

Role of Economists in Reduction-in-Force Analysis

The economic downturn has hit the U.S. labor market nearly as hard as the stock market over the last two years. The national unemployment rate reached its highest point since the early 1980s and, according to the Department of Labor's figures, it jumped to 10.2% in October.¹ A significant factor in the increased unemployment rate is large-scale layoffs – reduction-in-force (RIFs). Many large and prominent companies have had to make the tough decision to reduce their workforce, and more reductions are likely to come. This environment is ripe with potential for litigation on various discrimination claims, with Age Discrimination in Employment Act (ADEA) claims particularly common.

An organization considering a RIF can take several simple proactive steps to help reduce its potential litigation risks. An organization should allow for sufficient time in the process for consideration of potential adverse impact, document its decision-making, and work with a statistical expert to determine whether the resulting change in the composition of employees may be evidence of adverse impact or explained by business-related factors.

The main task for a statistical expert is to conduct an analysis to determine whether the terminations will disproportionately affect a protected group. The statistical analysis of potential adverse impact from a RIF might, for example, compare (a) the proportion of older employees among the affected employees with (b) the proportion of older employees in the “at risk” population. The “at risk” population consists only of those employees who were considered for the RIF. For instance, if the RIF were to affect only employees in the IT department, the “at risk” population would be all employees in the IT department. The reason for comparison of the affected employees

to the “at risk” population is straightforward. If the selection process is random with regard to age, then the affected employees should be representative of the “at risk” employees. In our example, if 50 percent of IT employees were over the age of 40, one would expect that about 50 percent of the affected employees would be over the age of 40. If a disproportionately high number of the affected employees are over the age of 40, one must perform a statistical test to determine whether this difference is statistically significant. Such statistical evidence may be used to support a claim of age discrimination. The example above focuses on age but there are other categories, such as race or gender, that may be critical to a statistical analysis.

CREATING AN “AT-RISK” GROUP

There are two important steps in an adverse impact analysis in a RIF. The first is to identify the correct pool of employees at risk. Without a proper identification, any statistical analysis can yield spurious results. Continuing the IT department example, assume that the IT department is divided into two different specialties, mainframe programmer and entry-level programmer. Mainframe programmers are the only specialty selected for a RIF and the affected group has an equal proportion of older employees as the “at risk” group. However, entry-level programmers, who are not included in the RIF, hold entry level positions that are primarily staffed by younger employees. An analysis examining the impact for the whole IT department (combining both the mainframe and entry-level programmers in the analysis) may show a disproportionate impact on older employees. This finding, however, is a result of the age profile of mainframe and entry-level programmers not as a result of an act adverse to older employees. A statistical analysis on a faulty “at risk” grouping can result in a faulty finding of statistically significant adverse impact.

¹ Bureau of Labor Statistics. “Employment Situation Summary.” November 2009. <http://www.bls.gov/news.release/emp/sit.nr0.htm>

STATISTICAL TESTS

The second important step is to conduct a statistical analysis of the outcome of the RIF. Two alternative tests are frequently used to determine the level of statistical significance. The first is called a chi-squared test and the other is called the Fisher's exact test. The chi-squared test compares the actual number of older employees in the "at risk" group to the expected number and calculates a test statistic. If the corresponding probability value test is less than five percent, the overrepresentation of older employees is considered statistically significant. In the social sciences, statistical tests that show that a particular outcome has less than a five percent chance of resulting from random chance is considered statistically significant.

The Fisher's exact test calculates the probability of each possible outcome which would show a greater overrepresentation of older employees than the proposed RIF. Once all of the probabilities have been calculated, they are summed up and if the resulting sum is less than five percent, the outcome is considered statistically significant. In essence, this test calculates how many more extreme and over-representative distributions can be found. If the particular distribution of older affected workers is extreme enough, this test finds the distribution to be statistically significant. One advantage of the Fisher's exact test is it is appropriate even for very small sample sizes. Thus, even if the correct "at risk" groups are small, a valid test of adverse effects is still available.

It is key to note that both a chi-squared and a Fisher's exact test have only two dimensions in this example: age and whether affected. Other explanatory factors, such as experience, performance, and education that could impact a decision to terminate an employee, are not accounted for. In that instance, an economist may use a logistic regression. A logistic regression models the decision-making process by including all factors that were used by the decision-makers to determine who was to be chosen for the RIF. As with the two tests described earlier, a logistic regression also calculates the statistical significance of age in the decision-making process so it can be used as empirical evidence in a case of age discrimination.

While conducting a RIF is a difficult and unpleasant process, an economist can assist decision makers in ensuring that the process is statistically sound and thereby helps to mitigate potential liability. An economist can assist with creating the correct "at risk" groupings and can conduct a statistical analysis to determine whether a protected group may possibly have been adversely affected in a particular RIF.

The economists at Huron Consulting Group have assisted various organizations with statistical analyses related to employment decisions/lay-offs and are available to answer any specific questions.



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