**About Adverse Impact**

Adverse impact is defined by the Uniform Guidelines as a [**substantially different rate**](http://adverseimpact.org/CalculatingAdverseImpact.htm) of selection in hiring, promotion or other employment decision which works to the disadvantage of members of a race, sex or ethnic group (see [**Question & Answer #10**](http://www.uniformguidelines.com/qandaprint.html#2)). [**Title VII of the Civil Rights Act of 1964**](http://www.eeoc.gov/policy/vii.html) (henceforth referred to as *Title VII*) prohibits employment discrimination on the basis of race, color, religion, sex, or national origin. The [**Equal Employment Opportunity Commission (EEOC)**](http://www.eeoc.gov) is the federal agency responsible for enforcement of Title VII. In 1978, the EEOC, along with the former Civil Service Commission (succeeded by the [**Merit System Protection Board**](http://www.mspb.gov) and the [**United States Office of Personnel Management**](http://www.opm.gov)), the [**United States Department of Labor**](http://www.dol.gov), and the [**United States Department of Justice**](http://www.usdoj.gov) established the [**Uniform Guidelines on Employee Selection Procedures**](http://www.uniformguidelines.com/uniguideprint.html) and the [**Uniform Employee Selection Guidelines Interpretation and Clarification (Questions and Answers)**](http://www.uniformguidelines.com/qandaprint.html). These documents are more conveniently referred to as the *Uniform Guidelines*. The Uniform Guidelines serve as a set of guidelines to follow for ensuring compliance with Title VII.

The Uniform Guidelines apply to essentially all organizations that employ 15 or more employees (see [**Question & Answer #3**](http://www.uniformguidelines.com/qandaprint.html#1)). If you are an employer that falls into this category, you should ensure that you are familiar with the concept of adverse impact. Due to a number of complex factors, adverse impact is extremely prevalent in tests or other types of procedures that are used for making employment decisions. Although the Uniform Guidelines and adverse impact are most frequently discussed with respect to testing and hiring employees, they apply to virtually any employment decision that impacts one's job standing (see [**Question & Answer #6**](http://www.uniformguidelines.com/qandaprint.html#1) and [**Section 2B**](http://www.uniformguidelines.com/uniguideprint.html#7)).

Adverse impact is generally the first step in establishing [**prima facie**](http://dictionary.law.com/default2.asp?selected=1598&bold=) evidence of discrimination under Title VII. The burden is on the plaintiff to show that an employment decision adversely impacted a protected class. Although Title VII permits claims of discrimination based on race, color, religion, sex, or national origin based on either disparate (adverse) impact or disparate treatment, Title VII does not apply directly to discrimination based on age or disability. Rather, the [**Age Discrimination in Employment Act**](http://www.eeoc.gov/policy/adea.html) and the [**Americans with Disabilities Act of 1990**](http://www.ada.gov/pubs/ada.htm) protects those ages 40 years old and above and disabled individuals, respectively. Historically, the Age Discrimination in Employment Act only permitted claims of age discrimination based on disparate treatment. However, in [**Smith v. City of Jackson (544 U.S. 228, 2005)**](http://www.supremecourtus.gov/opinions/04pdf/03-1160.pdf) the U.S. Supreme Court allowed for charges of discrimination based on disparate impact. It is likely that adverse impact will play an increasingly important role in age discrimination charges and cases in the future.

The finding of adverse impact is enough to trigger an investigation which could, ultimately, end up being very costly and could also tarnish an organization's reputation. There were over 67,500 discrimination charges filed under Title VII and 19,103 charges of age discrimination in 2007 alone. Monetary benefits paid out in 2007 included $232,300,000 for Title VII charges and $66,800,000 for age discrimination charges. (Statistics for the last several years are made available by the [**EEOC**](http://www.eeoc.gov/types/index.html)). It is important to note that not all discrimination charges are disparate impact claims based on adverse impact; the number of disparate impact charges is likely far less than the total number of charges. However, the monetary benefits do not include benefits obtained through litigation or costs incurred as a result of proceeding through litigation. The monetary impact is likely far greater than the benefits paid!

The finding of adverse impact shifts the burden of proof to the defendant and would require the employing organization to defend the employment decision in question by providing evidence that the process used to make the decision was valid. According to the Uniform Guidelines ([**Section 3A**](http://www.uniformguidelines.com/uniguideprint.html#12)), once a plaintiff provides evidence of adverse impact, it is assumed that the defendant's practice was discriminatory unless sufficient validity evidence is provided.

It is important to recognize that adverse impact is not a property of a test; rather, it is an analysis of the results of employment decisions which may be influenced, in part, by a test or any number of other factors (e.g., number of vacancies, seniority, performance ratings, budgetary constraints, etc.). Adverse impact could result from the use of unfair, biased, discriminatory, or unlawful procedures. However, adverse impact could also result from true differences between two protected groups on a relevant, job-related characteristic. In absence of further information, adverse impact should be regarded as a neutral term.

**Calculating Adverse Impact**

[**Adverse Impact Analysis**](http://adverseimpact.org/AdverseImpactAnalysis.htm) is a quick and easy to use tool that can estimate adverse impact using a variety of both statistical and practical tests. It includes tests that have been historically recommended by Federal regulators as well as cutting edge tests arising out of the latest research.

Adverse impact is defined by the Uniform Guidelines as a substantially different rate of selection in hiring, promotion or other employment decision which works to the disadvantage of members of a race, sex or ethnic group (see [**Question & Answer #10**](http://www.uniformguidelines.com/qandaprint.html#2)). Operationally, the Uniform Guidelines (see [**Section 4D**](http://www.uniformguidelines.com/uniguideprint.html#18)) define adverse impact as:

A selection rate for any race, sex, or ethnic group which is less than four-fifths (4/5) (or eighty percent) of the rate for the group with the highest rate will generally be regarded by the Federal enforcement agencies as evidence of adverse impact, while a greater than four-fifths rate will generally not be regarded by Federal enforcement agencies as evidence of adverse impact. Smaller differences in selection rate may nevertheless constitute adverse impact, where they are significant in both statistical and practical terms or where a user's actions have discouraged applicants disproportionately on grounds of race, sex, or ethnic group. Greater differences in selection rate may not constitute adverse impact where the differences are based on small numbers and are not statistically significant, or where special recruiting or other programs cause the pool of minority or female candidates to be atypical of the normal pool of applicants from that group. Where the user's evidence concerning the impact of a selection procedure indicates adverse impact but is based upon numbers which are too small to be reliable, evidence concerning the impact of the procedure over a longer period of time and/or evidence concerning the impact which the selection procedure had when used in the same manner in similar circumstances elsewhere may be considered in determining adverse impact. Where the user has not maintained data on adverse impact as required by the documentation section of applicable guidelines, the Federal enforcement agencies may draw an inference of adverse impact of the selection process from the failure of the user to maintain such data, if the user has an underutilization of a group in the job category, as compared to the group's representation in the relevant labor market or, in the case of jobs filled from within, the applicable work force.

[**Four-Fifths Rule**](http://adverseimpact.org/CalculatingAdverseImpact/Four-FifthsRule.htm): The four-fifths rule (a.k.a. 4/5ths rule or 80% rule) is the simplest and most common way of estimating adverse impact. It also appears to be the preferred method of enforcement agencies. Unfortunately, it does not estimate whether or not adverse impact truly exists as accurately as one would like. It tends to indicate adverse impact exists even when it does not (a [**Type I Error**](http://adverseimpact.org/CalculatingAdverseImpact/StatisticalTesting.htm)).

[**Statistical Tests**](http://adverseimpact.org/CalculatingAdverseImpact/StatisticalTests.htm): Statistical tests are designed to control [**Type I error**](http://adverseimpact.org/CalculatingAdverseImpact/StatisticalTesting.htm) (i.e., the error of determining adverse impact exists even when it does not). However, statistical tests are most accurate when the sample is relatively large and balanced. This is often not the case in adverse impact analyses since they are comparing majority vs. minority groups and the number of hires are typically not very large. Although statistical test can control or avoid the error of indicating adverse impact exists even when it does not, statistical tests tend to make the opposite error - indicating adverse impact does not exist when, in fact, it does (a [**Type II error**](http://adverseimpact.org/CalculatingAdverseImpact/StatisticalTesting.htm)).

[**Practical Tests**](http://adverseimpact.org/CalculatingAdverseImpact/PracticalTests.htm): These tests help guide decisions regarding the existence of adverse impact when samples are small. They help balance the error associated with the 4/5ths rule and the limitations of statistical test as a result of small samples.

The four-fifths rule (or impact ratio) and statistical tests often do not indicate the same end result. When sample sizes are smaller (which is often the case in the context of adverse impact calculations), the 4/5ths rule is more likely to indicate adverse impact exists than statistical tests are. This often results in defendants arguing that statistical tests are more appropriate and that the impact ratio should be ignored because it is prone to [**Type I error**](http://adverseimpact.org/CalculatingAdverseImpact/StatisticalTesting.htm) whereas plaintiffs will argue that the 4/5ths rule should be used and that statistical tests should be ignored because they have low [**power**](http://adverseimpact.org/CalculatingAdverseImpact/StatisticalTesting.htm) and are prone to [**Type II error**](http://adverseimpact.org/CalculatingAdverseImpact/StatisticalTesting.htm). In situations such as this, it is important to consider the strengths and weakness of all methods as well as the probability of Type I and Type II error.

[**Adverse Impact Analysis**](http://adverseimpact.org/AdverseImpactAnalysis.htm) is a very simple and easy to use tool that can calculate adverse impact using the four-fifths rule, statistical tests, and practical tests.

**Four-Fifths Rule**

The four-fifths rule (a.k.a. 4/5ths rule or 80% rule) is the simplest and most common way of estimating adverse impact. The Uniform Guidelines indicate that the 4/5ths rule is the preferred method for determining adverse impact (see [**Questions and Answers #18, 23, and 24**](http://www.uniformguidelines.com/qandaprint.html#2)) unless samples are very small (see [**Questions and Answers #20 and 21**](http://www.uniformguidelines.com/qandaprint.html#2)) or very large (see [**Questions and Answers #20 and 22)**](http://www.uniformguidelines.com/qandaprint.html#2). The 4/5ths rule can be computed according to the four steps shown below (see [**Question & Answer #12**](http://www.uniformguidelines.com/qandaprint.html#2)):

1) Calculate the selection rate for each protected group that makes up more than 2% of the applicant pool. The selection rate is equal to the total number or applicants within the group that are hired divided by the total number of applicants within that group.

2) Observe which group has the highest selection rate. This is not always the white, male, or "majority" group.

3) Calculate the impact ratio by dividing the selection rate for each group by the selection rate of the group with the highest selection rate.

4) Determine if the selection rates are substantially different. If the impact ratio is less than .8, there is a 4/5ths rule violation.

The impact ratio could be considered a test of practical significance because it focuses on an effect size (i.e., the ratio of selection rates). The advantages of the impact ratio include (a) it is easy to use and does not require statistical software or training in statistics, (b) it describes the magnitude of the selection rate difference between the groups that are being compared, and (c) it is more [**powerful**](http://adverseimpact.org/CalculatingAdverseImpact/StatisticalTesting.htm) than statistical tests (Collins & Morris, 2008; Morris, 2001).

However, the most notable disadvantage of the impact ratio is that it is subject to considerable sampling errors (especially when the sample size and selection ratio are small) and is prone to making a [**Type I error**](http://adverseimpact.org/CalculatingAdverseImpact/StatisticalTesting.htm) (Collins & Morris, 2008; Roth, Bobko & Switzer, 2006; see also Ironson, Guion & Ostrander, 1982; Lawshe, 1987; Morris, 2001; Morris & Lobsenz, 2000). This is problematic because, if the impact ratio is less than .8, it cannot be certain if adverse impact truly exists or if the result is due to chance. Roth, Bobko and Switzer (2006) demonstrated that the impact ratio incorrectly indicates that adverse impact exists (i.e., makes a [**Type I error**](http://adverseimpact.org/CalculatingAdverseImpact/StatisticalTesting.htm)) 20% or more of the time when there are 50 or fewer hires. Lawshe (1987) compared impact ratio results using the same test in the same manner for the same job across two consecutive years and found that adverse impact for race changed significantly in 6/16 comparisons and that in 9/21 comparisons, the 4/5ths rule was satisfied in one year, but not in the other.

Use [**Adverse Impact Analysis**](http://adverseimpact.org/AdverseImpactAnalysis.htm) to estimate adverse impact using the four-fifths rule now.