

Chapter 7

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1 Introduction

because population is fixed so the population parameters like mean μ and variance σ^2 are fixed (though generally unknown).

the sample mean \bar{X} and sample variance s^2 are random variables, varying from sample to sample, with certain probability distribution. the random variables calculated from the observations in a sample are called sample statistic.

the point estimate of μ is the an estimation by computing one sample mean, but it is distributed around μ . so we must estimate that μ is bracketed by some interval –known as confidence interval– of the following form:

$$\mu = \bar{X} \pm \text{an error allowance} \quad (1)$$

as we can be specific about distribution of \bar{X} , we can be specific about this error allowance.