



Figure 3.4. Support of the Density f_{XY} of Example 3.1. Panel (a) shows the support for $g(x) = x$ and $\epsilon = 1$, which implies $\rho_{XY} = 0.98$. Panel (b) shows the support for $g(x) = x$ and $\epsilon = 5$, which implies $\rho_{XY} = 0.71$. Panel (c) shows the support for $g(x) = (x - 5)^2$ and $\epsilon = 1$, which implies $\rho_{XY} = 0.0$. The horizontal line in Panel (c) is the linear predictor $y = \mu_Y + \beta^*(x - \mu_X)$; the line within the shaded region is a plot of the conditional expectation $y = \mathcal{E}(Y|X)(x)$.