

The role of labor economists and statisticians in class action employment discrimination lawsuits

Statistical analysis frequently plays an important part in employment discrimination lawsuits involving classes of employees, multiple plaintiffs, and individual plaintiffs.

In many class action employment discrimination lawsuits, the testimony of labor economists and statisticians is crucial and often plays out on center stage. Generally, labor economists and to a lesser extent statisticians, are used to provide expert witness testimony on the statistical significance of an employment disparity between protected and non-protected employees. A typical statistical analysis of employment discrimination in a class action lawsuit could involve showing the likelihood that the observed employment related shortfall could have been generated in the absence of discrimination, analyzing statistics related to the employer-defendant's affirmative defenses (claims that they do not discriminate), or a critique of the reliability of the statistical evidence in the case. In many instances, the statistical analysis and related expert witness testimony will include analyses that address all three of these issues. It often confounds people to learn that two experts that are examining the same set of data can see things so differently.

The Role of Labor Economists in Class Actions

- Provide testimony on the statistical significance of an employment disparity between protected and non-protected employees.
- Construct damages models that could be used to compensate the class members.
- Construct sampling models to help the court estimate class damages.

In practice, the statistical analysis of employment discrimination allegations in class actions lawsuits is quite involved. Depending on the complexity of the data, and more importantly the complexity of the employer's employment processes, it can take a significant amount of time to produce a reliable statistical study. A statistical analysis requires the labor economist to construct an analysis database from the employer-defendant's employment data, to closely study the employer-defendant's employment processes, and to set up and estimate reliable statistical models of the employment processes in question.

Labor economists are also called upon to help construct damages models that in theory could be used to compensate the class members. Many times the same expert as in the liability or class certification phase will construct a mathematical model that shows in dollar terms how much the class has collectively suffered as result of the employment discrimination.

In some cases, economists and statisticians have been used to construct sampling models to help the court estimate class damages.

Labor economists also often play an important role in 'pattern and practice' employment lawsuits. Generally, like class action lawsuits, pattern and practice employment lawsuits allege that the employer-defendant has some type of employment practice that discriminates against members of a protected class. The major difference is that pattern and practice lawsuits involve a single or multiple plaintiffs that are suing on their own behalf as opposed to representing a class of employees. Statistical evidence is typically introduced in these types of employment cases to support or rebut the existence of a discriminatory employer practice or pattern of discrimination. The types of employment issues in these types of lawsuits are varied and include discrimination allegations involving promotion, salary, employee discipline, employment conditions, and job ratings.

Role of Labor Economist in Pattern and Practice Employment Lawsuits	
Salary Discrimination	In Cullen v. Indiana Board of Trustees, regressions were used support a claim of gender-based discrimination in salaries.
Promotion Discrimination	In Munoz v. Orr, statistics attempted to demonstrate promotion discrimination against Hispanic males. The expert, however, ignored factors affecting promotion and failed to use regressions.
Termination Discrimination	In Kadas v. MCI Systemhouse Corp, statistics attempted to demonstrate age related discrimination in terminations. The evidence supported the plaintiff's case.
Lost Wages	In Cummings v. Standard Register Co., the economist forecasted lost earnings due to discrimination.

The analysis in pattern and practice employment discrimination cases tends to involve claims of disparate treatment or disparate impact. In disparate treatment cases economists are used to test statistical hypotheses that employers treat the covered employees less favorable than members of the non-protected groups. For instance, lawsuits involving discriminatory job assignments and biased employee discipline policies tend to involve claims of disparate treatment.

In disparate impact cases economists are called upon to test statistical hypotheses concerning the effect of a particular employment practice on members of a protected group. Economists and statisticians are also frequently called in to investigate the validity of the selection procedure. Discrimination lawsuits involving pre-hiring requirements and job testing are examples of cases that tend to involve claims of disparate impact.

In both disparate treatment and disparate impact economists are required to identify the appropriate employee population, construct employment summary statistics from the data, and develop and test the appropriate statistical hypothesis.

The impact of the testimony of other witnesses on statistical discrimination analyses

In employment discrimination class actions and pattern and practice cases there are certain witnesses, in addition to the plaintiffs in the case, that will have an impact on the statistical analysis that the labor economist or statistician performs. Generally, these witnesses include the company human resources representative, compensation representative, and the industrial psychologist. A labor economist or statistician performing a statistical employment analysis will use the testimony of these individuals to learn the specifics of the company's employment practice that is in contention.

Witnesses that Impact the Formulation of the Statistical Employment Discrimination Models	
Human Resources Representative	Testimonies and interviews help determine factors that the company views as important to the employment policy at issue.
Compensation Representative	Testimonies and interviews help to understand the specifics of the company's compensation policies.
Industrial Psychologist	Provide insights on the inner workings of the employment practice or employment selection process at issue.

In many companies, the company human resources representative will be a mid to high level executive that oversees the hiring, promotion, pay, job performance and termination policies. The discrimination analyst will use the testimony and/or interview of the human resources representative to determine the factors that the company views as important to the employment policy at issue. For example, in a case involving promotion discrimination allegations the analyst will use the information and testimony of the human resources rep to help determine the relative importance of the different promotion factors such as job performance and time in grade for instance, have in the decision to promote an individual employee.

Like the human resources executive, the compensation representative will be a mid to high level executive who oversees issues involving pay, job assignments within pay grades and market pay competitiveness. In some companies, the human resources function and the compensation function are handled by the same department. In any event, the researcher will use the information obtained from compensation professionals to learn about the specifics of the company's compensation policies.

Industrial psychologists that are retained in discrimination cases provide another important resource for the labor economist or statistician. The industrial psychologist tends to be the expert witness who is retained to provide the plaintiff or defendants with the insights on the inner workings of the employment practice or employment selection process at issue. For example, these experts will provide testimony on the checks and balances and the fairness of a company's job performance rating system.

Data used to analyze employment discrimination allegations

In this section, we dive into the employment data that is used to analyze employment discrimination claims. We begin by providing a description of the general classes of employment data that are required to perform a statistical employment analysis. As will be discussed, the employment data, which most times is provided to the expert during the discovery phase of the employment lawsuit, comes from many different sources. The researcher must have a solid understanding of these sources and understand how the company maintains this data to produce a meaningful and reliable analysis. This section discusses these issues in more detail and introduces the reader to the basic terminology of electronic employment databases software.

Employer-defendant personnel records In larger companies, the firm's personnel records will be administered by the human resources department and maintained by the information technology department. Since the 1980's, the human resources function has been increasingly outsourced to third parties that specialize in human resource management. The employment information maintained by the in-house or outsourced entity includes data covering human resource issues, such as hiring, pay, and promotion data. It is common for one department or section of human resources to be responsible for pay-related activities, while another department or section is responsible for insurance, benefits, and exit interviews. The human resources department, which can vary from a couple of part-time employees to hundreds of individuals, will most often be responsible for collecting data, maintaining hardcopy files, and entering employment data into sophisticated electronic databases.

The employment personnel database software, many of which are modules of a complete firm wide data software system produced by companies such as PEOPLESOFT, ORACLE, and SAP, will generally provide a menu driven user interface that allows the human resources personnel to manage employee transactions such as job title, salary and family status changes. In most cases, obtaining electronic data files will require discussions with and/or interrogatories of the human resources department. The electronic data produced in a case will usually be provided by the firm's information technology's department while the hardcopy files will generally be obtained from the human resources department. In cases where parts or all of the human resource function is outsourced to a third party obtaining the data may be somewhat more difficult since multiple entities will be involved in the data collection process.

In most employment cases, the employment-defendant's application, hiring, personnel, and compensation databases will be of most interest to the discrimination analyst. The specific data needs and statistical concerns for each type of case are discussed in more detail below.

Types of Employer-Defendant Personnel Records	
Application Data	Files and applications of individuals that responded to an employment opening at the company. Usually the most incomplete and varied data set.
Hiring Data	Contains the hardcopy and electronic information and outcomes at the different phases of the hiring process. Typically very well-documented and more complete than application data.
Personnel Data	Includes employee demographic and other employment related non-compensation information.
Compensation-Job Data	Contains information about how the company's employees are paid and the jobs that they perform. Updated when a new transaction, such as a promotion or other compensation related event occurs.

Application data. The application data contains the files and applications of individuals that responded to an employment opening at the company. Depending on how the company received the employment application, the application data may contain resumes and/or standardized application data. For instance, most company's use a number of different recruiting sources such as on-campus recruiting, newspaper and trade magazine want-ads, computer job search databases, media ads, and word of mouth to fill job openings. As a result the applications from one source may be somewhat standardized, such as those received online, and include the same set of information for all applicants while others recruiting sources may only result in a resume being sent in by the applicant. Since a common application form is usually required for government and public entities, the application data for these organizations tends to be more uniform than private companies.

Overall, regardless of the institution, the application data information will be the most incomplete and varied of the employment data that the typical employment attorney and discrimination analyst will encounter. It is not uncommon for companies to maintain only the minimum files required or suggested by the EEOC or other civil rights organizations. This practice is commonplace, and makes perfect business sense, because the large majority of a firm's application data concerns information on individuals that were not qualified for the position, showed only a passing interest in the job or were not otherwise qualified for employment at the company. For instance, Microsoft receives over 6000

applications per day. The large majority of the applications received by the company are from individuals who do not meet even the basic qualifications for employment with the company.

The major implication of the varied nature of application data is that employment discrimination cases involving hiring discrimination allegations will require that the attorney assemble a wide range of data for the experts to analyze. Much of the information in employment discrimination cases involving allegations of hiring or recruitment discrimination will be hardcopy documents that will have to be converted to an electronic format before they can be analyzed. It is also important to note that the level of detail concerning the applicants is usually significantly less complete for applicants who were not hired. For instance, at the time of application the individual may not have had complete work history dates and experience. Many times this type of information is completed during later phases of the employment and hiring process. These data limitations should be kept in mind when designing the questions to be addressed in the analysis.

More importantly, each application source, i.e. want -ads, online job database etc., presents a special set of issues for the economist or statistician who is examining the allegations of employment discrimination. For instance, the applicant pool for a job position that is primarily advertised through online job databases will look substantially different from a job that receives the majority of its applications from on campus recruiting. These issues are especially important for companies that use a variety of methods to recruit their employees.

Hiring data. An employer-defendant's hiring data contains the hardcopy and electronic information and outcomes at the different phases of the hiring process. This data is distinctly different from the application data and most time maintained separately from the application database. The hiring data will typically, in various forms, tell the analyst about issues such as scores on job related pre-employment tests, which employees were interviewed and their interview scores, and which employees opted out at some point during the hiring process.

Generally, the employment attorney will look to obtain data that the typical phases in an employment process such as: basic qualifications, initial application screening, phone interview, testing, interview, job offer and ultimately the hiring phase. Overall, the employment attorney should find that the hiring data is very well documented and substantially more complete than the application data. Firms will tend to keep a more complete set of hiring data because for one reason is the company frequently uses the pre-hiring data to validate the efficacy of their employee selection process. However, it is not uncommon for the hiring data to be a mix of electronic data such as spreadsheets and hardcopy documents such as written tests. For example, firms who use the Achiever pre-employment test frequently back check the scores on the Achiever test with factors such as first year job performance and employee attrition rates. It is also common for firms to use the information to measure the performance of its employees 'down the road' or later in the employee's career with the company.

Like application data however, each set of hiring data presents issues that should be thought off before collecting the data. Perhaps the largest concern is ensuring that all the data concerning the job applicant's employment relevant qualifications are collected and included in the hiring data. For instance, if there is a basic education for the job or jobs in question then the data needs to incorporate and include education information. In many instances, applicant data, even if there are no recruiting bias allegations in the employment discrimination case, will have to be collected as well to make the hiring data useful to the analysis.

Personnel data. An employer-defendant's personnel data will include employee demographic and other employment related non-compensation information. This information includes demographic information, marital status, family status, and vacation information. Like application and hiring data personnel data is usually maintained in a separate database and administrated by human resource employees. For larger companies, the basic information items, such as employee identification and similar items, for this type of data will almost always be available in some type of electronic format.

With the exception of demographic information, the importance of collecting this data is frequently understated. The information in the personnel database can be used to provide important insights into the working life of an employee. For example, when incorporated appropriately in the analysis, the amount of sick leave taken by an employee, the employee's vacation frequency, and the number of company sponsored courses taken by the employee can provide useful insights into the employee's level of job specific training (on-the-training) and soft skills development. Job specific training and soft skills such as the 'ability to work in a team' are difficult to empirically measure but are often an important determinants of an individual's salary.

Compensation-job data. An employer-defendant's compensation-job data includes the information about how the company's employees are paid and the jobs that they perform. The information contained in these databases includes the amount of base salary, commission salary earned by the employee, the amount of performance bonuses received and detailed information about the employee's job at the company. The basic information for this type of data will almost always be available in some type of electronic format.

Compensation data, which is the most commonly outsourced human resource function, is typically kept in a separate database and updated when changes are made to the employee's compensation. Compensation databases are commonly referred to as transactional databases because they are updated when a new transaction, such as a promotion or other compensation related event occurs. In practice, a firm's compensation database may include several spreadsheet-like tables all of which are related by a common identifier such as an employee social security number. Generally, databases that contain data tables that are related by a unique identifier of some sort are referred to as relational databases.

Each of the data tables will contain specific types of information concerning the employee's complete compensation history. For instance, there is usually a table in many of the most popular human resource software packages that contains the complete salary history of an employee. The different pieces of information in the data tables are commonly referred to as data fields. The data fields are columns within the data table that contain information on a certain characteristic such as employee salary, date of birth and the company employee identification number. A data record is a row of data field entries that is specific to a particular employee transaction. In each data table, there will be a new compensation data record each time a new compensation transaction occurred in the employee's work history.

Job related information for each employee is also usually included with the compensation data tables. The job related tables will have information concerning the individual's job title, the employee's supervisor, and other similar types of information. The job related tables will typically be linked to the compensation tables by some type of employee identifier such as a company provided ID or the employee's social security number. The job related information will be constructed in the same way as the compensation data that is into different data tables, data fields, and data records. In many tables the job and occupational titles are numerically coded so deciphering this information typically requires additional documents, such as a data dictionary.

It is important to note that a given company may 'lease' some or all of their employees from companies as well as employ a significant number of independent contractors. While in day-to-day terms a leased or independent contractor may perform many of the same jobs of other employees, the future job opportunities and other employment factors may be substantially different than a regular employee. In any event, it is important to keep the specific employment arrangement of the company's workforce in mind as the data is being collected for the statistical analysis.