

# THE PROBLEM OF MULTIPLE COMPONENTS OR DIVISIONS IN TITLE VII LITIGATION: A COMMENT

DAVID W. BARNES

Finis Welch notes that if the 0.05 rule, testing for disparate impact, is applied to fourteen independent employment practices, there is a 50-50 chance that one or more of these practices would fail the test even if the practice was neutral with respect to the protected group.<sup>1</sup> This probabilistic result is important in employment discrimination cases where the challenged practice involves an examination or interview process with multiple components,<sup>2</sup> or where the employer/defendant in a pattern and practice action has numerous divisions within the company or numerous job categories within which the disparate treatment of the protected group might independently be measured. The probabilistic result means simply that as the number of separable component parts of an examination or interview or work force increases, the probability of finding a part that violates the two standard deviations test for disparate impact increases even if the test or interview or employment practice is neutral.

The following probabilities derived from a binomial table<sup>3</sup> put this result in perspective. Successive rows in Table 1 illustrate the probability of finding increasing numbers of component parts or divisions failing the disparate impact test, even though the practice is neutral as judged by the two standard deviations rule. Table 1 assumes that there are ten component parts or divisions. The table shows that while the probability of finding that just one of ten divisions fails the disparate impact test is 31.51%, the probability of finding that exactly four divisions fails is only 0.10%.

---

Copyright © 1984 by Law and Contemporary Problems

1. Follett & Welch, *Testing for Discrimination in Employment Practices*, LAW & CONTEMP. PROBS., Autumn, 1983, at 171.

2. Shoben, *The Use of Statistics to Prove Intentional Employment Discrimination*, LAW & CONTEMP. PROBS., Autumn, 1983, at 221.

3. W. BEYER, CRC HANDBOOK OF TABLES FOR PROBABILITY AND STATISTICS 183-184 (2d ed. 1968).

TABLE 1

<u>Number of Component Parts or Divisions Failing the 0.05 Test in the Exam or Company with Ten Parts or Divisions</u>	<u>Probability of Occurrence even if Practice is Neutral</u>
0	59.87%
1	31.51%
2	7.46%
3	1.05%
4	0.10%
5	0.01%
6	0.00%
7	0.00%
8	0.00%
9	0.00%
10	0.00%

For ten divisions, the likelihood of finding one or two where a disparate impact is shown is rather high, but the probability of finding more than two instances of disparate impact is rather low. The information in Table 1 might also be considered in its cumulative form as shown in Table 2. Thus, while the probability of finding one *or more* is 40.13%, the chance of finding more than one, that is, two or more, declines to 8.62%, and the likelihood of finding more than two cases is only 1.16%.

TABLE 2

<u>Number of Component Parts or Divisions Failing the 0.05 Test in an Exam or Company with Ten Parts or Divisions</u>	<u>Cumulative Probability of Occurrence even if Practice is Neutral</u>
1	40.13%
2	8.62%
3	1.16%
4	0.11%
5	0.01%
6	0.00%
7	0.00%
8	0.00%
9	0.00%
10	0.00%

Exams have different numbers of component parts, and companies have different numbers of divisions or job categories. Table 3 illustrates the likelihood of one or more parts, divisions, or categories in which disparate treatment is found due to random occurrence.

TABLE 3

Number of Component Divisions, Parts, or Job Categories	Likelihood of Finding One or More Failing the Disparate Impact Test
1	5.00%
2	9.75%
3	14.26%
4	18.55%
5	22.62%
6	26.49%
7	30.17%
8	33.66%
9	36.98%
10	40.13%
11	43.12%
12	45.96%

These figures indicate that the chance of finding at least one offending division, despite the neutrality of the practice, is rather high, (e.g., 22.62%), even where the number of divisions is rather small, (e.g., 5 divisions). Table 4, however, illustrates that most of this rather high probability is due to the chance that there will be just one, not more than one, offending division. Table 4 also illustrates the likelihood of finding exactly one, two, or three offending parts, divisions, or categories for exams with varying numbers of component parts or companies with varying number of divisions of job categories.

TABLE 4

Number of Component Parts, Divisions, or Job Categories	Likelihood of Finding the Following Numbers of Offending Parts, Divisions, or Categories		
	Exactly One	Exactly Two	Exactly Three
1	5.00%	—	—
2	9.50%	0.25%	—
3	13.54%	0.71%	0.01%
4	17.15%	1.35%	0.05%
5	20.36%	2.14%	0.11%
6	23.21%	3.05%	0.21%
7	25.73%	4.06%	0.36%
8	27.93%	5.15%	0.54%
9	29.85%	6.29%	0.77%
10	31.51%	7.46%	1.05%
11	32.93%	8.67%	1.37%
12	34.13%	9.88%	1.73%

The relatively low probabilities in the columns for exactly two and exactly three offending cases illustrate that most of the problem identified by Finis Welch is due to the likelihood of finding just one offending division.

The lesson is that the stipulated elimination from factual consideration of those parts or divisions with no mathematical disparate impact disadvantages the

employer/dependent who has only one offending division out of numerous total divisions. Any unfairness that may be associated with this result dissipates rapidly as more offending divisions are found. This dissipation occurs because the probability of finding large numbers of offending divisions by chance, where the employment practice is neutral with respect to the protected group, is demonstrably small.