# UNDERSTANDING THE SIGNIFICANCE OF SIGNIFICANCE

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## ABSTRACT

This dissertation discusses levels of significance ($\alpha$) in hypothesis testing. Motivated by the lack of mathematical basis for using 0.01, 0.05 or 0.1 predominantly as the level of significance, we ask ourselves the question of what the true mean value of $\alpha$ could be. As our first step in this direction, we take the levels of significance used in a random (large) sample of research articles published by leading journals in the fields of economics and medicine. We then construct 90%, 95% and 99% confidence intervals for the true mean value of $\alpha$. Our findings for economics research reveal that none of the confidence intervals encompass the corresponding level of significance value. The results are similar for medical research, except for the 0.05 level of significance. We also make an interesting observation that the claim that *the true mean value of α for economics research is 0.02* is not rejected at the 0.02 level of significance. This motivates us to find the distribution of $\alpha$. We leave this problem for future research.