Diagnostics

Relationship between predicted proportions and leverage (h_j) values

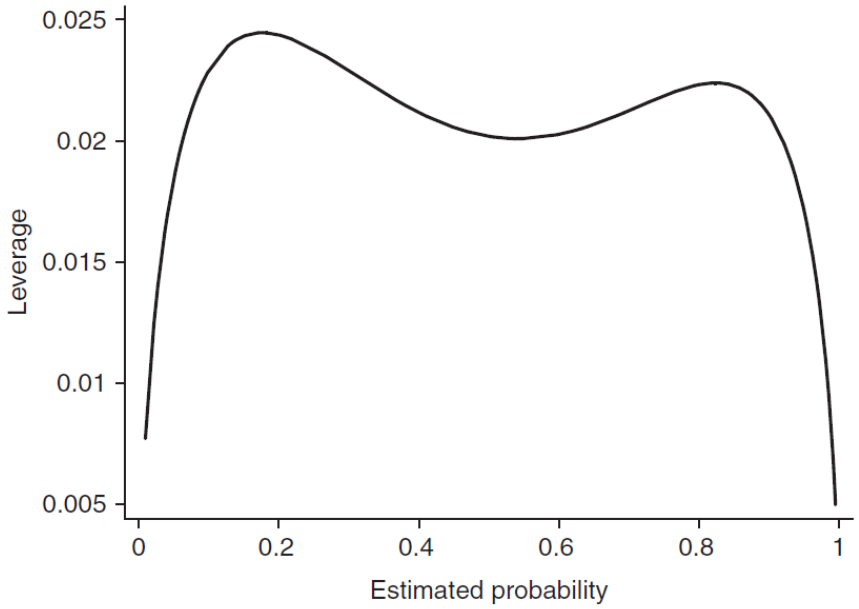

Figure 5.11 Plot of the leverage (h) versus the estimated logistic probability ($\hat{\pi}$) for a hypothetical univariable logistic regression model.

Hosmer Jr, D. W., Lemeshow, S., & Sturdivant, R. X. (2013). *Applied logistic regression*. New York: Wiley. (p. 190)

Because other diagnostics, such as $\Delta\chi^2$ and $\Delta\beta$ are a function of leverage, these values will be impacted at the extremes of predicted probabilities as well.

Some Suggested Cutoffs for Logistic Diagnostics

Table 5.9 Likely Values of Each of the Diagnostic Statistics ΔX^2, $\Delta\hat{\beta}$, and h Within Each of Five Regions Defined by the Value of the Estimated Logistic Probability ($\hat{\pi}$)

$\hat{\pi}$	ΔX^2	$\Delta\hat{\beta}$	h
<0.1	Large or Small	Small	Small
0.1–0.3	Moderate	Large	Large
0.3 – 0.7	Moderate to Small	Moderate	Moderate to Small
0.7 – 0.9	Moderate	Large	Large
>0.9	Large or Small	Small	Small

Hosmer Jr, D. W., Lemeshow, S., & Sturdivant, R. X. (2013). *Applied logistic regression*. New York: Wiley. (p. 193)