

The parameter estimate of the gender effect and goodness of fit for bacteria *Anaerotruncus* (proportion of zeros: 18%) using different methods.

Model	Logit*		Count distribution		P-value for overall effect**	AIC
	$\beta_1$ (SE)	$Pr(>  t )$	$\gamma_1$ (SE)	$Pr(>  t )$		
LOLS	NA	NA	-0.368 (0.107)	$6.48 \times 10^{-4}$	$6.48 \times 10^{-4}$	3082 <sup>††</sup>
Poisson	NA	NA	-0.371 (0.029)	$< 10^{-6}$	$< 10^{-6}$	9950
NB	NA	NA	-0.330 (0.129)	0.010	0.010	3083 <sup>†††</sup>
WRS	NA	NA	NA	NA	0.002	NA
2P-LOLS	0.730(0.251)	0.004	-0.238 (0.120)	0.047	0.002	3140
PH	0.715(0.252)	0.005	-0.260 (0.029)	$< 10^{-6}$	$1.78 \times 10^{-4}$	8748
ZIP	0.710 (0.252)	0.005	-0.260 (0.029)	$< 10^{-6}$	$1.76 \times 10^{-4}$	8770
<b>NBH</b>	<b>0.715(0.252)</b>	<b>0.005</b>	<b>-0.237 (0.157)</b>	<b>0.130</b>	<b>0.006</b>	<b>3075</b> <sup>†</sup>
ZINB	7.260 (24.705)	0.769	-0.298 (0.137)	0.029	0.034	3089
2P-WRS	NA	NA	NA	NA	0.005	NA