Spatial Analysis of Tuberculosis Cases in Migrants and Permanent Residents, Beijing, 2000–2006

Technical Appendix

1. Detail of equation 1:

\[
\text{case}_j \sim \text{Poisson}(\pi_j)
\]

\[
\log(\pi_j) = \text{offset}_j + \beta_{1y} \text{cons}
\]

\[
\beta_{1y} = -8.280(0.096) + \nu_{1y}
\]

\[
\begin{bmatrix}
\nu_{1y} \\
\nu_{2y}
\end{bmatrix} \sim \text{N}(0, \Omega_y) : \Omega_y = \begin{bmatrix}
0.150(0.056) \\
0.067(0.068) & 0.342(0.124)
\end{bmatrix}
\]

\[
\text{var(\text{case}_j | \pi_j)} = 8.050(0.285)\pi_j
\]

2. Detail of equation 2:

\[
\text{case}_j \sim \text{Poisson}(\pi_j)
\]

\[
\log(\pi_j) = \text{offset}_j + \beta_{1y} \text{cons} + \beta_{y} \text{state}_j + 0.948(0.035)\text{age} + 0.501(0.031)\text{gender}_j
\]

\[
\beta_{1y} = -9.823(0.117) + \nu_{1y}
\]

\[
\beta_{y} = 0.795(0.144) + \nu_{2y}
\]

\[
\begin{bmatrix}
\nu_{1y} \\
\nu_{2y}
\end{bmatrix} \sim \text{N}(0, \Omega_y) : \Omega_y = \begin{bmatrix}
0.200(0.069) \\
-0.067(0.068) & 0.342(0.124)
\end{bmatrix}
\]

\[
\text{var(\text{case}_j | \pi_j)} = 2.291(0.082)\pi_j
\]