enactment of Title VII reveals three very important points concerning the intent of Congress. First, Title VII was designed to prohibit systematic differential treatment of employees and potential employees that was based on race, color, religion, sex, or national origin. The legislation was not directed toward individual complaints or isolated incidents unless they reflected the overall pattern and practice behavior of the employer.¹³ It must be

discriminating employer is unwilling to pay a premium in order to hire whites, his policy will result in the substitution of blacks for equally qualified, but more expensive, white employees. If blacks are overrepresented within employment categories relative to the general labor market, this indicates that the firm is offering blacks more attractive job opportunities than other employers. Perceiving these relatively attractive opportunities, blacks flow to the jobs offered by the nondiscriminator at a greater rate than is true for whites. See G. BECKER, *supra* note 1, at 31-46, 82-85; and Gwartney & McCaffree, *Variance in Discrimination Among Occupations*, S. ECON. REV. 141 (1971) for a rigorous analysis of these issues.

¹³ Senator Humphrey, a strong proponent of Title VII and the majority whip at the time of its passage, was abundantly clear on this point:

[A] pattern or practice would be present only when the denial of rights consists of something more than one isolated, sporadic incident, but is repeated, routine, or of a generalized nature. There would be a pattern or practice if, for example, . . . a company repeated and regularly engaged in acts prohibited by the statute. The point is that single, insignificant, isolated acts of discrimination by a single business would not justify a finding of a pattern or practice. . . .

shown that there has been more than sporadic occurrence of discrimination.

Second, Title VII was directed toward future behavior. Congress did not intend to hold employers legally accountable for their pre-Act employment practices, even if they were blatantly discriminatory. The interpretative memorandum placed in the *Congressional Record* by Senators Clark and Case, the "bipartisan captains" responsible for Title VII during the Senate debate, stated:

Its (Title VII) effect is prospective and not retrospective. Thus, for example, if a business has been discriminating in the past and as a result has an all-white working force when the title comes into effect, the employer's obligation would be simply to fill future vacancies on a nondiscriminatory basis. He would not be obliged—or indeed, permitted—to fire whites in order to hire Negroes, or to prefer Negroes for future vacancies, or, once Negroes are hired to give them special seniority rights at the expense of white workers hired earlier.¹⁴

This point is vitally important since it illustrates that Congress intended that "flow" data during the relevant post-Act period would be the decisive factor in Title VII proceedings. When the structure of data is biased because it reflects an employer's pre-Act employment policy, its use is inappropriate. Thus, "stock" employment figures on the representation of blacks among an employer's current labor force (or specific categories of that labor force) is of little relevance in Title VII cases when the stock data are also reflective of pre-Act employment practices.¹⁵

Third, the framers of Title VII did not intend to eliminate employee qualifications, skill, and merit as valid reasons for disparate treatment. The Act specifically mentions seniority, employee merit, quantity of work, and quality of production.¹⁶ Senator Humphrey pointed out that employers were not only free to treat persons on the basis of qualifications, but that this was the specific purpose of Title VII. During the debate Senator Humphrey stated:

¹⁴ *Id.* at 7213.

¹⁵ This point is particularly important if an employer's work force has been relatively static during the relevant post-Act period. For example, if a firm's labor force was comprised of 1000 whites and zero blacks on July 1, 1965, and 900 of the whites remain currently employed by the firm, the "stock" employment figures would not be a valid indicator of the firm's post-Act hiring practices. The proper comparison would be between the representation of blacks among hires (the "flow" of employees to the firm) during the post-Act period relative to their representation in the relevant labor market pool from which the hires are drawn. Suppose that during the post-Act period the firm hired 100 employees, 25 blacks and 75 whites, all of which are still employed by the firm. If the relevant labor market pool for the firm's hires was twenty-five percent black, the representation of blacks among hires would be exactly as expected, even though blacks comprise only 25 out of the 1000 workers (2.5%) currently employed by the firm. Since Title VII was not designed to penalize firms for pre-Act practices, it is the flow figures, not the stock that are relevant to the determination of whether or not the firm's hiring practices have been discriminatory. While legal opinions have sometimes been oblivious to this point, the mid-1977 Supreme Court decisions clearly incorporated it into the law. See Section IV.

¹⁶ 42 U.S.C. § 2000e-2(h) (1970) provides, in pertinent part:

Notwithstanding any other provision of this title, it shall not be an unlawful employment practice for an employer to apply different standards of compensation or different terms, conditions, or privileges of employment pursuant to a bona fide seniority or merit system, or a system which measures earnings by quantity or quality of production or to employees who work in different locations, provided that such differences are not the result of an intention to discriminate . . ." (emphasis added).

What the bill does . . . is simply to make it an illegal practice to use race as a factor in denying employment. It provides that men and women shall be employed *on the basis of their qualifications*, not as Catholic citizens, not as Protestant citizens, not as Jewish citizens, not as colored citizens, but as citizens of the United States.¹⁷

Clearly, the framers of Title VII did not believe that they were eliminating racial differences in compensation, promotion rates, and occupational representation when these disparities reflected the racial (or sexual) differences in the qualifications, skills, and merit of the individual workers employed by a firm.

An analysis of the intent of Congress suggests that Title VII was designed to eliminate future employment discrimination. Even though the Act fails to define "employment discrimination," the specific behavior prohibited and approved by the Act indicates that the Congressional concept of discrimination was similar to the concept adhered to by economists. Congress perceived employment discrimination as differential treatment of otherwise similar workers on the basis of their race, sex, religion or national origin. Certainly, Congress neither mandated, nor intended to mandate, that race and sex be substituted for qualifications in the employment decision-making process. When the qualifications (skills) of blacks are similar to those of whites, equal treatment is expected. On the other hand, when the qualifications (skills) of black employees are, on average, lower than those of whites, Congress recognized that continued racial disparities would be present. Equal treatment of equals is all that is mandated by Title VII.

III. The *Griggs* Decision and Title VII, 1971-77

Congress acts but the courts interpret. The specific meaning of Title VII, like any piece of legislation, will be determined by the evolutionary process of court decisions rendered in litigation brought under the law.

Personal testimony dominated the initial Title VII discrimination suits brought against employers. The courts relied heavily upon the subjective testimony of supervisors, personnel officers, charging employees, and fellow workers as they rendered decisions in Title VII cases during the years immediately subsequent to the effective date of the Act. During this era (1965-70), some importance was attached to whether the employer was thought to have made a good-faith effort toward compliance with Title VII. With the passage of time, statistics came to play an increasingly significant role in Title VII litigation, and the courts have clearly rejected "good faith" as a defense.¹⁸ Previously, the courts had utilized statistical evidence in various types of cases charging discrimination in jury selection, voting eligibility, and school segregation. It was only natural that statistics would eventually be relied upon in employment discrimination cases.

The Supreme Court's landmark decision in *Griggs* amplified the role of statistics in Title VII litigation. In *Griggs* the Court held that employment practices "that are fair in form, but discriminating in operation" were prohibited un-

17 110 CONG. REC. 13088 (1964) (emphasis added).

18 See *Johnson v. Goodyear Tire & Rubber Co.*, 491 F.2d 1364 (5th Cir. 1974); and *Baxter v. Savannah Sugar Ref. Corp.*, 495 F.2d 437 (5th Cir.), cert. denied, 419 U.S. 1033 (1974).

der Title VII. The Court utilized a statistical approach in striking down the employer's requirement of either a high school diploma or an acceptable score on a general intelligence test as a condition of employment. Both of these requirements, though fair in form, exerted a disparate impact on blacks. The Court noted that according to the 1960 census, thirty-four percent of the white males in North Carolina had completed high school while only twelve percent of the black males had done so. Similarly, the acceptable score on the generalized intelligence test eliminated a larger percent of black prospective employees than whites. The Court ruled that the employer's requirements were "artificial, arbitrary, and unnecessary barriers to employment" which acted to foreclose job opportunities to blacks.

The Court's apparent intent in *Griggs* was to prohibit employers from establishing irrelevant employment credentials that would unnecessarily and artificially restrain minorities from moving into attractive jobs. In an effort to accomplish this goal, the Court established the "job-relatedness" doctrine. Three sentences from the *Griggs* decision summarize the logic of the Court:

If an employment practice which operates to exclude Negroes cannot be shown to be related to job performance, the practice is prohibited.

On the record before us, neither the high school completion requirement nor the general intelligence test is shown to bear a demonstrable relationship to successful performance of the jobs for which it was used. Both were adopted, as the Court of Appeals noted, without meaningful study of their relationship to job-performance ability.¹⁹

On the surface, the job-relatedness criteria appears both reasonable and harmless. In practice, this is not the case. The problems arise from three sources. The job-relatedness criteria is (a) legally ambiguous, (b) theoretically unsound, and (c) economically unreasonable.

It is ambiguous because clear-cut validation procedures designed to determine whether potentially important skills are, in fact, job related, are generally inapplicable to a broad cross section of jobs. Of course, industrial engineers and psychologists have utilized statistical correlation procedures to validate the job relatedness of tests for specific, well-defined job tasks. The portion of the *Griggs* decision noting that the employer failed to undertake a "meaningful study" of the relationship between the contested selection devices and job performance seems to imply that such validation studies constitute the proper vehicle by which an employer should prove the job-relatedness of an alleged skill factor. For skills such as the typing ability of a secretary or the mathematical skill of a computer analyst, this would be feasible. However, in the vast majority of cases, it is not feasible to use validation procedures to prove the link between *relevant skills* and an employee's job performance.

For many jobs it is impossible to quantify objectively the performance level (economists would say productive skill) of employees. How can one quantify the performance level of teachers, attorneys, supervisors, maintenance workers, inspectors, librarians, or personal service workers? Workers in each of these job

19 See 401 U.S. at 431.

categories make an important, even essential contribution to the production process. Accurate measurement of that contribution for individual workers however would be either very costly or impossible. But if one cannot quantify the performance of employees on these jobs, there is no direct method by which important skill indicators such as previous job-related experience, training, education, or absenteeism can be validated as job-related.

A narrow legal interpretation of the job-relatedness criteria becomes a Catch 22. Racial differences in mean earnings, hiring rates, and promotion rates cannot be justified via differences in qualifications among whites and blacks, unless each qualification factor (e.g., educational experience, absenteeism) is proven to be job-related. But if it is impossible to quantify employee performance objectively, there is no way that a qualification factor can be validated. The end result of this vicious circle is the elimination of valid skill qualification factors from the employment assignment process.²⁰

The job-relatedness criteria, particularly its narrow interpretation, is theoretically unsound because it fails to recognize that most jobs are stepping stones to other positions. This is particularly true since the employer will have limited knowledge of the strengths and weaknesses of employees at the time they are hired. It will often be economically rational for an employer to utilize employee performance on lower level jobs as a means of acquiring information about the potential skills (and limitations) of workers. In turn, this information will help the manager who is concerned with cost-effectiveness to reduce his "error rate" in the selection of workers for higher level positions. Therefore, it is generally cost efficient for a manager to consider (a) the probability that an applicant will be able to handle a higher-level job assignment as well as (b) the employee's expected performance on the lower-level job.

A narrow interpretation of the job-relatedness criteria would require employers to consider only (b) when they make initial employment assignments. Employers would not be permitted to consider skills that are relevant to higher

20 Economic analysis illustrates that when team production is utilized, quantification of employee performance (productivity) is impossible even at a theoretical level. Suppose, for example, that two men lifted heavy cargo into a truck. In addition, assume that cargo lifting is a two-man operation. Therefore, neither of the two men would be able to load the cargo by himself. Under these circumstances, it would be impossible to determine individual productivities solely by observing the total weight loaded per day. The total output generated by the team would *not* be the sum of the output produced by the separable parts (individual workers). In instances such as these it is impossible even to define *individual* job performance to say nothing of validating a qualification factor by illustrating that it is positively linked to job performance. Team production is often the nature of the production process. For example, the job performance (productivity) of machine operators is generally dependent upon managerial coordination and maintenance operations. Similarly, the job performance (productivity) of truck drivers is usually linked to the efficiency of other team members such as receiving clerks, dockworkers, and material coordinators. In each of these cases, since individual output is affected by the performance of other team members, it would be theoretically impossible to validate qualification factors.

Of course, inability to validate skill qualification factors in no way implies that they are unimportant to individual performance on a job. The competency of team members will still be the vital determinant of their joint output. Managers who seek cost efficiency for their firms will seek to establish a reward system that encourages employee competency since it is the vital determinant of total team production. See Alchian & Demsetz, *Production, Information Costs, and Economic Organization*, 62 AMER. ECON. REV. 777 (1972) for an excellent analysis of the link between employee competency, earnings, and the cost efficiency of a productive team.

level jobs in the line of progression when these skills are unrelated to the employee's initial assignment. Thus, an employer hiring a Typist I could not consider such factors as general level of cognitive skills, communication ability, and shorthand skills if these skills were unnecessary for minimal performance as a Typist I. This would be true even when the skills excluded from consideration were highly related to positions in the line of progression above Typist I. When the employee's performance on an entry-level job supplies the employer with valuable information that is relevant to the section of higher-level employees and/or enhances the ability of the employee to perform higher-level jobs, cost effectiveness would require that the employer grant some consideration to an employee's auxiliary skills. This is true, even though the additional ability may not be essential to performance in the initial position to which the employee is assigned. A narrow interpretation of *Griggs* would prohibit employers from utilizing such cost-reducing procedures.

Even when job performance can be observed, and relevant skill factors could therefore be validated, cost considerations will generally make such an undertaking impractical. Employers seeking to validate the job-relatedness of a single employee characteristic such as an arithmetic test for machinists could expect to incur validation costs ranging from \$20,000 to \$100,000. Typically, several factors such as seniority (on-the-job experience), previous work experience in related areas, training, cognitive skills, attendance, and health will influence the job performance of an employee. What would it cost to validate *each of these factors for every job* (for which performance could be observed) offered by the typical employer? The question answers itself. The enormous cost of such a bureaucratic project would generally rule out its relevance even in areas where employee performance (productivity) *on a job* could be directly observed.

A. Ambiguity During the Post-Griggs Era

In the aftermath of *Griggs*, Title VII litigation was characterized by uncertainty and confusion. Some lower court judges felt that *Griggs* required the employer to provide specific validation data on the job-relatedness of each alleged skill factor before the skill (or qualification) could be deemed a relevant employment consideration. Of course, the practical implication of this position was the virtual elimination of skill qualification factors as a legally valid defense in Title VII litigation.

Judges favoring this "narrow" interpretation of *Griggs* imposed the "warm body hypothesis" on the employment area. According to the warm body hypothesis, all persons who have a warm body are equally qualified. The warm body approach denies the importance of qualitative degrees of competency.

Obviously, the warm body hypothesis makes a great deal of sense when applied to such matters as jury selection, voting rights, and school segregation. In these citizenship areas, gradations of neither qualifications nor rewards are present. Jurors, voters, and students are either permitted to exercise the rights in question or they are denied the rights. Once one is qualified, degree of competency is irrelevant.

Following the narrow interpretation of *Griggs*, judges have often buttressed their decisions with precedents initially developed in the citizenship cases. Evidence on statistical disparities played a central role in citizenship litigation. Thus, judges sometimes extended both the legal precedents and statistical procedures developed in the citizenship cases into Title VII litigation during the immediate post-*Griggs* era.

As a result, legal decisions that implicitly embraced the warm body hypothesis were handed down. For example, defendants were found guilty of discrimination in hiring because there was a statistical disparity between the percentage of black applicants and the percentage of white applicants hired by a firm.²¹ The qualification differences between white and black applicants were either ignored or deemed legally irrelevant as a result of *Griggs*. In other instances, courts utilized the representation of blacks in the general population (or labor force) as the bench mark with which to evaluate the representation of blacks in the employer's work force.²² Of course, if the qualification/skill/occupational mix of the employer differs from that of the warm bodies in the general population, this bench mark would be extremely misleading and, statistically speaking, highly inappropriate. In still other cases, firms that relied upon managers to select the most qualified applicants (employees) when hiring (and promoting) employees were chastized for their failure to (a) supply written, objective instructions to managers and (b) require the managers to follow these instructions rigidly when making employment decisions.²³ Firms that did attempt to establish objective criteria had to either (a) undertake the costly (and often impossible) task of proving that the objective criteria were job-related or (b) run the risk that the court would eventually rule that the criteria were discriminatory because they exerted a disparate impact on blacks (or females).²⁴

In other cases, employers were denied the legal right to consider the years of schooling of employees when making promotion, hiring, and compensation decisions.²⁵ Schooling was deemed an invalid (i.e., nonjob-related) skill factor

21 See *Hill v. Western Elec. Co.*, 12 FEP Cases 1175 (E.D. Va. 1976).

22 *Rowe v. General Motors Corp.*, 457 F.2d 348 (5th Cir. 1972) and *Davis v. Washington*, 4 FEP Cases 1132 (D.D.C. 1972) provide examples of court decisions which accepted comparisons that failed to adjust for skill qualifications differentials.

23 See *Pettway v. American Cast Iron Pipe Co.*, 494 F.2d 211 (5th Cir. 1974); *Baxter v. Savannah Sugar Ref. Corp.*, 495 F.2d 437 (5th Cir. 1974); and *United States v. Bethlehem Steel Corp.*, 446 F.2d 652 (2d Cir. 1971).

24 457 F.2d 348.

25 Of course, the *Griggs* decision prohibited the use of a high school diploma as a minimum educational requirement unless it was validated as job-related. In *James v. Stockham Valve & Fittings Co.*, 559 F.2d 310 (5th Cir. 1977) the court even objected to the use of years of schooling completed as an independent explanatory variable in a regression model analyzing the importance of skill factors as a source of earnings differences between blacks and whites. In this decision, Justice Wisdom denied the use of years of schooling as a permissible skill factor because: "(1) as the defendant concedes, education is not a job requirement at Stockham, and (2) white employees at Stockham have more education than blacks." This reasoning provides a clear example of the warm body hypothesis extended into the employment area. Employees are thought to be either qualified or unqualified. If the firm does not have a minimum educational requirement, then education must not be a valid skill for employment with the firm according to the logic of this decision. The importance of degree of competency is completely ignored. If the logic of this decision were strictly applied, even educational institutions such as Harvard University would be denied the right to use education as a valid employment skill for a faculty position, since Harvard does not have a minimum educational requirement. In contrast to this warm body reasoning, most economists would argue that there

even for workers utilizing advanced technology and employed in plants where the production processes involved the verbal use of cognitive skills and the ability to understand written instructions and to communicate instructions to fellow workers in writing. The denial of years of schooling as a general skill relevant to a broad set of employment opportunities is even more strange in light of history. Just a few years earlier, the courts had gone to great length to promote racial balance partially because of the vital link between schooling and economic achievement. In *Brown v. Board of Education* the Supreme Court stated: "In these days, it is doubtful that any child may be reasonably expected to succeed in life if he is denied the opportunity of an education."²⁶ Court decisions such as *James v. Stockham Valves & Fittings Co.* seemed to say that when it comes to employment in our modern technological industries, schooling is really not very important after all. The inference of the Fifth Circuit's reasoning is that individuals with, say, a primary school education, are of equivalent value with other employees who have completed high school—at least for an industrial employer hiring blue-collar workers.

Such a narrow view infers that literally millions of employers in this and other countries have been irrationally rewarding employees for their possession of schooling (cognitive skills). This position implies that if employers had followed the logic of the Fifth Circuit, they could have saved themselves untold billions of dollars in wage expenditures by substituting less costly employees with little education for high school (and college) graduates whose cognitive skills were largely irrelevant (since they were not validated) to most blue-collar industrial positions.

In defense of the court's actions during the immediate post-*Griggs* period, however, it should be noted that the disparities in the unadjusted data were often quite large. Similarly, the defense often failed to build an adequate case illustrating the potential importance of skill qualification factors. Nonetheless, the impact of a strict application of the job-relatedness criteria of *Griggs* resulted in the virtual elimination of skill differentials as a valid defense in the title VII cases before some courts.

The strict legal interpretation of the job-relatedness criteria of *Griggs* and extension of the warm body hypothesis into the employment area was by no means universal during the 1971-77 period.²⁷ Many judges rejected this view and permitted consideration of skill factors as a potential source of racial disparity in unadjusted data. These procedures were sometimes followed even when the employer failed to undertake validation studies on the skill factors in question.

In *Roman v. ESB, Inc.*,²⁸ the Fourth Circuit rejected the plaintiff's attempt to establish a prima facie case on the basis of a plant-wide average earnings differential according to color "without regard to differences in level of skill,

is a continuum of educational competency and that *on the average*, the on-job employee proficiency would be enhanced by the successful completion of additional schooling, independent of whether the firm has a formal minimum educational requirement.

²⁶ 347 U.S. 483, 493 (1954).

²⁷ See B. SCHLEI & P. GROSSMAN, EMPLOYMENT DISCRIMINATION LAW 1145-96 (1976) for an excellent summary of legal decisions and the use of statistics in Title VII class action cases during the immediate post-*Griggs* era.

²⁸ 550 F.2d 1343 (4th Cir. 1976).

education, and training." The court also rejected the use of unadjusted labor force representation data as the bench mark by which to judge the representation of blacks among the defendant's craftsmen, clerical, and managerial workers. The court proceeded to use statistics on the labor force representation of blacks within occupational (a proxy for qualifications) categories as the bench mark with which the defendant's utilization rate of black employees was evaluated.

One of the strongest statements upholding the importance of personal qualifications is provided by Justice Hogan's decision in *Dobbins v. Local 221, IBEW*.²⁹ The court admonished the plaintiffs for their attempt to utilize raw population data as a guideline by which to judge the representation of blacks among unionized plumbers, electricians, and carpenters. The court stated:

It is one thing to presume or assume, prima facie-wise or otherwise, that a significant number of a group have the qualifications for schooling or voting or jury service. It is another thing to assume, prima facie-wise or otherwise, that because a certain number of people exist, be they w[hite] or N[egro]; that any significant number of them are lawyers or doctors; or merchants, or chiefs—or, to be concrete, are competent plumbers or electricians or carpenters.³⁰

The warm body approach was also clearly deemed inappropriate by the Fifth Circuit in *Hester v. Southern Ry. Co.*³¹ The court rejected the plaintiff's charge of hiring discrimination which was based on evidence illustrating that blacks comprised a smaller share of the employer's data-typist employees than their representation in the general population. In rendering its opinion, the court stated: "A more significant comparison might perhaps be between the percentage of blacks in the population consisting of those able to type 60 wpm or better and the percentage hired into the data-typist position by Southern."³²

As early as 1974 the actions of the Supreme Court in *Mayor of Philadelphia v. Educational Equality League*³³ implied that the High Court favored a broad approach to the job-relatedness issue. The case involved a challenge to the racial composition of the 13-member panel which nominated persons for the Philadelphia School Board. The Third Circuit, relying on the disparity between the percentage of blacks on the nominating panel (16%), relative to the percentage of black city residents (34%), found that a prima facie case of discrimination had been established. The Supreme Court reversed this finding, partly on the basis of the smallness of the sample size on the review panel, but also because "[t]his is not a case in which it can be assumed that all citizens are fungible for purposes of determining whether numbers of a particular class have been unlawfully excluded."³⁴ Even though the Court indicated that there were job-

29 292 F. Supp. 413 (S.D. Ohio 1968). See also, *Louis v. Pennsylvania Indus. Dev. Auth.*, 371 F. Supp. 877 (E.D. Pa.), *aff'd*, 505 F.2d 730 (3rd Cir. 1974). In this decision the court rejected the use of raw labor force representation data as the appropriate baseline with which to judge the employer's alleged exclusion of blacks from "highly skilled positions . . . such as editor, publisher or technical writer."

30 *Id.* at 445.

31 497 F.2d 1374 (5th Cir. 1974).

32 *Id.* at 1379 n.6.

33 415 U.S. 605 (1974).

34 *Id.* at 620.

qualification factors relevant to serving on the nominating panel, it did not specify what these were. Neither did it provide any evidence (or require evidence) that the qualifications factors, whatever they might have been, were job-related. Thus, the Supreme Court itself moved away from a narrow interpretation of *Griggs* in its *Educational Equality* decision.

B. *The Intent of Griggs—A Postscript*

With the benefit of hindsight, it is now apparent that the Supreme Court never intended for the job-relatedness criteria to be strictly applied. It certainly did not intend for these criteria to be used to eliminate the use of skill (and qualification) differentials according to race (or sex) as a valid defense in Title VII litigation. Paradoxically, some of the strongest legal language supporting the relevance of employee qualifications as a valid employment criteria is contained in *Griggs*. In fact, the court even recognized the potential danger involved in the application of the warm body logic of voting rights decisions into the employment area. Chief Justice Burger, in delivering the opinion of the court in *Griggs*, stated:

[B]ecause of the inferior education received by Negroes in North Carolina, this court barred the institution of a literacy test for voter registration on the ground that the test would abridge the right to vote indirectly on account of race. Congress did not intend by Title VII, however, to guarantee a job to every person regardless of qualifications.

In short, the Act does not command that any person be hired simply because he was formerly the subject of discrimination, or because he is a minority.³⁵

Leaving no doubt about the Court's acceptance of employee qualification as a valid reason for differential outcomes according to race, Chief Justice Burger concluded the Court's opinion by stating: "Congress has not commanded that the less qualified be preferred over the better qualified simply because of minority origins. Far from disparaging job qualifications as such, Congress has made such a qualification the controlling factor, so that race, religion, nationality and sex become irrelevant."³⁶

Nonetheless, prior to mid-1977 Title VII law was characterized by confusion, ambiguity and conflicting decisions. Lower courts had a great deal of freedom to decide which data comparisons were relevant and which skill factors were permissible (or impermissible because they were not properly validated as job-related). Some courts rendered decisions embodying a narrow interpretation of *Griggs* and the warm body approach. Other decisions incorporated a broad interpretation of *Griggs* and permitted the consideration of skill qualification factors such as prior work experience, training, education, and specialized skills.³⁷

³⁵ 401 U.S. at 430-31.

³⁶ *Id.* at 436.

³⁷ The confusion also generated uneven justice. Firms in areas with "liberal" judges—those perceived to favor a strict interpretation of *Griggs*—were far more likely to be charged with a Title VII violation than employers in areas with "conservative" judges. Responding to these forces, plaintiffs filed numerous cases in favorable areas, while similar firms in other areas escaped the litigation costs of Title VII proceedings.

Not surprisingly, the courts were flooded with Title VII cases, and this was at least partially because the law was so ambiguous. Inevitably, the Supreme Court would have to act to clarify the law and reconcile the conflicting views. In May and June of 1977, the Court moved in that direction as it handed down several decisions in the Title VII area.

IV. The Use of Statistics: After *Teamsters*, *United Air Lines*, and *Hazelwood*

The decisions of the Supreme Court in *Teamsters*, *United Air Lines*, and *Hazelwood* clarified the law and specified several proper and improper uses of statistics. In the *Teamsters* decision, the Court outlined the general requirements of proof imposed on plaintiffs and the significance of rebuttal evidence that might be introduced by the defense in Title VII class action suits. The Court ruled that the plaintiff must establish by a preponderance of the evidence that "unlawful discrimination has been a regular procedure or policy followed by an employer or group of employers."³⁸

Representation of proper statistical evidence buttressed by personal testimony indicating individual instances of discriminatory behavior is the acceptable method to be utilized by plaintiffs. Isolated incidents and sporadic discriminatory acts are insufficient evidence to constitute the proof of a prima facie case. However, during this initial liability stage, the plaintiff "is not required to offer evidence that each person for whom it will ultimately seek relief was a victim of the employer's discriminatory policy."³⁹

If the plaintiff successfully carries the burden of proof for a prima facie finding, the burden then shifts to the defense. An employer might defeat the prima facie showing by illustrating that the plaintiff's evidence was inaccurate, misleading, or inconsistent with other, more relevant data. Since the focus is on the pattern of the employer's practices, not individual hiring decisions, statistical evidence and procedures will be vital to an employer's defense. The High Court specified that a successful defense against a prima facie case must "provide a non-discriminatory explanation for the apparently discriminatory result."⁴⁰

In *Teamsters*, the Supreme Court acknowledged two appropriate lines of defense in a Title VII litigation. First, the Court recognized that the employer might be able to present statistical evidence demonstrating that "the claimed discriminatory pattern is a product of pre-Act hiring rather than unlawful post-Act discrimination."⁴¹ Second, the employer might seek to illustrate that "it made too few employment decisions to justify the inference that it had engaged in a regular practice of discrimination . . ." during the post-Act period.⁴² While it was not specifically mentioned, other aspects of the recent Supreme Court decisions certainly imply that the defense might also rebut the plaintiff's showing by

38 431 U.S. at 360.

39 *Id.*

40 *Id.* at 361 n. 46.

41 *Id.* at 360.

42 See *Mayor of Philadelphia v. Educational Equality League*, 415 U.S. 605 (1974); *Boston Chapter, NAACP, Inc. v. Beecher*, 504 F.2d 1017 (1st Cir. 1974); *Chicago Police Officers' Assoc. v. Stover*, 526 F.2d 431 (10th Cir. 1975); *Johnson v. Shreveport Garment Co.*, 422 F. Supp. 526 (W.D. La. 1976); and *Shield Club v. City of Cleveland*, 13 FEP Cases 533, 550 (N.D. Ohio 1974) for additional evidence on the importance of sample size.

illustrating that the existing disparities were merely a reflection of racial differences in employee qualifications (skills) and the employer's reliance upon a bona fide merit system.

If the employer fails to rebut the plaintiff's prima facie case, a trial court will then conclude that a violation has occurred and that the employer's practices justify the award of relief. The relief may take several forms, but it must encompass the elimination of the discriminatory practices and their effects. When the individual victim of the discriminatory practice seeks relief, additional proceedings beyond the liability stage must be conducted by the trial court. During these "remedial stage" proceedings, the proof of the pattern or practice charges constitutes presumptive evidence for the individual claimants. Thus, the burden rests with the employer who must demonstrate that an individual claimant was neither harmed nor treated unfairly as the result of his race, color, or sex in order to eliminate the liability toward the employee during Title VII remedial stage proceedings.

The 1977 decisions make it clear that statistical evidence will continue to play a central role in Title VII suits. In *Teamsters*, the court outlined the logic behind the emphasis on statistics. After rejecting the argument that statistical comparisons imply the imposition of quotas which are specifically forbidden under Title VII, the Court presented its argument as to the relevance of statistical evidence. Speaking for the majority in *Teamsters*, Justice Stewart stated:

Statistics showing racial or ethnic imbalance are probative in a case such as this one only because such imbalance is often a telltale sign of purposeful discrimination: absent explanation, it is ordinarily to be expected that non-discriminatory hiring practices will in time result in a work force more or less representative of the racial and ethnic composition of the population in the community from which employees are hired. Evidence of longlasting and gross disparity between the composition of a work force and that of the general population thus may be significant even though section 703(j) makes clear that Title VII imposes no requirement that a work force mirror the general population. . . . [E]vidence showing that the figures for the general population might not accurately reflect the pool of qualified job applicants would also be relevant.⁴³

Having duly stressed the importance of statistical evidence, the Court then proceeded to caution against their inappropriate application. Justice Stewart stated: "We caution only that statistics are not irrefutable, they come in infinite variety and, like any other kind of evidence, they may be rebutted. In short, their usefulness depends on all of the surrounding facts and circumstances."⁴⁴ It is in the area of clarifying the proper use of statistics that the 1977 decisions will prove most significant to Title VII litigants.

A. The Relevant Time Period

Currently, Title VII provides a 180-day limitation period for the filing of

⁴³ 431 U.S. at 339 n. 20.

⁴⁴ *Id.* at 340.

a discriminatory charge with the Equal Employment Opportunity Commission (EEOC). Plaintiffs cannot base their case on discriminatory acts prior to the limitation period for the filing of an EEOC charge. *United Air Lines* makes this point clear. The plaintiff, Evans, failed to file a timely charge against United when her employment was terminated in 1968 as the result of her marriage. Subsequently, United's practice of terminating female flight attendants upon their marriage was found to violate Title VII. It was discontinued in November 1968. In 1972, Evans was rehired by United and she subsequently filed a timely charge requesting that she be granted the seniority date associated with her initial employment before it was illegally terminated. The Court rejected her request because of her failure to file a timely charge within the 90 days then allowed by the Act. Justice Stevens, speaking for the majority, stated:

A discriminatory act which is not made the basis for a timely charge is the legal equivalent of a discriminatory act which occurred before the statute was passed. It may constitute relevant background evidence in a proceeding in which the status of a current practice is at issue, but separately considered, it is merely an unfortunate event in history which has no present legal consequences.⁴⁵

In the *Hazelwood* decision, the High Court rejected the probative relevance of the plaintiff's statistics relating to the defendant's pre-Act employment practices. The Court ruled that the post-March 24, 1972 period was the relevant time frame since that was the effective application date of Title VII to public employers. The Court partially incorporated the language of Senators Clark and Case, two key cosponsors of Title VII, when it stated:

A public employer who from that date forward made all its employment decisions in a wholly nondiscriminatory way would not violate Title VII even if it had formerly maintained an all-white work force by purposely excluding Negroes. For this reason, the Court cautioned in the *Teamsters* opinion that once a prima facie case has been established by statistical work force disparities, the employer must be given an opportunity to show that the claimed discriminatory pattern is a product of pre-Act hiring rather than unlawful post-Act discrimination.⁴⁶

While the *United Air Lines* decision involves a single plaintiff, the court's logic would also appear to apply in class action suits based on charges filed with the EEOC. Recent lower court decisions have affirmed this principle.⁴⁷ Taken together, the *United Air Lines* and *Hazelwood* decisions emphasize the primacy of the period beginning 180 days prior to the filing of the earliest EEOC complaint, upon which the Title VII claim is based. The *United Air Lines* decision points out that when a timely charge is not filed, the actions of the employer become the legal equivalent of prestatute discrimination. *Hazelwood* rejects the

45 431 U.S. at 558.

46 433 U.S. at 309.

47 See *Swint v. Pullman-Standard*, 15 FEP Cases 144 (N.D. Ala. 1977) and *Crocker v. Boeing Co.*, 437 F. Supp. 1138 (E.D. Pa. 1977). See also *Presseisen v. Swarthmore College*, 442 F.Supp. 593 (E.D. Pa. 1977) for additional evidence on the importance of the mid-1977 Supreme Court decisions in the establishment of the relevant time period.

probative relevance of statistics that incorporate the pre-Act behavior of the employer. Therefore, when a Title VII class action suit is an outgrowth of a timely charge filed with the EEOC,⁴⁸ the statistical evidence of primary relevance will be designed to identify and measure the impact of the defendant's employment decisions during the period beginning 180 days before the initial filing of the complaint.

In cases where the plaintiff's statistics are biased because they indirectly incorporate the impact of employment decisions made prior to the relevant time period, the statistics are subject to refutation by the defense. A successful refutation must illustrate that the pattern of employment outcomes, reflecting decisions made during the time period beginning 180 days prior to the filing of the charge, is statistically consistent with equal employment opportunity according to race. In *Hazelwood*, the court did point out that statistical evidence on the discriminatory behavior of an employer during an earlier time period (i.e., prior to 180 days before the filing of a timely charge) would be of circumstantial relevance. The court noted that it might be utilized to support an inference "that such discrimination continued [into the relevant period], particularly where relevant aspects of the decision-making process had undergone little change."⁴⁹

While *United Air Lines* and *Hazelwood* emphasize the primacy of the period beginning 180 days prior to the filing of a charge, the *Teamsters* decision discusses the significance of pre-Act (or prerelevant time period) practices that perpetuate the impact of past discrimination. The court indicated that it would have followed the argument of *Griggs*⁵⁰ prohibiting practices which are "fair in form but discriminating in operation" were it not for the immunity that Congress supplied to seniority systems via Section 703(h). Since both the language of 703(h) and the legislative history of Title VII reveal that Congress intended that incumbent workers would have the right to exercise fully their accumulated pre-Act seniority, the court exempted bona fide seniority systems from coverage under Title VII even when they perpetuate the impact of past discrimination.⁵¹

B. "Flow" versus "Stock" Statistics

In the past, courts have often uncritically accepted statistics comparing the representation of blacks as a percentage of an employer's current work force with their percentage representation in the labor market (or population) in the area. If blacks comprise a smaller percentage of the employer's current work force than they do in the general labor market, this has been accepted as probative evidence

48 If a Title VII class action suit is brought by a plaintiff who did not file EEOC charges, the relevant time period would begin with the application of the date imposed by the most relevant state statute of limitations.

49 433 U.S. at 309 n. 15.

50 In *Griggs* the Court held: "Under the Act, practices, procedures, or tests neutral on the face, and even neutral in terms of intent, cannot be maintained if they operate to 'freeze' the status quo of prior discriminatory employment practices." 401 U.S. at 430.

51 See 431 U.S. at 345. While the Court did not mention the point, it should be noted that 42 U.S.C. § 2000e-2(h) (1970) covers "a bona fide seniority or merit system." Thus, a bona fide merit system would appear to have the same immunity provided for a bona fide seniority system via *Teamsters*, even if the bona fide merit system acted to perpetuate past discrimination.

of discriminatory hiring practices. It is important to note that the representation of blacks among an employer's current work force is determined by (a) the representation of blacks among hirees and terminatees during the relevant time period and (b) the representation of blacks among the firm's work force at the beginning of the relevant time period. *Teamsters*, *Hazelwood*, and *United Air Lines* each makes it clear that only (a) is of probative relevance.

It is particularly important to rely upon "flow" statistics—data on the changes that took place during a time period—when an employer's work force has been relatively static. If the employer has hired (or promoted) only a small portion of his total work force during the relevant time period, the "stock" or "snapshot" statistics may be extremely misleading.⁵² The Supreme Court recognized this fact in *Hazelwood*, and, therefore, remanded the case to the district court asking it to consider whether the plaintiff's snapshot (stock) evidence was really probative during the relevant time period or whether it merely reflected pre-Title VII decisions that were not a basis for liability. By following this course, the Court reinforced the precedent, initially stated in *Teamsters*, that "employees who suffered only pre-Act discrimination are not entitled to relief" and that employers may rebut a plaintiff's prima facie case by demonstrating that "the claimed discriminatory pattern is a product of pre-Act hiring rather than unlawful post-Act discrimination. . . ."⁵³

The flow data on persons hired, promoted, or transferred to new areas provide the evidence necessary for the evaluation of the firm's employment practices *during the relevant time period*. The mid-1977 decisions suggest the appropriateness of comparing (a) blacks as a percentage of the total hirees during the relevant time period with blacks as a percentage of the total labor market pool from which the hirees are drawn and/or (b) the representation of blacks among promotees with their representation in the various pools from which the promotees are drawn. Flow comparisons of this type incorporate the impact of the firm's employment decision-making during the relevant time period, while netting out the impact of pre-Act policies.

When making earnings comparisons according to race it is also important to organize the data in a manner that will minimize the impact of pre-Act discrimination. Obviously, comparisons between the unadjusted earnings of all black and white employees would fail to meet this test.⁵⁴ Data on the *initial* earnings of similarly qualified blacks and whites hired during the relevant time period would be far more appropriate. This comparison would not be biased as a result of the firm's pre-Act employment policies. Similarly, data comparing the *increases* in earnings of similarly situated and qualified employees during the relevant time period would be proper. One might also want to compare the incremental increases in earnings at time of promotion for blacks and whites who received

⁵² See note 15 *supra* for an illustration of this point.

⁵³ 431 U.S. at 360.

⁵⁴ The current earnings of employees according to race would reflect (a) earnings rates at the time of hire for employees hired during the relevant period, (b) increases in the earnings of employees due to the firm's promotion and/or raise policy during the relevant period, (c) earnings rates at the time of hire for persons hired during the pre-Act period, and (d) increases in earnings during the pre-Act period. Both (a) and (b) are probative, while (c) and (d) are only circumstantially relevant.

similar promotions during the relevant time period. While the precise comparisons of probative importance may vary among cases, the principle remains the same. The most meaningful comparisons from a probative viewpoint (a) must fully incorporate the impact of the firm's employment policies during the relevant time period and (b) must not be biased as a result of the indirect incorporation of the pre-Act (or prerelevant time period) employment decisions of the firm. In general, "flow" statistics are consistent with this principle, while "stock" statistics are not.⁵⁵

C. *Statistics and the Skill-Relevant Labor Market Pool*

When qualifications are a factor in employment, circumstances suggest that the racial composition of subgroups in the employer's work force and the racial composition of the general labor market in these same skill qualification subgroups would be the relevant comparison. When employee qualifications are important, the general population does *not* represent the appropriate labor market pool. Therefore, comparisons between the racial composition of an employer's work force and the general labor force (or population), even when made for the proper time period, are misleading and irrelevant to the probative issue.

Following *Hazelwood*, appropriate use of statistics will require litigants to compare teachers with teachers,⁵⁶ typists with typists,⁵⁷ and professionals with professionals⁵⁸ when making work force comparisons between an employer and the general labor market. Justice Stewart makes this point clear in *Hazelwood*: "When special qualifications are required to fill particular jobs, comparisons to the general population (rather than to the smaller group of individuals who possess the necessary qualifications) may have little probative value."⁵⁹

While pre-1977 Court decisions often gave lip service to qualifications, they were also sometimes willing to accept comparative statistics based on the warm body hypothesis, which denies the significance of qualifications. During the post-*Hazelwood* era, there has been a decided movement away from the warm body approach, as lower court decisions have emphasized the importance of making

55 Several lower court decisions subsequent to *Teamsters* and *United Air Lines* have emphasized the importance of "flow" rather than "stock" data. For example, in *EEOC v. duPont*, 445 F. Supp. 223 (D. Del. 1978) Judge Stapleton criticized the EEOC's use of statistics that reflected "pre-Act hirings, promotions and other personnel decisions as well as post-Act ones." Similarly, Judge Pointer in *Swint v. Pullman-Standard*, 15 FEP Cases 144 (N.D. Ala. 1977) refused to rely upon "stock" data illustrating that the variations in the racial composition of departments was beyond that expected from random "color blind" selection. Judge Pointer noted:

[T]he law recognizes the reality of the situation; namely that departments are not reshuffled anew each year but are, rather the result of past assignments as well as new ones. Hence, as noted in *Teamsters*, an employer can overcome the prima facie effect of such statistics by showing that "The claimed discriminatory pattern is a product of pre-Act [assignments] rather than unlawful post-Act discrimination."

15 FEP Cases at 147. See also *Crocker v. Boeing Co.*, 437 F. Supp. 1138 (E.D. Pa. 1977); and *Preseisen v. Swarthmore*, 442 F. Supp. 593 (E.D. Pa. 1977) on this point.

56 In *Hazelwood*, the Court stated: "The Court of Appeals was correct in the view that a proper comparison was between the racial composition of Hazelwood's teaching staff and the racial composition of the qualified public school teacher population in the relevant labor market." 433 U.S. at 308.

57 See *Hester v. Southern Ry. Co.*, 497 F.2d 1374 (5th Cir. 1974).

58 See *Roman v. ESB Inc.*, 550 F.2d 1343 (4th Cir. 1976).

59 433 U.S. at 308 n. 13.

skill-relevant comparisons. In *EEOC v. duPont*, Judge Stapleton provided an articulate explanation for this position. He stated:

The analysis of the statistical evidence must commence with the realization that labor market and hiring data cannot be evaluated without reference to the skills involved. *Hazelwood supra*. While this seems obvious, it is ignored by the Government's argument that higher percentages of blacks assigned to lower level jobs than to higher level ones demonstrates disparate impact. Statistics showing a higher percentage of blacks assigned to lower level jobs does not, in and of itself, establish a disparate impact upon blacks. If the percentage of blacks assigned to the higher skilled jobs is reflective of those blacks in the labor pool who are qualified to perform them, for example, the fact that a higher percentage of jobs requiring lesser skills went to blacks does not indicate disparate impact.⁶⁰

Following *Hazelwood*, lower courts have deemed that it is proper to compare the representation of blacks (or black hires during the relevant time period) in the narrowly defined job categories of the employer with the relevant census occupational categories into which these jobs would be classified.⁶¹ For example, comparisons are made between the representation of blacks employed (or hired) by the firm and their representation in the labor force within classifications such as "painters," "checkers," "secretaries," "stenographers," "typists," and "guards and watchmen." Such comparisons generally provide a better indicator of the availability of blacks within specific skill categories.

Comparisons within broad two-digit occupational categories can sometimes be misleading. Judge Stapleton recognized this fact when he ruled:

Census figures for "professional, technical, and kindred" workers are inappropriate for use in evaluating an employer's record in hiring blacks as professional workers, where census classification includes dozens of groups whose background bears no relationship to skills required by employer's professional positions and classification also includes technicians, who are not classified as professionals in employer's data that EEOC relied on.⁶²

In light of *Hazelwood* and subsequent lower court decisions, comparative racial representation flow statistics between an employer's work force and the labor market within narrowly defined occupational work categories would seem highly appropriate. Clearly, it is no longer appropriate to rely upon the racial comparison of the general labor market (or population) as a bench mark with which to judge the representation of blacks in the skill relevant occupational categories of an employer's work force.

V. Disparate Earnings, Statistical Analysis, Employee Skills, and the Job-Relatedness Criteria

When pay rates are a point of contention in Title VII class action litigation, the plaintiff will generally present data on the average earnings of white workers

60 445 F. Supp. at 240.

61 In addition to *EEOC v. duPont*, 445 F. Supp. 223 (D. Del. 1978), see *Crocker v. Boeing Co.*, 437 F. Supp. 1138 (E.D. Pa. 1977); *Swint v. Pullman-Standard*, 15 FEP Cases 144 (N.D. Ala. 1977); and *Opara v. Modern Mfg. Co.*, 15 FEP Cases 158 (D. Md. 1977).

62 *EEOC v. duPont*, 16 FEP Cases 847, 848 (D. Del. 1978).

compared to the average earnings of black workers. These statistics, which are not adjusted for individual skills, will typically show that whites have a higher average income than blacks. This comparison is often supplemented with an exhibit that illustrates the overrepresentation of white employees in the highest paying positions (and pay grades) while blacks are overrepresented in the lowest paying positions (and pay grades). Statistical evidence of this variety is usually sufficient to shift the burden of proof to the defense.

Of course, statistics "come in infinite variety and like any other kind of evidence, they may be rebutted." The defense may rebut the plaintiff's prima facie case with respect to earnings by illustrating that there is a "nondiscriminatory explanation" for the earnings disparity.⁶³ If the average skill level of whites in an employer's work force is superior to that of blacks, the skill qualification factor may be a major part of a nondiscriminatory explanation for the non-skill adjusted earnings disparity. The defense may seek to rebut the plaintiff's affirmative case by illustrating that (a) blacks and whites within skill or occupational categories are compensated equally and (b) the overrepresentation of whites in the higher paying positions is merely a reflection of their greater availability within these work categories in the relevant labor market. In light of the 1977 Supreme Court decisions, data on (a) and (b) appear to be highly relevant.

Supplementary evidence on the importance of skill qualification differentials as a potential source of earnings or representation disparities is legally germane and essential to support a defense rebuttal. There are direct methods that can be utilized to isolate the impact of skill differences according to race as a potential source of earnings or representation differentials. Simultaneously, these procedures may also provide an indirect test of "job relatedness" for each potentially relevant skill factor. Therefore, it is helpful to use a multivariable analysis of the skill factors as they are related to earnings, promotion or representation. These techniques may include an analysis of variance in placement or multiple regression analysis to estimate an earnings determination equation after adjusting for skills which an employee possesses.

Since lawyers and judges seldom have been trained in economics and statistics, the legal process has, heretofore, failed to appreciate fully the applicability of earnings determination estimates derived via regression analysis or of analysis of variance techniques applied to class definitions and representation questions.⁶⁴ Of course, a multiplicity of "skill factors" will generally be relevant to the total evaluation of an employee. Sometimes it will be impossible to fully quantify a "skill factor." Other times, it will be necessary to use an indirect indicator to measure the impact of a factor. For example, in instances where cognitive skills are important to job performance, years of schooling might be utilized as an indicator of cognitive skills, since data on the latter are not directly available. Fortunately, many potentially important skill factors are quantifiable. Employee data are usually available for skill factors such as (a) years of work experience in

63 See 431 U.S. at 360-61 n. 46.

64 There have been some exceptions. See, e.g., *Beyond the Prima Facie Case in Employment Discrimination Law: Statistical Proof and Rebuttal*, 89 HARV. L. REV. 837 (1975); and *Presseisen v. Swathmore*, 442 F. Supp. 593 (E.D. Pa. 1977).

related areas, (b) years of vocational training, (c) seniority (work experience with current employer), (d) quantity of schooling, (e) quality of schooling, (f) typing words per minute and (g) indicators of employee dependability (*e.g.*, a low absenteeism rate). Both economic theory and common sense suggest that these skill indicators will influence the productive contribution of employees, and in turn, their earnings, occupational distribution and even their commonality and typicality under the definition of a class. When white and black workers possess differing amounts of these skill factors, racial skill differentials are clearly a potential "nondiscriminatory explanation" of the disparity between the unadjusted average earnings or representation of white and black employees and may be helpful in defining a class.

What legally relevant evidence can one derive from an earnings equation estimated via regression analysis or from an analysis of variance of skill factors? These techniques provide estimates for the simultaneous linkage between a group of independent skill indicator variables (*e.g.*, years of experience, seniority, years of schooling, and absenteeism) and employee earnings or placement (the dependent variable). The statistical evidence from these analyses can be used first to test whether, after adjusting for skill variables, racial differences in earnings or representation are still statistically significant.⁶⁵ The courts have held in Title VII cases and voting rights cases that a difference which could have occurred by chance more than 5% of the time in a racially neutral company is not significant. Hence, these techniques can provide legally relevant evidence for discrimination cases.

Variables included in the statistical analysis must be consistent with both economic theory and legal considerations. Economic theory suggests the appropriateness of variables which are indicators of cognitive and noncognitive skill levels. However, a variable should not be included when the values of the skill variable itself may be influenced by employer discrimination.⁶⁶ The pertinence of legal issues must also be considered in choosing the appropriate model. Since the firm is liable only for discrimination during the relevant time period, it may be most appropriate to focus the analysis on the hirees during the post-Act time period. Alternatively, one might make some adjustment for permissible pre-Act discriminatory behavior that continues to exert an impact on current earnings when both pre-Act and post-Act employees are included in the analysis.⁶⁷

Once an appropriate set of skill factors from an economic, statistical, and legal viewpoint is identified an economic model of earnings or placement can be

65 The standard statistical test for the significance of a regression coefficient is the t-test. See P. RAO & R. MILLER, *APPLIED ECONOMETRICS* (1971) for additional information on regression analysis and its application to economic data. The 95% level of significance has been adopted by the courts in several cases. See, *e.g.*, 431 U.S. at 324.

66 *E.g.*, inclusion of employee ratings when the evaluations are carried out by primarily white supervisors would be highly questionable, since the ratings themselves might be biased as the result of employer discrimination. Judge Wisdom in *James v. Stockham Valves & Fittings Co.*, 559 F.2d 310 (5th Cir. 1977), utilized this argument in rejecting the use of this variable.

67 By way of illustration, when seniority in a specific position (*e.g.*, line driver as in *Teamsters*) influences employee earnings, if blacks were excluded from this position during the pre-Act period, it would be permissible to include a variable such as "line driver seniority" which adjusted for the impact of the permissible pre-Act discrimination by the employer.

tested to determine its importance as a determinant of employee earnings by itself or in conjunction with the other factors. The inclusion of race in the earnings determination model would also permit one to measure the independent impact of race (if any) after accounting for differences in skill-qualification factors among employees regardless of race. Multiple regression analysis may also provide an estimate of the earnings disparity, if any, *after adjustment for the impact of skill-qualification factors* (and permissible pre-Act discrimination if this is relevant).

It is important to note that cost conscious employers will reward only those skill factors that are relevant, either directly or indirectly, to the employment opportunities offered by their firm. Cost minimizing and nondiscriminating producers will not reward superfluous skill factors that fail to enhance the employee's productive contribution, and therefore his value to the employer.

An earnings model can be utilized to determine which skill factors are important (job-related) to the employer⁶⁸ and simultaneously provide a test for whether the earnings disparity (if any) between black and white employees is still present after adjusting for these skill factors. The methodology is entirely consistent with the *Griggs* decision. If a potential skill factor is not related to the employment opportunities offered by the employer, the variable will be statistically unrelated to earnings. In contrast, when statistical analysis illustrates a consistent link between the skill factor and higher earnings, this constitutes evidence that the skill factor is job-related.⁶⁹

An example would highlight both the relevance and power of statistical analysis in Title VII cases. Suppose that a firm which employs unskilled labor, a broad range of machine operators, and skilled craftsmen is charged with a violation of Title VII. The average annual earnings of white and black employees are derived and a white minus black earnings disparity of \$200 is discovered. This disparity may stem from skill differences between white and black employees or employment discrimination. A labor economist is asked to determine the importance of these possibilities and information is gathered on the skill level of each employee. Skill variables such as (1) years of work experience with the employer (seniority), (2) years of schooling completed (cognitive skill and motivational attributes), (3) years of craft experience with other employers,

68 It must be recognized that the earnings model may not contain only the variables which the employer recognizes as significant in his employment policy. The employer may fail to recognize that his reward structure is indirectly compensating any specific skill factor. His formal pay structure generally will not automatically reward each skill factor that is, in fact, job-related. The employer may simply be attempting "to hire (and promote) the most qualified person available at the going wage rate." Nonetheless, if a skill factor is related to performance, the "most qualified" persons available for hire (and promotion) will, *on average*, possess a disproportionate amount of the job relevant skill factors.

69 When data for both blacks and whites are included in the same regression equation, a spurious (nonjob-related) impact for the skill factor might be obtained if possession of the skill is related to race. For example, if whites have more managerial experience than blacks and if whites also have higher earnings than blacks, the estimated positive impact of the managerial experience variable might be attributable to its link with race rather than its independent impact on earnings. In order to test if this is the case, the earnings model may be tested for whites and blacks separately. Consistent links between the skill factors and earnings in the separate equation model would constitute additional evidence as to the job-relatedness of the skill factors, independent of race. See Haworth, Gwartney, & Haworth, *Earnings, Productivity and Changes in Employment Discrimination During the 1960s*, AMER. ECON. REV. (March 1975) for additional information on this topic.

(4) years of operator experience with other employers, (5) rate of absenteeism, and (6) years of vocational training, are included. Statistical analysis is then utilized to determine which of these potential skill factors are important to earnings determination, given the jobs and reward structure established by the employer. Preliminary analysis may well indicate that some of the potential skill factors are unimportant—that they are unrelated to earnings.

In any case, a model is developed and the following relationships are supported by the statistical analysis of the company's data.

(1) As seniority increases employee's earnings increase. Furthermore, white employees have greater seniority than blacks.

(2) When employees who were hired in the same year are compared, those with less absenteeism have higher earnings than those with higher absentee rates. Also, if black employees have more absenteeism than whites regardless of their seniority, the black employees' work habits could affect their earnings significantly. *Our earnings model can determine which potential factors affect earnings more and whether race is still an important factor after adjusting for skill mix.*

(3) Employees with previous craft experience have a different earnings model than those without craft experience. Craft experienced employees at this firm earned 30% more than other employees and experience prior to employment was significantly more important than education in their earnings determination.

When we employ statistical techniques which adjust for craft experience, seniority and education, such as in the previous example, we may find that racial differences are no longer significant. If so, the prima facie case of a significant, unadjusted earnings difference can be defended as the result of differences in seniority, education, absenteeism and craft experience, for example, instead of race.

It is important to remember that cost conscious employers will not compensate employees for skill factors that do not increase employee productivity. For example, if additional years of craft experience or schooling do not enhance productivity (employee job performance) a cost conscious employer will not compensate employees for them. Regardless of whether or not the firm has a formal wage structure that rewards these variables, if, for example, years of craft experience (or schooling) and earnings are consistently linked, independent of race, the statistics support the contention that the skills of employees with more craft experience or schooling are important determinants of job success for this firm.⁷⁰ On the other hand, if statistical analysis shows no relation between years of craft experience (schooling) and earnings the result is consistent with the view that craft experience (schooling) is a nonjob-related skill factor for this employer.

Given the impracticality and infeasibility of strict validation procedures, statistical techniques such as multiregression and analysis of variance take on ad-

⁷⁰ This is precisely the point that Judge Wisdom apparently missed in *James v. Stockham Valves and Fittings Co.*, 559 F.2d 310 (5th Cir. 1977) when he rejected the use of schooling in an earnings determination model because the firm did not have a formal minimum educational requirement. See note 25 *supra*. The importance of a skill factor is not dependent upon the firm establishing a formal pay structure that directly rewards the factor.

ditional importance. Once one recognizes the significance of the underlying economic theory, it is clear that these statistical techniques offer the courts a feasible method by which to test for the job relatedness of skill factors. These techniques are widely accepted and utilized by economists, sociologists and other social researchers as an appropriate tool with which to measure the importance of skill factors and determine whether equally skilled persons are granted similar compensation. Greater applications of these tools in the legal area would merely be an extension of the work that social scientists have been undertaking for years. In addition, these statistical tools can be utilized to analyze the significance of differences in placement, promotional, and occupational distributions, and support definitions of a class on the grounds of commonality and typicality.⁷¹ While incomplete data and insufficient sample sizes may limit their use in some cases, there is no reason why these valuable tools should not be employed in Title VII litigation. Using statistical analysis and the associated tests of significance is very important to an adequate determination of Title VII litigation.⁷² Having a formal and nonsubjective way to decide whether factors such as race and skill affect economic variables systematically is essential in determining whether a pattern of employer discrimination exists.

VI. Summary

Economic theory is highly relevant to the understanding of labor market outcomes. Different employment experiences are not always what they appear to be on the surface. Black and white (male and female) employees may have different employment experiences for reasons other than discrimination and the framers of Title VII were quite aware of this fact. For example, they did not intend to eliminate employment outcomes which merely reflect an employer's "bona fide seniority or merit system."

It is not easy to separate the impact of employer discrimination from the impact of valid job-related skill differentials. The 1977 Supreme Court decisions provide Title VII litigants with additional guidelines as to what is relevant (and irrelevant) in this area. As these decisions relate to the use of statistics, three important conclusions emerge. First, statistics take on primary significance only when they focus on the relevant post-Act time period. Statistics from the pre-Act period are of only circumstantial relevance. Second, statistical analysis should focus on the "flow" statistics during the relevant time period, since these statistics will reflect the employment practices at issue between the litigants. In contrast, stock statistics will be discounted when there is reason to believe that they are biased as a result of their incorporation of pre-Act (or prerelevant time period) employment decision making. Third, when making comparisons between the firm and the local labor market area, apples must be compared with apples. Probative comparisons must be within similar occupational/skill categories.

⁷¹ A charging party must represent claims that are typical of the claims of the class. *See East Tex. Motor Freight v. Rodriguez*, 431 U.S. 395 (1977).

⁷² These same issues are often in conflict during compliance review of affirmative action programs. Consequently, it is helpful to apply these statistical techniques to job grouping decisions and affirmative action policy.

While these directions are valuable, economics suggests that exhibits incorporating the major guidelines of the Court might be supplemented with multivariable statistical analysis. This is particularly true when disparate earnings represent a major area of conflict between litigants. Assuming that sufficient data are available, the statistical approach suggested here should enhance our knowledge of the interrelationships among skill differences according to race, earnings disparities, and employer discrimination. This approach often sheds light on questions of representation or promotional disparities and on the relevance of various skill factors.