

ON SMALL SAMPLES FROM CERTAIN NON-NORMAL UNIVERSES*

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INTRODUCTION

The distribution of the ratio

$$z = \frac{\text{mean of sample} - \text{mean of universe}}{\text{standard deviation of sample}}$$

which is of great importance in the theory of small samples, has been derived exactly by theoretical methods for samples of any size from a normal universe.¹ Experimental studies² have been

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¹ See, for example, R. A. Fisher, Applications of "Student's" Distribution, *Metron*, vol. 5, No. 3 (Dec. 1, 1925), pp. 90-104. 5

² e. g. W. A. Shewhart and F. W. Winters, Small Samples—New Experimental Results, *Journal of the American Statistical Association*, Vol. 23 (1928), pp. 144-53;

J. Neyman and E. S. Pearson, On the Use and Interpretation of Certain Test Criteria for Purposes of Statistical Inference. Part I, *Biometrika*, Vol. 20A (1928), pp. 175-240;

"Sophister," Discussion of Small Samples Drawn from an Infinite Skew Population, *Biometrika*, Vol. 20A (1928), pp. 389-423;

E. S. Pearson assisted by N. K. Adyanthāya and others, The Distribution of Frequency Constants in Small Samples from Non-normal Symmetrical and Skew Populations. 2nd paper, *Biometrika*, Vol. 21 (1929), pp. 259-86.