

Let μ_0 = The mean amount of loan disbursements for public universities in dollars

Let μ_1 = The mean amount of loan disbursements for private universities in dollars

Null hypothesis H_0 : $\mu_0 = \mu_1$

Null hypothesis H_A : $\mu_0 \neq \mu_1$

p-value: 1.3064241355387196e-07

Because the p-value of $\approx 0 \leq \alpha = 0.05$, we reject the null hypothesis that the mean amount of loan disbursements for public universities in dollars is equal to the mean amount of loan disbursements for private universities in dollars. There is convincing statistical evidence that the mean amount of loan disbursements for public universities in dollars is not equal to the mean amount of loan disbursements for private universities in dollars.

While the z-test resulted in rejecting the null hypothesis that the mean amount of loan disbursements for public universities is equal to the mean amount of loan disbursements for private universities, it's important to recognize that there is a possibility of a Type I error. A Type I error occurs when we incorrectly reject a true null hypothesis. In other words, we find convincing evidence for H_A , but H_0 is actually true. In this context, it means there's a small chance that we concluded there is a difference in the mean amount of loan disbursements between public and private universities when, in fact, there is no actual difference.