1. D. TEICHROEW, "Probabilities associated with order statistics in samples from two normal populations with equal variance," Chemical Corps Engineering Agency, Army Chemical Center, Maryland, 1955.
2. C. W. DUNNETT, "On selecting the largest of k normal population means," (to be published in *Jn.*, Roy. Stat. Soc, Series B, 1960).
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51[K].—E. C. FIELLER, H. O. HARTLEY & E. S. PEARSON, "Tests for rank correlation coefficients. I," *Biometrika*, v. 44, 1957, p. 470–481.

This paper is concerned with sampling determination of the approximate distribution for $z_S = \tanh^{-1} r_S$ and $z_K = \tanh^{-1} r_K$, where r_S is Spearman's rank correlation coefficient and r_K is Kendall's rank correlation coefficient, for the case of sample of size n from a bivariate normal distribution. It is concluded that z_S and z_K are approximately normally distributed if n is not too small, with var $(z_S) \doteq 1.060/(n - 3)$ and var $(r_K) \doteq 0.437/(n - 4)$. Eight tables are presented. Table 1 contains 4D values of three versions of var (r_S) for $\rho = 0.1(0.1)0.9$ and $n = 10, 30, 50$; one version is Kendall's approximate formula (adjusted), another is the observed value, and the third is a smoothed form of the observed value. Table 2 contains 3D values of var $(r_S)/[1 - (Er_S)^2]$ and 4D values of var $(r_K)/[1 - (Er_K)^2]$, also an average over ρ for each of these, for $\rho = 0.1(0.1)0.9$ and $n = 10, 30, 50$. Table 3 contains 3D approximate theoretical and observed values for Ez_S, while Table 4 contains these values for Ez_K, where $\rho = 0.1(0.1)0.9$ and $n = 10, 30, 50$; the second-order correction terms for the theoretical values are also stated to 3D. Table 5 contains 4D values of the observed variance of z_S and 3D values of its observed standard deviation, likewise for Table 6 with z_K, where $\rho = 0.1(0.1)0.9$ and $n = 10, 30, 50$. Table 7 contains values of χ^2 for goodness of fit tests of the normality of z_S and z_K for $n = 30, 50$. Table 8 contains 2D and 3D values of

$$(Ez_1 - Ez_2)/\sqrt{\text{var } (z_1) + \text{var } (z_2)}$$

for z_1 and z_2 representing the same correlation coefficient but with different ρ values $(\rho_2 = \rho_1 + 0.1)$; this is for the product moment correlation coefficient, Spearman's coefficient and Kendall's coefficient with $\rho_1 = 0.1(0.1)0.8$ and $n = 10, 30, 50$.

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52[K].—G. HORSNELL, "Economical acceptance sampling schemes," Roy. Stat. Soc., *Jn.*, sec. A., v. 120, 1957, p. 148–201.

This paper is concerned with acceptance sampling plans designed to minimize the effective cost of accepted items produced under conditions of normal production. Effective cost per accepted item is defined to be the production cost per lot plus the average cost of inspection per lot when apportioned equally over the average number of items accepted per lot from production of normal quality. Single-sample plans are examined in detail. Double-sample plans are considered briefly.

An appendix contains thirty-one separate tables for single-sampling plans, ten of which are applicable when inspection is non-destructive and the remaining twenty-one are applicable when inspection is destructive. The table for non-destructive inspection displays c_m/c_s which is the ratio of manufacturing cost to inspection cost; n, the number of items to be sampled; k, the accepted number; $A(n, k)$, the probability of acceptance; and c/c_m, which is the ratio of effective cost to manufacturing cost. In the tables for destructive inspection, $A(n, k)$ is replaced by $A'(n, k)$, which is the expected number of accepted items per lot.

Plans for non-destructive inspection are given only for a nominal lot size of 10,000. Plans for destructive inspection are given for lot sizes of 10,000 and 20,000. For non-destructive inspection, the process average $p_0 = .01(.01).04$, the consumer's risk point $p_1 = .03(.01).07, .09$; at which the consumer's risks are .05 and .01. For destructive inspection $p_0 = .01$ and $.02$; $p_1 = .03(.01).06$, and consumer's risks are .05 and .01. The tables, however, do not include all possible combinations of the above listed parameter values.

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53[K].—N. L. Johnson, "Optimal sampling for quota fulfillment," *Biometrika*, v. 44, 1957, p. 518–523.

This article contains two tables to assist with the problem of obtaining a preset quota m_i of individuals from each of k strata by selecting first a sample N of the whole population and then completing quotas by sampling from separate strata. Individual cost in the first case is c and in the second c_i. Table I gives for $m_i = m$ optimal values of N for $k = 2(1)10$; $mk \doteq 50, 100, 200, 500$; $d = c_i/c = 1.25, 1.5(.5)3.0$; $d' = c_i'/c = .9, .7, .25, 0$. Here c_i' is the worth of first sample individuals in excess of quota. The tabulated values of N are solutions of the equation $Pr(N_i < m) = (c - c_i')/(c_i - c_i)$.

Table 2 gives ratio of minimized cost to cost of choosing the whole sample by sampling restricted to each stratum. This quantity is

$$\frac{1}{d} + \left(1 - \frac{d'}{d}\right)\left(1 - \frac{1}{k}\right)^{N+1} \binom{N}{m} (k - 1)^{-m}$$

and is tabulated for $k = 2(1)5, 10$; $km \doteq 50, 100, 500$; $d = 1.5, 2.5, 3$; $d' = .5, .1, 0$.

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54[K].—P. G. Moore, "The two-sample t-test based on range," *Biometrika*, v. 44, 1957, p. 482–489.

This paper provides a sample statistic for unequal sample sizes for a two-sample t-test based on observed sample ranges instead of sums of squares. The statistic used by the author is simply

$$u = \frac{|\bar{x}_1 - \bar{x}_2|}{w_1 + w_2},$$