

time changing distributions, what is significant ?

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Dear fellow statisticians,

I am struggling with the task of quantifying the "statistical significance" of changes in a discrete distribution over time. I am not even sure whether this is a well-posed problem to begin with. If I was to measure e.g. the age distribution of people entering a building on a daily basis, I would naturally observe fluctuations in that distribution. Clearly, small variations would be interpreted as "sampling noise" whereas major shifts would indicate sth. more substantial. How would I quantify this ?

Would a ChiSquare test be an appropriate test for testing overall stationarity ? Or a two-way ANOVA decomposition ? Or should I look at the variance of a multinomial distribution instead ?

Also, what if wanted to test specific days for significant deviation from my Null model instead of overall ?

Thanking you!

Markus

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