

5. Conclusion

Sine fuzzy thinking is bore in everybody's mind, but we do not often use the fuzzy survey in society because having not a corrective test statistic to deal with the fuzzy numbers. In this paper, we try to find a formula, called fuzzy χ^2 , to deal with fuzzy data. We use the fuzzy binomial distribution to find expected value and variance. Hence we can find the estimator for π_{ij} in l -sample fuzzy multinomial model. Moreover, we use the central limit theorem to get an approximately normal distribution. We hope that we can use the similar proof as traditional Pearson's χ^2 to find out the fuzzy χ^2 . We also present an example in Section4. We use two ways, traditional χ^2 and fuzzy χ^2 , to test the hypothesis.

But there must be something to be improved in the future:

1. How is the sensitivity of the result when sample is small?
2. How to prove that A_{ij} is the best estimator for π_{ij} ?
3. The test statistic of fuzzy χ^2 is somewhat complex, we may use the computer to find out.