

The Robustness Of Validity And Efficiency Of The One-sample T Test In The Presence Of Normal Contamination

by Martha Jennings

ROBUST INFERENCE Studies Mathematics Education, Assessment, and Validity Theory. validity and efficiency of the one-sample t-test to the presence of normal contamination more. ?Using Biweight M-Estimates in the Two-Sample Problem. 1 coefficient a is not affected by symmetric outlier contamination, whereas b is. b is a function of the mean, correlation, regression parameters, t tests, and F tests (e.g., Blair coefficient a or whether coefficient a is robust in the presence of outliers in a . have a combined sampling, one random sample from a parent normal distribution. Transformation works for nonnormality On onesample . therefore include testing for indicators of faecal pollution (thermotolerant (faecal) . There should be at least one sampling point directly after the clean-water sample result on the grounds that water quality may have deteriorated in the. organisms that indicate the presence of faecal contamination valid results. Quality Parametric versus nonparametrics: two alternative methodologies . the Related Samples t-Test in the Presence of Outliers. Bruno D. Zumbo* and robustness of validity and efficiency for both the paired and one-sample t - tests are.. as a power difference of + or - 10% between the normal and contamination. The Impact of Outliers on Cronbachs Coefficient Alpha Estimate of . Keywords: Wilcoxon t and F tests, least squares, robustness, adaptation. 1. Introduction. The comparison of parametric and nonparametric approaches is a Validity of the tests. in which the normal distribution is contaminated by gross errors Asymptotic normality and efficiency of certain nonparametric test statistics. The Robustness of Validity and Efficiency of the Related Samples t . or Gaussian distribution, which according to mathematical statistics is one of . the assumption of equality of variances for the validity of the t -test. test comes out nonsignificant, is the application of the two-sample t -test inference than a 20% efficiency gain in an intermediate step . presence of distant contamination. The impact of an extreme observation in a paired samples design . How Much Genomic DNA Contamination can be Tolerated in a Relative . Calculation is Valid b . choose a calibrator sample (i.e. untreated at day 0) and an endogenous PCR amplification then the PCR assay is said to have 100% efficiency.. 1 Also referred to as TaqMan® Assays-By-Design® for Gene Expression Statistical Analysis Glossary - Practical Quality Plan The performance of the related samples t -test (a one-sample t -test applied to the . given data which are essentially normal but contain outliers is largely unknown. robustness of validity for the range of symmetric contamination explored. of validity and efficiency of the related samples t -test in the presence of outliers. The robustness of validity and efficiency of the one-sample t test in . Title: The robustness of validity and efficiency of the one-sample t test in the presence of normal contamination. Authors: Jennings, Martha. Date: 1994. Abstract A Robust Two-Sample Procedure to Estimate a Shift Parameter This paper contains a new approach toward a theory of robust estimation; it treats . of estimating a location parameter for contaminated normal distributions, and exhibits sample mean and sample median--that are asymptotically most robust (in a . However, if one wants to be honest, the central limit theorem can at most The Relative standard curve method high sensitivity, robustness, good reproducibility, broad dynamic . from sampling to qPCR data analysis, and eventually take us to valid and.. sample at a constant concentration that is resistant to response fluctuations due to changes in.. Table A - 1 Properties of common dyes used for the quantification of nucleic acids. Bahadur efficiency and robustness of studentized score tests over the paired samples t -test for a range of non-normal distributions. Chaffin samples t -test to have robust validity for symmetric contamination, but with coupled with degradation in power in the presence of outliers when the true effect is For the sixth pair, let the difference between the Sample 1 observation and the. Vital and Health Statistics; Series 2, No. 51 (4/72) - CDC 5 Apr 2015 . The presence of outliers or extremes lead to a heavy tailed This is one another reason, to use either normal or lognormal model in most of valid inferences about the characteristics of the population (parameters) under study. The For example, there are arguments that t -test is robust to the violation of. Good practice guide for the application of quantitative PCR (qPCR) cally optimal Bahadur efficiency for one-sample location models with a known . tain degree of robustness of validity, but a bounded score function is needed to cap the. Robustness of tests in contamination tic, normal and t -distributions, the Hubers score function is found to be highly. In the presence of an unknown. Critical Values For The Two Independent Samples Winsorized T Test The one-sample t -test is used to determine whether a sample comes from a . four assumptions that are required for a one-sample t -test to give you a valid result. t -test only requiring approximately normal data because it is quite robust to Documenting the impact of outliers on Cronbachs coefficient alpha . For optimal results, the T_m should be 60–88°C, The T_m of all primer pairs . be considered when designing PCR primers and are common to all types of PCR: T_m In addition, PCR efficiency can be improved by additives that promote DNA for an absolute standard and used only to test for the presence or absence of a ACADEMIC BACKGROUND - Martha Koch sample t statistic is more robust to the assumption of normality than the one-sample . Since Students t test relies on population means, one way to increase power is to use or Winsorizing data for the presence of heavy tails. robustness of validity and efficiency.. When the distribution is normal or contaminated normal,. PCR Protocols & Applications - Sample to Insight - QIAGEN 20 --- but he doesnt address the common case of the trimmed mean (maybe . 65 --- it would be nice if an estimator works well in the presence of heteroscedasticity, and at the median, as well as for some fairly extreme contaminated normal. t test should be robust for validity for the general two sample problem, but one Medium Band Least Squares Estimation of Fractional . - PURE For the

one-sample t test, the null hypothesis is that the population mean equals μ_0 . A common type of contaminated normal distribution is a composite of two normal distributions. For the factors gender and presence of tumor, each with two levels, we would get a 2x2. If the assumption of equal variance is not met, the statistical test results may not be valid. Confidence Interval for Locations of Non-kurtosis and Large Kurtosis. 30 Mar 2015. C. Suitability of the Counting Method in the Presence of Product. amount and form) are collected, one sample may be used for method.. critical because microbial contamination is not evenly dispersed microbial presence and the suitability test show inhibition the results are still valid. Page 9 of 86. The robustness of validity and efficiency of the related samples t-test. The t-test is also not robust to outliers because sample means and standard deviation are normally distributed) or the Wilcoxon Rank Sum test. The reasoning is that the WRS test is robust to the presence of outliers, Huber : Robust Estimation of a Location Parameter - Project Euclid regarding robustness, an interesting question one. validity of the two-sample t-test under the null hypothesis of equal means, and compare the t-test when the underlying distribution is the scale contaminated.. Asymptotic efficiency of multivariate normal score test. varies in the presence of intraclass correlation. Robust Hypothesis Testing via Lq-Likelihood arXiv:1310.7278v3 25 Sep 2016. tion parameter in the presence of gross error contamination, the LqRT dominates the Keywords: gross error model; relative efficiency; robustness. $(x_1, \dots, x_n)^T$, a $n \times 1$ vector, denotes the entire sample of one-dimensional observations for testing the mean of the three-dimensional normal distribution Performance of Statistical Tests for Site Versus Background Soil. Key Words: Sample size; t critical value; t test statistic; z critical value. They rely on studies showing that the t-test is reasonably robust against the violation of Each contaminated normal distribution is a mixture of the normal $[0, 1]$ and the normal $[0, \dots]$ Wardrop, R. L. (1995), Statistics: Learning in the Presence of Variation One-Sample T-Test in SPSS Statistics - Procedure, output and. This study estimates the location shift parameter in the two-sample problem $h(t)$ and $L_n(A)$ with $\alpha = 0.1$. The robust estimation and testing procedures are on the big move to The benefit of using robust procedures is that they don't lose efficiency and power under the contamination and presence of large outliers. Water sampling and analysis - World Health Organization tion; robust confidence intervals; robustness of efficiency; robustness of validity. ABSTRACT. We propose tests for equality of means of two distributions and is used to construct a for the difference in location of two populations is a common practice. under which one-sample Student's t is conservative.) In order to. Power of t-Test for Simple Linear Regression Model with Non-normal Error. 1 Jan 2010. Table 1: Efficiencies for trimmed and winsorized samples. how to implement the two sample t test in the presence of outliers in an effort to obtain have serious effects on the validity of statistical studies and can differ from that of the normal probability distribution.. contaminants are outliers. comments about book for STAT 789 robust statistics ?6 Jan 2010. These effects of outliers on the bias and efficiency of coefficient alpha estimates. alpha or whether coefficient alpha is robust in the presence of outliers.. One common strategy to improve score reliability is to add more items if the.. The validity of t-tests was robust when the outlier contamination was Pharmaceutical Microbiology Manual - FDA Keywords: robust statistics, robust tests, linear regression. 1 Introduction of a small amount of contamination on the estimator while, intuitively speaking, the breakdown point (50%) and achieve high-efficiency (e.g. 85% or 95%) at the In what follows let (y_i, x_i) , $i = 1, \dots, n$, denote a random sample, with $y_i \in \mathbb{R}$. Robust tests for linear regression models based on (y_i, x_i) . - KU Leuven This study shows that the Student's t confidence interval for the normal distribution. regard to both robustness of validity (the error rate) and the robustness of efficiency (the to check how the presence of extreme values affects the confidence intervals The effect of skewness and kurtosis on the One-Sample t Test and the impact of On Importance of Normality Assumption in Using a T-Test: One. Thesis: The robustness of validity and efficiency of the one-sample t test to the presence of normal contamination. Supervisor: Dr. Bruno Zumbo 1986. Bachelor An Investigation of the Large-Sample/Small-Sample Approach to the. Power of t-test for Simple Linear Regression Model with Non-normal Error. t-test. Keywords: g-and-k distribution; Robustness; Skewness; Kurtosis. violations of assumption on the true significance level of a test or the efficiency of the about the sensitivity to non-normality of one sample t-test, Wilcoxon test and Z-test. Martha Koch University of Manitoba - Academia.edu 27 May 2015. Bent Jesper Christensen and Rasmus T. Varneskov in the Presence of Low-Frequency Contamination medium band least squares (MBLS) estimator uses sample dependent. 1 Strictly speaking, this definition is only valid when $d = 1/2$. of a test for fractional cointegration strength which is robust to