$$\text{Frobenius norm}$$

$$\|\cdot\|_\Sigma \quad \text{entropy loss}$$

$$\text{tr}(\hat{\Sigma} - \Sigma)^2$$

$$\text{tr}(\hat{\Sigma} \Sigma^{-1} - I)^2$$

$$\text{tr}(\hat{\Sigma} \Sigma^{-1} - I) - \log |\hat{\Sigma} \Sigma^{-1}| - p$$

Figure 1: (a), (c) and (e): The averages of errors over 500 simulations for $\hat{\Sigma}$ (solid curve) and $\hat{\Sigma}_{\text{sample}}$ (dashed curve) against the dimensionality $p$ under the Frobenius norm, the norm $\|\cdot\|_\Sigma$ and the entropy losses, respectively. (b), (d) and (f): The standard deviations of errors over 500 simulations for $\hat{\Sigma}$ (solid curve) and $\hat{\Sigma}_{\text{sample}}$ (dashed curve) against the dimensionality $p$ under the Frobenius norm, the norm $\|\cdot\|_\Sigma$ and the entropy losses, respectively.

Figure 2: (a) The averages of errors under the Frobenius norm over 500 simulations for $\hat{\Sigma}^{-1}$ (solid curve) and $\hat{\Sigma}_{\text{sample}}^{-1}$ (dashed curve) against the dimensionality $p$. (b) The standard deviations of errors under the Frobenius norm over 500 simulations for $\hat{\Sigma}^{-1}$ (solid curve) and $\hat{\Sigma}_{\text{sample}}^{-1}$ (dashed curve) against the dimensionality $p$. 

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