Robustness of $PESEL^{homo}$ and $PESEL^{hetero}$

In this supplementary materials we present in detail comparison between different versions of PESEL criterion, depending on the assumed asymptotics and prior distribution. We compare those methods in the same simulation scenarios described in the paper, namely with noise drawn from Student distribution instead of Normal, with noise drawn from Log-normal distribution and with surplus noisy variables.

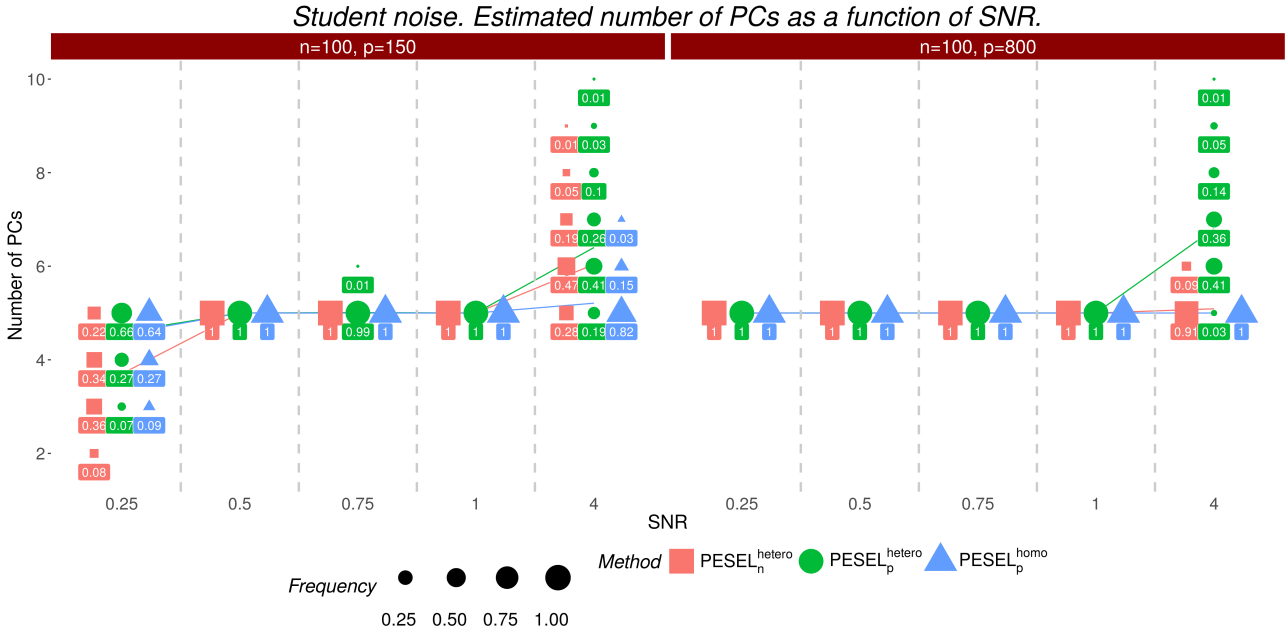

Figure 1: Data drawn according to the Scenario 4 (noise from Student distribution). True number of components is 5. Size of the symbol is proportional to the particular results frequency. Lines represent mean estimated number of Principal Components. Results are for number of variables 150 and 800. Number of observations is constant and equal 100.

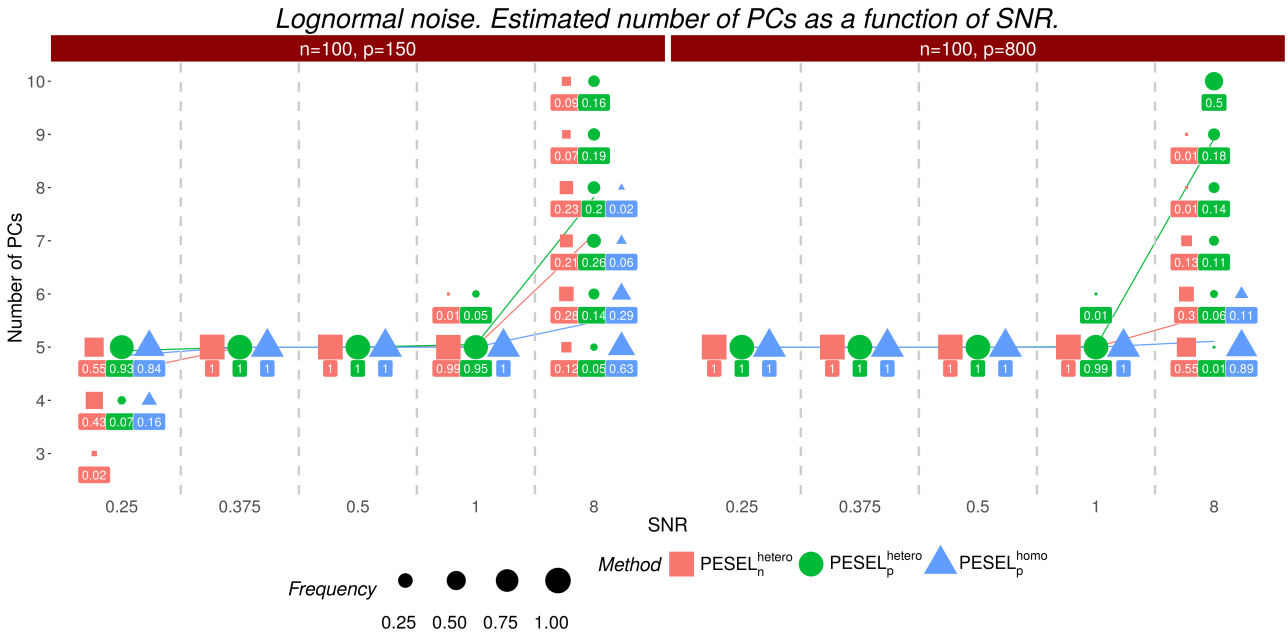

Figure 2: Data drawn according to the Scenario 5 (noise from Lognormal distribution) with parameters $\mu = 2$, $\sigma^2 = 1.2$. True number of components is 5. Size of the symbol is proportional to the particular results frequency. Lines represent mean estimated number of Principal Components. Results are for number of variables 150 and 800. Number of observations is constant and equal 100.

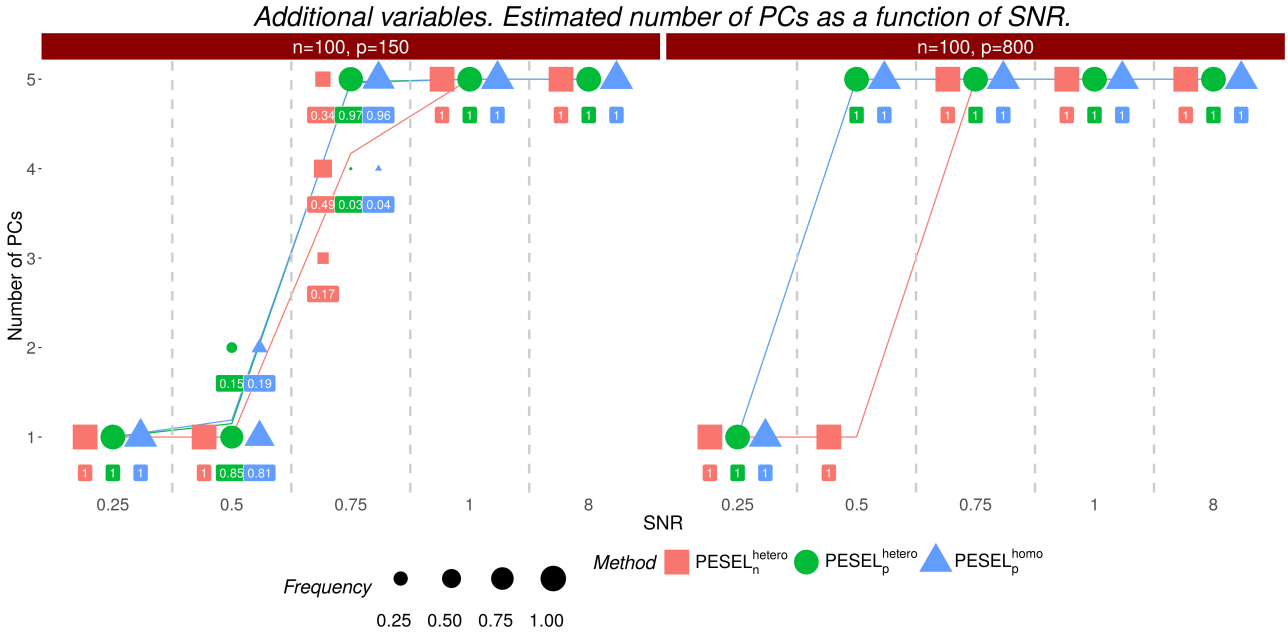

Figure 3: Data drawn according to the Scenario 6 (surplus noisy variables). True number of components is 5. Size of the symbol is proportional to the particular results frequency. Lines represent mean estimated number of Principal Components. Results are for number of variables 150 and 800. Number of observations is constant and equal 100.