Fixed Effects and Random Effects Estimation of Higher-Order Spatial Autoregressive Models with Spatial Autoregressive and Heteroskedastic Disturbances

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We are grateful to Di Liu for pointing out two errors in the definition of the matrices \( A_{1,N}^{s,f} \) and \( A_{3,N}^{s,f} \), appearing in the quadratic form of the moment conditions in equations (12a) and (12c).

In equation (12a), the correct definition of matrix \( A_{1,N}^{s,f} \) is

\[
A_{1,N}^{s,f} = Q_{0,N}(I_T \otimes M_{f,N}^lM_{s,N}) - \text{diag}^{NT}_{s=1}[Q_{0,N}(I_T \otimes M_{f,N}^lM_{s,N})_{nn}].
\]

In equation (12c), the correct definition of matrix \( A_{3,N}^{s,f} \) is

\[
A_{3,N}^{s,f} = Q_{I,N}(I_T \otimes M_{f,N}^lM_{s,N}) - \text{diag}^{NT}_{s=1}[Q_{I,N}(I_T \otimes M_{f,N}^lM_{s,N})_{nn}].
\]

The definition of the GM estimator (equations (13)-(18)) does not make use of the matrices \( A_{1,N}^{s,f} \) and \( A_{3,N}^{s,f} \) and remains unchanged. The only consequential error appears in the derivation of the variance-covariance matrix of the GM estimator, where the matrices \( A_{1,N}^{s,f} \) and \( A_{3,N}^{s,f} \) enter through equation (22) and show up ultimately in the definition of the blocks of the matrices \( \overline{A}_{1,N}^{s,f} \) and \( \overline{A}_{3,N}^{s,f} \) in equations (26a)-(26d).

In equation (26a), the correct definitions of the blocks of matrix \( \overline{A}_{1,N}^{s,f} \) are

\[
\begin{align*}
A_{1,N}^{s,f} & = \frac{1}{2(T-1)}[A_{1,N}^{s,f} + (A_{1,N}^{s,f})'] \\
A_{1,p,N}^{s,f} & = -\frac{1}{(T-1)}(e_T' \otimes I_N)\text{diag}^{NT}_{s=1}[Q_{0,N}(I_T \otimes M_{f,N}^lM_{s,N})](e_T \otimes I_N) \\
A_{1,v,N}^{s,f} & = -\frac{1}{(T-1)}\text{diag}^{NT}_{s=1}[Q_{0,N}(I_T \otimes M_{f,N}^lM_{s,N})](e_T \otimes I_N).
\end{align*}
\]

In equation (26c), the correct definitions of the blocks of matrix \( \overline{A}_{3,N}^{s,f} \) are

\[
\begin{align*}
A_{3,N}^{s,f} & = \frac{1}{2}[Q_{I,N}(I_T \otimes (M_{f,N}^lM_{s,N} + M_{f,N}^lM_{s,N})) - 2\text{diag}^{NT}_{s=1}((Q_{I,N}(I_T \otimes (M_{f,N}^lM_{s,N})))] \text{ or} \\
A_{3,N}^{s,f} & = \frac{1}{2}[A_{3,N}^{s,f} + (A_{3,N}^{s,f})'], \\
A_{3,p,N}^{s,f} & = \frac{1}{2}\{T(M_{f,N}^lM_{s,N} + M_{f,N}^lM_{s,N}) - 2(e_T' \otimes I_N)\text{diag}^{NT}_{s=1}[(Q_{I,N}(I_T \otimes (M_{f,N}^lM_{s,N}))](e_T \otimes I_N))}, \\
A_{3,v,N}^{s,f} & = \frac{1}{2}\{(e_T' \otimes (M_{f,N}^lM_{s,N} + M_{f,N}^lM_{s,N})) - 2\text{diag}^{NT}_{s=1}[(Q_{I,N}(I_T \otimes (M_{f,N}^lM_{s,N}))](e_T \otimes I_N)).
\end{align*}
\]