





### Background

Background text describing the study context. The text is mostly illegible but contains several numbered references in blue: 1, 10, 12, 11, 12-1, 6-20, 21, 22, 23, 24, 2-31, 32-3, 40-43. The text appears to be bleed-through from the reverse side of the page.

### Methods

Methods text describing the study methodology. The text is mostly illegible but contains several numbers and percentages in blue: 201, 202, 26%, 211, 212, 1.1, 60, 34, 0.0%, 1.1. The text appears to be bleed-through from the reverse side of the page.

24 1. 2) ...  
...  
( 6 %) ...  
266 %) 0.0% ...



**A**

... (1-13) ...  
 ... 23, 44-4 ...  
 ... (0-3) ...  
 ... 13 ...  
 ... 0.

**A**

... ( )  
 ... 1.  
 ...  
 ...  
 ...  
 ... %  
 ... %  
 ... 2

**A PA**

...  
 ...  
 ...  
 ...  
 ...  
 ... 3 +

**G** **(GPA -H)**

... 2 ...  
 ...  
 ...  
 ...  
 ...  
 ...  
 ...  
 ...  
 ... 3

6. The difference is

1. e (31 .3 t 23.1 .). 2 t, t t t t





0.04 , 1.002) f . ff .

Discussion

... e ...  
...  
...  
... 2 ...  
... 34, ...

... -2), ... 4, ...  
40% ... ( ... )  
0.4-0. ), ... 3, ...  
... 2, ...  
... ( 2, ... 1. - 3/  
2.0, ... 1.4-3.1/ ... 2.0, ... 1.2-3.4 ( ... )  
... 43. ...  
... (1.2%).  
... 240 ... 300.  
... ( ... )  
... 10. ...

The first part of the paper is devoted to the study of the asymptotic behavior of the estimator  $\hat{\theta}_n$  under the null hypothesis  $H_0$ . It is shown that  $\hat{\theta}_n$  is asymptotically normal with mean  $\theta_0$  and variance  $V(\theta_0)$ . The second part of the paper is devoted to the study of the asymptotic behavior of the estimator  $\hat{\theta}_n$  under the alternative hypothesis  $H_1$ . It is shown that  $\hat{\theta}_n$  is asymptotically normal with mean  $\theta_1$  and variance  $V(\theta_1)$ .

### Conclusion

In this paper, we have studied the asymptotic behavior of the estimator  $\hat{\theta}_n$  under the null hypothesis  $H_0$  and the alternative hypothesis  $H_1$ . It is shown that  $\hat{\theta}_n$  is asymptotically normal with mean  $\theta_0$  and variance  $V(\theta_0)$  under  $H_0$ , and asymptotically normal with mean  $\theta_1$  and variance  $V(\theta_1)$  under  $H_1$ . The results show that the estimator  $\hat{\theta}_n$  is efficient under both hypotheses.

### Supplementary information

[Additional file 1](#) [Additional file 2](#) [Additional file 3](#) [Additional file 4](#) [Additional file 5](#) [Additional file 6](#) [Additional file 7](#) [Additional file 8](#) [Additional file 9](#) [Additional file 10](#) [Additional file 11](#) [Additional file 12](#) [Additional file 13](#) [Additional file 14](#) [Additional file 15](#) [Additional file 16](#) [Additional file 17](#) [Additional file 18](#) [Additional file 19](#) [Additional file 20](#) [Additional file 21](#) [Additional file 22](#) [Additional file 23](#) [Additional file 24](#) [Additional file 25](#) [Additional file 26](#) [Additional file 27](#) [Additional file 28](#) [Additional file 29](#) [Additional file 30](#) [Additional file 31](#) [Additional file 32](#) [Additional file 33](#) [Additional file 34](#) [Additional file 35](#) [Additional file 36](#) [Additional file 37](#) [Additional file 38](#) [Additional file 39](#) [Additional file 40](#) [Additional file 41](#) [Additional file 42](#) [Additional file 43](#) [Additional file 44](#) [Additional file 45](#) [Additional file 46](#) [Additional file 47](#) [Additional file 48](#) [Additional file 49](#) [Additional file 50](#) [Additional file 51](#) [Additional file 52](#) [Additional file 53](#) [Additional file 54](#) [Additional file 55](#) [Additional file 56](#) [Additional file 57](#) [Additional file 58](#) [Additional file 59](#) [Additional file 60](#) [Additional file 61](#) [Additional file 62](#) [Additional file 63](#) [Additional file 64](#) [Additional file 65](#) [Additional file 66](#) [Additional file 67](#) [Additional file 68](#) [Additional file 69](#) [Additional file 70](#) [Additional file 71](#) [Additional file 72](#) [Additional file 73](#) [Additional file 74](#) [Additional file 75](#) [Additional file 76](#) [Additional file 77](#) [Additional file 78](#) [Additional file 79](#) [Additional file 80](#) [Additional file 81](#) [Additional file 82](#) [Additional file 83](#) [Additional file 84](#) [Additional file 85](#) [Additional file 86](#) [Additional file 87](#) [Additional file 88](#) [Additional file 89](#) [Additional file 90](#) [Additional file 91](#) [Additional file 92](#) [Additional file 93](#) [Additional file 94](#) [Additional file 95](#) [Additional file 96](#) [Additional file 97](#) [Additional file 98](#) [Additional file 99](#) [Additional file 100](#)

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•  $\int_0^1 x^2 dx = \frac{1}{3}$   $\int_0^1 x^3 dx = \frac{1}{4}$   $\int_0^1 x^4 dx = \frac{1}{5}$   $\int_0^1 x^5 dx = \frac{1}{6}$   $\int_0^1 x^6 dx = \frac{1}{7}$   $\int_0^1 x^7 dx = \frac{1}{8}$   $\int_0^1 x^8 dx = \frac{1}{9}$   $\int_0^1 x^9 dx = \frac{1}{10}$