

Figure S4: The  $r^2$  value of the regression between  $N_e$  and  $U_{id}$  under the null hypothesis, as a function of the root mean square error (RMSE) of estimates of  $u_{bs}$ . Errors in the estimate of  $u_{bs}$  and  $u_{id}$  are assumed to be identical. The errors are assumed to be log normally distributed (see main text). The horizontal red line is drawn at t value of 0.89, the  $r^2$  of the observed data.