Supplement to "Consistent Estimation of Linear Regression Models Using Matched Data"

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A Remainder of Proof of Theorem 3: Derivation of Asymptotic Variances

This section derives asymptotic variances V_I, V_{II} and V_{III} in Theorem 3. Denote

$$\begin{aligned}
\Omega_{11} &= \lim_{\substack{n,m\to\infty \\ n/m\to\kappa\in[0,\infty)}} Var\left(\sqrt{n}E_{R_W}\right), \\
\Omega_{12} &= \lim_{\substack{n,m\to\infty \\ n/m\to\kappa\in(0,\infty)}} Cov\left(\sqrt{n}E_{R_W}, \sqrt{m}E_{\Sigma_2}\right), \text{ and} \\
\Omega_{22} &= \lim_{m\to\infty} Var\left(\sqrt{m}E_{\Sigma_2}\right).
\end{aligned}$$

Then, $V_I = P_W^{-1}\Omega P_W^{-1}$, $V_{II} = P_W^{-1}\Omega_{11}P_W^{-1}$ and $V_{III} = P_W^{-1}\Omega_{22}P_W^{-1}$, where

$$\Omega := \Omega_{11} + \sqrt{\kappa}\left(\Omega_{12} + \Omega_{12}'\right) + \kappa\Omega_{22}.$$

In what follows, we derive Ω_{11}, Ω_{12}, and Ω_{22}.

(i) Ω_{22}: Assume without loss of generality that $\mathcal{S}_2$ is an ordered sample, i.e., $\mathcal{S}_2 = \{X_{2j}, Z_j\}_{j=1}^m = \left\{X_{2(j)}, Z_{(j)}\right\}_{j=1}^m$. Lemma A3 implies that

$$\sqrt{m}E_{\Sigma_2} = \sum_{j=2}^m \frac{1}{\sqrt{m}}\left\{\frac{1}{K}\left(\frac{\Delta\eta_{2j}\Delta\eta_{2j}'}{2} - \Sigma_2\right)\beta_2\right\} + o_p\left(m^{-1/2}\right).$$

Because $\left\{\left(\Delta\eta_{2j}\Delta\eta_{2j}'/2\right)-\Sigma_2\right\}\beta_2$ is one-dependent, it is easy to see that $\Omega_{22} = (1/K^2)\,\text{diag}\left\{0_{(d_1+1)\times(d_1+1)}, \Gamma(-1)+\Gamma(0)+\Gamma(1), 0_{d_3\times d_3}\right\}$, where

$$\Gamma(\ell) = E\left\{\left(\frac{\Delta\eta_{2j}\Delta\eta_{2j}'}{2}-\Sigma_2\right)\beta_2\beta_2'\left(\frac{\Delta\eta_{2j-\ell}\Delta\eta_{2j-\ell}'}{2}-\Sigma_2\right)\right\}$$

is the ℓth autocovariance of $\left\{\left(\Delta\eta_{2j}\Delta\eta_{2j}'/2\right)-\Sigma_2\right\}\beta_2$. Furthermore, a straightforward calculation yields

$$\Gamma(0) = \frac{1}{2}E\left\{(\eta_2\eta_2'-\Sigma_2)\beta_2\beta_2'(\eta_2\eta_2'-\Sigma_2)\right\}+\frac{1}{2}\left\{(\beta_2\Sigma_2\beta_2')\Sigma_2+\Sigma_2\beta_2\beta_2'\Sigma_2\right\} := \frac{1}{2}\Xi+\frac{1}{4}\Psi$$

and $\Gamma(\pm 1) = (1/4)\,\Xi$. Therefore,

$$\Omega_{22} = \frac{1}{K^2}\,\text{diag}\left\{0_{(d_1+1)\times(d_1+1)}, \Xi+\frac{1}{2}\Psi, 0_{d_3\times d_3}\right\}.$$

(ii) Ω_{11}: Define $\phi_{i,j(i)} := W_{i,j(i)}\left(u_i+\eta_{2i}'\beta_2\right)$ and

$$\psi_{i,j(i)} := W_{i,j(i)}\eta_{2j(i)}'\beta_2-\frac{1}{K}\Sigma\theta = \begin{bmatrix}\eta_{2j(i)}'\beta_2\\ X_{1i}\eta_{2j(i)}'\beta_2\\ \left(X_{2j(i)}\eta_{2j(i)}'-\frac{1}{K}\Sigma_2\right)\beta_2\\ Z_i\eta_{2j(i)}'\beta_2\end{bmatrix} := \begin{bmatrix}\psi_{i,j(i),0}\\ \psi_{i,j(i),1}\\ \psi_{i,j(i),2}\\ \psi_{i,j(i),3}\end{bmatrix}.$$

Then,

$$\sqrt{n}E_{R_W} = \sum_{i=1}^{n}\frac{1}{\sqrt{n}}\phi_{i,j(i)}-\sum_{i=1}^{n}\frac{1}{\sqrt{n}}\psi_{i,j(i)}.$$

It is easy to check that $E\left(\phi_{i,j(i)}\phi_{h,j(h)}'\right) = E\left(\phi_{i,j(i)}\psi_{h,j(h)}'\right) = 0_{(d+1)\times(d+1)}$ for $i\neq h$. Hence, $\Omega_{11} = \Omega_{11A}+\Omega_{11B}$, where

$$\Omega_{11A} := Var\left(\phi_{i,j(i)}-\psi_{i,j(i)}\right) = E\left\{\left(W_{i,j(i)}\epsilon_{i,j(i)}+\frac{1}{K}\Sigma\theta\right)\left(W_{i,j(i)}\epsilon_{i,j(i)}+\frac{1}{K}\Sigma\theta\right)'\right\}$$

and Ω_{11B} is the long-run variance of $\psi_{i,j(i)}$ minus $Var\left(\psi_{i,j(i)}\right)$.

To derive Ω_{11B}, suppose that $\psi_{i,j(i)}$ and $\psi_{h,j(h)}$ $(i\neq h)$ have the unit j in $\mathcal{S}_2$ in common. Because the probability that they have no other units in $\mathcal{S}_2$ in common, conditional on sharing the unit j, is $1-\ (K-1)/(m-1) = 1-O\left(m^{-1}\right)$, we may safely concentrate on the case in which the unit j is the only source of generating the covariance between them. Then, we find the terms involving the unit j that have non-zero expectations in $\psi_{i,j(i)}\psi'_{h,j(h)}$. Obviously, $\eta'_{2j}\beta_2\beta'_2\eta_{2j}/K^2$ in $\psi_{i,j(i),0}\psi'_{h,j(h),0}$, $X_{1i}\eta'_{2j}\beta_2\beta'_2\eta_{2j}X_{1h}/K^2$ in $\psi_{i,j(i),1}\psi'_{h,j(h),1}$, $X_{1i}\eta'_{2j}\beta_2\beta'_2\eta_{2j}Z_h/K^2$ in $\psi_{i,j(i),1}\psi'_{h,j(h),3}$, and $Z_i\eta'_{2j}\beta_2\beta'_2\eta_{2j}Z_h/K^2$ in $\psi_{i,j(i),3}\psi'_{h,j(h),3}$ have non-zero expectations, which are $\beta_2\Sigma_2\beta'_2/K^2$, $(\beta_2\Sigma_2\beta'_2)\, E(X_1)\, E(X_1)'/K^2$, $(\beta_2\Sigma_2\beta'_2)\, E(X_1)\, E(Z)'/K^2$, and $(\beta_2\Sigma_2\beta'_2)\, E(Z)\, E(Z)'/K^2$, respectively. For $\psi_{i,j(i),0}\psi'_{h,j(h),2}$, $\psi_{i,j(i),1}\psi'_{h,j(h),2}$ and $\psi_{i,j(i),3}\psi'_{h,j(h),2}$, write $g_{2j(i)} = (1/K)\sum_{j\in\mathcal{J}_K(i)} g_2(Z_j)$. The terms with non-zero expectations are $\eta'_{2j}\beta_2\beta'_2\eta_{2j}g'_{2j(h)}/K^2$, $X_{1i}\eta'_{2j}\beta_2\beta'_2\eta_{2j}g'_{2j(h)}/K^2$ and $Z_i\eta'_{2j}\beta_2\beta'_2\eta_{2j}g'_{2j(h)}/K^2$, and their expectations are $(\beta_2\Sigma_2\beta'_2)\, E(X_2)'/K^2$, $(\beta_2\Sigma_2\beta'_2)\, E(X_1)\, E(X_2)'/K^2$ and $(\beta_2\Sigma_2\beta'_2)\, E(Z)\, E(X_2)'/K^2$, respectively, due to $X_{2j(h)} = g_{2j(h)} + \eta_{2j(h)}$. Finally, recognizing that the terms including the unit j in $\psi_{i,j(i),2}$ are

$$\frac{1}{K^2}\left\{g_2(Z_j)\,\eta'_{2j}\beta_2 + \sum_{\ell\in\mathcal{J}_K(i),\ell\neq j} g_2(Z_\ell)\,\eta'_{2j}\beta_2 + \left(\eta_{2j}\eta'_{2j} - \Sigma_2\right)\beta_2 + \eta_{2j}\sum_{\ell\in\mathcal{J}_K(i),\ell\neq j}\eta'_{2\ell}\right\},$$

we obtain the terms with non-zero expectations in $\psi_{i,j(i),2}\psi'_{h,j(h),2}$ as

$$\begin{aligned}\frac{1}{K^4}\Bigg\{ & g_2(Z_j)\,\eta'_{2j}\beta_2\beta'_2\eta_{2j}g_2(Z_j) + \sum_{\ell\in\mathcal{J}_K(i),\ell\neq j} g_2(Z_\ell)\,\eta'_{2j}\beta_2\beta'_2\eta_{2j}g_2(Z_j)\\ & + g_2(Z_j)\,\eta'_{2j}\beta_2\beta'_2\eta_{2j}\sum_{\ell\in\mathcal{J}_K(h),\ell\neq j} g_2(Z_\ell) + \sum_{\ell\in\mathcal{J}_K(i),\ell\neq j} g_2(Z_\ell)\,\eta'_{2j}\beta_2\beta'_2\eta_{2j}\sum_{\ell\in\mathcal{J}_K(h),\ell\neq j} g_2(Z_\ell)\\ & + \left(\eta_{2j}\eta'_{2j} - \Sigma_2\right)\beta_2\beta'_2\left(\eta_{2j}\eta'_{2j} - \Sigma_2\right)\Bigg\},\end{aligned}$$

which has the expected value

$$\frac{1}{K^2}\left[(\beta_2\Sigma_2\beta'_2)\, E(X_2)\, E(X_2)' + \frac{1}{K^2}\left\{(\beta_2\Sigma_2\beta'_2)\, Var(g_2(Z)) + \Xi\right\}\right].$$

Let $N_K(j)$ be the number of times the unit j in $\mathcal{S}_2$ is chosen as a match, i.e., $N_K(j) := \sum_{i=1}^{n}\mathbf{1}\{j\in\mathcal{J}_K(i)\}$. Then, the unit j appears $N_K(j)\{N_K(j)-1\}$ times among all covariance calculations as above. Since $N_K(j) \sim Bin(n, K/m)$,

$$E[N_K(j)\{N_K(j)-1\}] = K^2\left(\frac{n}{m}\right)\left(\frac{n}{m}-\frac{1}{m}\right).$$

In conclusion,

$$\begin{aligned}
\Omega_{11B} = & \lim_{\substack{n,m\to\infty \\ n/m\to\kappa\in[0,\infty)}} \sum_{j=1}^{m} K^2\left(\frac{n}{m}\right)\left(\frac{n}{m}-\frac{1}{m}\right)\left(\frac{1}{\sqrt{n}}\right)^2 \\
& \times \frac{1}{K^2}\left[(\beta_2\Sigma_2\beta_2')\begin{bmatrix} 1 \\ E(X_1) \\ E(X_2) \\ E(Z)\end{bmatrix}\begin{bmatrix} 1 & E(X_1)' & E(X_2)' & E(Z)'\end{bmatrix}\right. \\
& \left. +\frac{1}{K^2}\operatorname{diag}\left\{0_{(d_1+1)\times(d_1+1)}, (\beta_2\Sigma_2\beta_2')Var\{g_2(Z)\}+\Xi, 0_{d_3\times d_3}\right\}\right]\left\{1+O\left(m^{-1}\right)\right\} \\
= & \begin{cases} \kappa\left[(\beta_2\Sigma_2\beta_2')E(W)E(W)' \right. \\ \quad \left. +\frac{1}{K^2}\operatorname{diag}\left\{0_{(d_1+1)\times(d_1+1)}, (\beta_2\Sigma_2\beta_2')Var\{g_2(Z)\}+\Xi, 0_{d_3\times d_3}\right\}\right] & \text{if } n/m\to\kappa\in(0,\infty) \\ 0_{(d+1)\times(d+1)} & \text{if } n/m\to 0\end{cases},
\end{aligned}$$

which implies that $\Omega_{11} = \Omega_{11A}$ if $n/m \to 0$.

(iii) Ω_{12}: Obviously, $E\left[\phi_{i,j(i)}\beta_2'\{(\Delta\eta_{2\ell}\Delta\eta_{2\ell}'/2)-\Sigma_2\}\right] = 0_{(d+1)\times d_2}$ for any i,ℓ. On the other hand, when $\psi_{i,j(i)}$ includes the unit j, $\psi_{i,j(i)}\beta_2'\left[(1/K)\left\{\left(\Delta\eta_{2j}\Delta\eta_{2j}'/2\right)-\Sigma_2\right\}\right]$ and $\psi_{i,j(i)}\beta_2'\left[(1/K)\left\{\left(\Delta\eta_{2j+1}\Delta\eta_{2j+1}'/2\right)-\Sigma_2\right\}\right]$ have terms with non-zero expectations. For each of these, the only correlated term is $(2K^3)^{-1}\left(\eta_{2j}\eta_{2j}'-\Sigma_2\right)\beta_2\beta_2'\left(\eta_{2j}\eta_{2j}'-\Sigma_2\right)$. Because the unit j appears $N_K(j)$ times among all such covariance calculations and $E\{N_K(j)\} = K(n/m)$, (the negative of) the $(2,2)$ block of Ω_{12} is given by

$$\lim_{\substack{n,m\to\infty \\ n/m\to\kappa\in(0,\infty)}} \sum_{j=1}^{m} K\left(\frac{n}{m}\right)\frac{1}{\sqrt{mn}}2\cdot\frac{1}{2K^3}\Xi\left\{1+O\left(m^{-1}\right)\right\} = \frac{\sqrt{\kappa}}{K^2}\Xi,$$

which completes the proof. ■

Remark. The fact that $\Omega_{11B} = 0_{(d+1)\times(d+1)}$ when $n/m \to 0$ can be interpreted as follows. If $m \gg n$, then there are quite a few candidates of matches in $\mathcal{S}_2$ for the unit i in $\mathcal{S}_1$. Sets of K matches chosen for units i and $h\,(\neq i)$ become different, and as a consequence $N_K(j)$ becomes at most one. In this environment, $\psi_{i,j(i)}$ and $\psi_{h,j(h)}$ tend to have no units from $\mathcal{S}_2$ in common, and $\Omega_{11B} = 0_{(d+1)\times(d+1)}$ follows.

B Comprehensive Simulation Results

This section provides a comprehensive version of simulation results in Section 4 including Models A-C. Tables B1-B3 present the results for $d_3 = 1, 2, 3$, respectively. Letters "A" and "B" right after MSOLS, MSII and MSII-FM indicate that $W_{ij(i)}$ and $W^{\dagger}_{ij(i)}$ are chosen as the regressor, respectively. For each estimator, the following performance measures are computed: (i) $Mean$ (simulation average of the parameter estimate); (ii) SD (simulation standard deviation of the parameter estimate); (iii) $RMSE$ (root mean-squared error of the parameter estimate); (iv) $\overline{SE}$ (simulation average of the standard error); and (v) CR (coverage rate for the nominal 95% confidence interval). Since MSOLS is inconsistent and limiting distributions of the initial MSII for $d_3 = 2, 3$ (denoted as "*initial*") are not available, their standard errors are not well defined. Accordingly, $\overline{SE}$ and CR are not computed for these estimators. Furthermore, only results of MSII-FM for $K = 1$ are presented, because those for $K \geq 2$ are quite poor.

Table B1: Monte Carlo Results ($d_3 = 1$)

Model A: $g_{22}(z) = z + (5/\tau)\,\phi(z/\tau)$, $\tau = 0.75$

(n,m)	Estimator		β_{22}					γ_1				
$(1000, 500)$	OLS*	*Mean*	1.0000					1.0003				
$\Longrightarrow \kappa = 2$		*SD*	0.0266					0.0592				
		RMSE	0.0266					0.0592				
		$\overline{SE}$	0.0259					0.0571				
		CR	95%					94%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.4362	0.5736	0.7167	0.8257	0.8781	1.5193	1.3820	1.2513	1.1527	1.1029
		SD	0.0747	0.0831	0.0967	0.1096	0.1192	0.1409	0.1352	0.1379	0.1441	0.1482
		RMSE	0.5687	0.4345	0.2993	0.2058	0.1705	0.5380	0.4052	0.2866	0.2100	0.1804
	MSOLS-B	*Mean*	0.4362	0.5736	0.7168	0.8259	0.8786	1.5190	1.3817	1.2510	1.1526	1.1033
		SD	0.0748	0.0831	0.0967	0.1096	0.1194	0.1409	0.1353	0.1380	0.1443	0.1487
		RMSE	0.5687	0.4344	0.2992	0.2057	0.1703	0.5378	0.4049	0.2865	0.2100	0.1811
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSII-A	*Mean*	1.0766	1.0485	1.0337	1.0157	0.9816	0.9364	0.9625	0.9752	0.9886	1.0140
		SD	0.3625	0.2489	0.1872	0.1594	0.1451	0.3385	0.2414	0.1958	0.1756	0.1643
		RMSE	0.3705	0.2536	0.1902	0.1602	0.1462	0.3444	0.2443	0.1974	0.1759	0.1649
		$\overline{SE}$	0.3383	0.1925	0.1368	0.1168	0.1091	0.3112	0.1941	0.1518	0.1368	0.1308
		CR	96%	91%	86%	86%	84%	96%	91%	87%	87%	87%
	MSII-B	*Mean*	1.0767	1.0487	1.0339	1.0159	0.9821	0.9360	0.9621	0.9748	0.9883	1.0142
		SD	0.3624	0.2489	0.1872	0.1595	0.1452	0.3385	0.2414	0.1959	0.1757	0.1649
		RMSE	0.3705	0.2536	0.1903	0.1603	0.1463	0.3445	0.2443	0.1975	0.1761	0.1655
		$\overline{SE}$	0.3383	0.1925	0.1368	0.1168	0.1092	0.3113	0.1941	0.1518	0.1368	0.1311
		CR	96%	91%	86%	86%	85%	96%	91%	87%	87%	87%
$(1000, 1000)$	OLS*	*Mean*	1.0017					0.9955				
$\Longrightarrow \kappa = 1$		*SD*	0.0256					0.0575				
		RMSE	0.0257					0.0577				
		$\overline{SE}$	0.0259					0.0570				
		CR	95%					95%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.4376	0.5752	0.7151	0.8287	0.9005	1.5147	1.3768	1.2488	1.1501	1.0858
		SD	0.0636	0.0746	0.0819	0.0912	0.0977	0.1266	0.1219	0.1230	0.1257	0.1268
		RMSE	0.5660	0.4313	0.2964	0.1941	0.1395	0.5301	0.3961	0.2775	0.1958	0.1531
	MSOLS-B	*Mean*	0.4376	0.5752	0.7151	0.8287	0.9006	1.5147	1.3768	1.2487	1.1500	1.0860
		SD	0.0636	0.0746	0.0819	0.0912	0.0978	0.1266	0.1220	0.1231	0.1258	0.1270
		RMSE	0.5660	0.4313	0.2964	0.1941	0.1394	0.5300	0.3960	0.2775	0.1958	0.1534
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSII-A	*Mean*	1.0427	1.0280	1.0186	1.0123	1.0025	0.9621	0.9753	0.9841	0.9913	0.9980
		SD	0.2763	0.1932	0.1473	0.1257	0.1157	0.2591	0.1923	0.1608	0.1454	0.1369
		RMSE	0.2796	0.1952	0.1485	0.1264	0.1158	0.2618	0.1938	0.1616	0.1456	0.1369
		$\overline{SE}$	0.2673	0.1664	0.1269	0.1120	0.1058	0.2553	0.1757	0.1454	0.1338	0.1289
		CR	97%	92%	91%	93%	93%	96%	93%	92%	93%	94%
	MSII-B	*Mean*	1.0428	1.0280	1.0186	1.0124	1.0026	0.9621	0.9753	0.9840	0.9913	0.9981
		SD	0.2763	0.1932	0.1473	0.1258	0.1158	0.2591	0.1922	0.1608	0.1454	0.1371
		RMSE	0.2796	0.1952	0.1485	0.1264	0.1158	0.2619	0.1938	0.1616	0.1457	0.1371
		$\overline{SE}$	0.2673	0.1664	0.1269	0.1120	0.1058	0.2553	0.1757	0.1454	0.1339	0.1290
		CR	97%	92%	91%	93%	93%	96%	93%	92%	92%	94%

Table B1: *Continued*

Model A: *Continued*

(n, m)	Estimator		β_{22}					γ_1				
(1000, 2000)	OLS*	*Mean*	1.0005					0.9974				
$\Longrightarrow \kappa = 1/2$		*SD*	0.0261					0.0580				
		RMSE	0.0261					0.0581				
		$\overline{SE}$	0.0260					0.0571				
		CR	95%					94%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.4372	0.5733	0.7144	0.8313	0.9084	1.5131	1.3787	1.2499	1.1472	1.0793
		SD	0.0607	0.0682	0.0779	0.0827	0.0866	0.1273	0.1218	0.1208	0.1182	0.1207
		RMSE	0.5661	0.4321	0.2960	0.1879	0.1260	0.5287	0.3978	0.2776	0.1888	0.1444
	MSOLS-B	*Mean*	0.4372	0.5733	0.7144	0.8313	0.9084	1.5131	1.3787	1.2499	1.1472	1.0794
		SD	0.0607	0.0682	0.0779	0.0827	0.0865	0.1273	0.1218	0.1208	0.1182	0.1206
		RMSE	0.5661	0.4321	0.2960	0.1879	0.1260	0.5287	0.3978	0.2776	0.1888	0.1444
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSII-A	*Mean*	1.0421	1.0235	1.0172	1.0152	1.0112	0.9623	0.9807	0.9861	0.9886	0.9911
		SD	0.2415	0.1679	0.1324	0.1111	0.1013	0.2419	0.1814	0.1529	0.1342	0.1289
		RMSE	0.2451	0.1695	0.1335	0.1121	0.1020	0.2448	0.1824	0.1535	0.1346	0.1292
		$\overline{SE}$	0.2369	0.1557	0.1234	0.1106	0.1052	0.2317	0.1678	0.1429	0.1328	0.1284
		CR	95%	93%	92%	96%	96%	95%	94%	94%	95%	96%
	MSII-B	*Mean*	1.0421	1.0235	1.0173	1.0152	1.0112	0.9623	0.9806	0.9861	0.9886	0.9911
		SD	0.2415	0.1679	0.1324	0.1111	0.1013	0.2419	0.1814	0.1529	0.1342	0.1289
		RMSE	0.2451	0.1695	0.1335	0.1121	0.1019	0.2448	0.1824	0.1535	0.1347	0.1292
		$\overline{SE}$	0.2369	0.1557	0.1234	0.1106	0.1052	0.2317	0.1678	0.1429	0.1328	0.1284
		CR	95%	93%	92%	96%	96%	95%	94%	94%	95%	96%
(2000, 1000)	OLS*	*Mean*	0.9995					0.9983				
$\Longrightarrow \kappa = 2$		*SD*	0.0179					0.0407				
		RMSE	0.0179					0.0408				
		$\overline{SE}$	0.0183					0.0404				
		CR	95%					96%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.4352	0.5703	0.7090	0.8244	0.8980	1.5143	1.3794	1.2525	1.1498	1.0850
		SD	0.0542	0.0600	0.0665	0.0723	0.0781	0.0998	0.0958	0.0979	0.0992	0.1020
		RMSE	0.5674	0.4339	0.2985	0.1899	0.1285	0.5239	0.3913	0.2709	0.1797	0.1328
	MSOLS-B	*Mean*	0.4352	0.5703	0.7090	0.8244	0.8981	1.5142	1.3793	1.2525	1.1498	1.0851
		SD	0.0542	0.0600	0.0665	0.0723	0.0781	0.0998	0.0958	0.0979	0.0992	0.1020
		RMSE	0.5674	0.4339	0.2985	0.1899	0.1284	0.5238	0.3912	0.2708	0.1797	0.1329
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSII-A	*Mean*	1.0270	1.0147	1.0079	1.0066	0.9997	0.9750	0.9868	0.9929	0.9927	0.9977
		SD	0.2171	0.1581	0.1220	0.1029	0.0944	0.2044	0.1561	0.1313	0.1174	0.1119
		RMSE	0.2188	0.1588	0.1222	0.1031	0.0944	0.2060	0.1567	0.1315	0.1176	0.1119
		$\overline{SE}$	0.2120	0.1273	0.0927	0.0798	0.0749	0.1971	0.1302	0.1043	0.0948	0.0911
		CR	95%	88%	86%	87%	87%	96%	92%	88%	89%	90%
	MSII-B	*Mean*	1.0271	1.0148	1.0080	1.0066	0.9998	0.9749	0.9867	0.9928	0.9927	0.9978
		SD	0.2171	0.1582	0.1220	0.1029	0.0945	0.2044	0.1562	0.1313	0.1174	0.1119
		RMSE	0.2188	0.1589	0.1222	0.1031	0.0945	0.2060	0.1567	0.1315	0.1176	0.1119
		$\overline{SE}$	0.2120	0.1273	0.0927	0.0798	0.0749	0.1971	0.1302	0.1043	0.0948	0.0911
		CR	95%	88%	86%	87%	87%	96%	92%	88%	89%	90%

Table B1: *Continued*

Model A: *Continued*

(n, m)	Estimator		β_{22}					γ_1				
(2000, 2000)	OLS*	*Mean*	1.0005					0.9984				
$\Longrightarrow \kappa = 1$		*SD*	0.0178					0.0395				
		RMSE	0.0178					0.0396				
		$\overline{SE}$	0.0183					0.0404				
		CR	96%					95%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.4367	0.5726	0.7136	0.8268	0.9044	1.5130	1.3767	1.2484	1.1483	1.0806
		SD	0.0470	0.0527	0.0580	0.0642	0.0679	0.0907	0.0878	0.0872	0.0887	0.0906
		RMSE	0.5653	0.4306	0.2922	0.1847	0.1172	0.5210	0.3868	0.2633	0.1728	0.1213
	MSOLS-B	*Mean*	0.4367	0.5726	0.7136	0.8268	0.9044	1.5130	1.3767	1.2484	1.1483	1.0807
		SD	0.0470	0.0527	0.0580	0.0642	0.0679	0.0907	0.0878	0.0872	0.0887	0.0906
		RMSE	0.5653	0.4306	0.2922	0.1847	0.1172	0.5210	0.3868	0.2633	0.1728	0.1213
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSII-A	*Mean*	1.0218	1.0152	1.0130	1.0080	1.0059	0.9780	0.9848	0.9877	0.9920	0.9934
		SD	0.1728	0.1290	0.1005	0.0875	0.0802	0.1691	0.1335	0.1121	0.1022	0.0977
		RMSE	0.1741	0.1299	0.1013	0.0879	0.0804	0.1705	0.1344	0.1128	0.1025	0.0980
		$\overline{SE}$	0.1789	0.1149	0.0887	0.0783	0.0742	0.1722	0.1218	0.1019	0.0939	0.0907
		CR	96%	91%	92%	92%	92%	96%	92%	93%	93%	93%
	MSII-B	*Mean*	1.0218	1.0152	1.0130	1.0080	1.0059	0.9780	0.9847	0.9877	0.9919	0.9934
		SD	0.1728	0.1290	0.1005	0.0875	0.0802	0.1691	0.1335	0.1121	0.1022	0.0977
		RMSE	0.1741	0.1299	0.1013	0.0879	0.0804	0.1705	0.1344	0.1128	0.1025	0.0980
		$\overline{SE}$	0.1789	0.1149	0.0887	0.0783	0.0742	0.1722	0.1218	0.1019	0.0940	0.0907
		CR	96%	91%	92%	92%	92%	96%	92%	93%	93%	93%
(2000, 4000)	OLS*	*Mean*	0.9993					1.0016				
$\Longrightarrow \kappa = 1/2$		*SD*	0.0183					0.0410				
		RMSE	0.0183					0.0410				
		$\overline{SE}$	0.0183					0.0404				
		CR	95%					94%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.4350	0.5719	0.7112	0.8247	0.9026	1.5185	1.3830	1.2556	1.1540	1.0859
		SD	0.0398	0.0465	0.0526	0.0577	0.0612	0.0863	0.0833	0.0822	0.0832	0.0842
		RMSE	0.5664	0.4306	0.2936	0.1845	0.1151	0.5256	0.3919	0.2685	0.1750	0.1203
	MSOLS-B	*Mean*	0.4350	0.5719	0.7112	0.8247	0.9026	1.5185	1.3830	1.2556	1.1540	1.0859
		SD	0.0398	0.0465	0.0526	0.0577	0.0612	0.0863	0.0833	0.0822	0.0832	0.0842
		RMSE	0.5664	0.4306	0.2936	0.1845	0.1151	0.5256	0.3919	0.2685	0.1750	0.1203
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSII-A	*Mean*	1.0184	1.0133	1.0089	1.0053	1.0037	0.9849	0.9919	0.9961	0.9979	0.9988
		SD	0.1566	0.1144	0.0900	0.0775	0.0715	0.1562	0.1234	0.1036	0.0945	0.0900
		RMSE	0.1577	0.1152	0.0904	0.0776	0.0716	0.1569	0.1237	0.1037	0.0945	0.0900
		$\overline{SE}$	0.1623	0.1087	0.0867	0.0777	0.0739	0.1597	0.1177	0.1007	0.0937	0.0906
		CR	97%	94%	94%	95%	96%	96%	93%	94%	95%	94%
	MSII-B	*Mean*	1.0184	1.0133	1.0089	1.0053	1.0037	0.9849	0.9919	0.9961	0.9979	0.9988
		SD	0.1566	0.1144	0.0900	0.0775	0.0715	0.1562	0.1234	0.1036	0.0945	0.0900
		RMSE	0.1577	0.1152	0.0904	0.0776	0.0716	0.1569	0.1237	0.1037	0.0945	0.0900
		$\overline{SE}$	0.1623	0.1087	0.0867	0.0777	0.0739	0.1597	0.1177	0.1007	0.0937	0.0906
		CR	97%	94%	94%	95%	96%	96%	93%	94%	95%	94%

Table B1: *Continued*

Model B: $g_{22}(z) = 2|z|$

(n, m)	Estimator		β_{22}					γ_1				
$(1000, 500)$	OLS*	*Mean*	1.0006					1.0002				
$\Longrightarrow \kappa = 2$		*SD*	0.0249					0.0535				
		RMSE	0.0250					0.0535				
		$\overline{SE}$	0.0247					0.0530				
		CR	95%					95%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.2861	0.4815	0.6709	0.8189	0.9363	1.1709	1.1183	1.0747	1.0411	1.0134
		SD	0.0651	0.0715	0.0830	0.0920	0.1031	0.1184	0.1122	0.1094	0.1105	0.1116
		RMSE	0.7169	0.5234	0.3394	0.2032	0.1212	0.2079	0.1631	0.1325	0.1179	0.1124
	MSOLS-B	*Mean*	0.2861	0.4815	0.6709	0.8189	0.9363	1.1708	1.1181	1.0746	1.0412	1.0145
		SD	0.0651	0.0715	0.0830	0.0921	0.1031	0.1185	0.1123	0.1095	0.1107	0.1119
		RMSE	0.7169	0.5234	0.3394	0.2031	0.1212	0.2078	0.1630	0.1325	0.1181	0.1129
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSII-A	*Mean*	1.0703	1.0457	1.0356	1.0344	1.0589	0.9881	0.9953	0.9975	0.9961	0.9879
		SD	0.2721	0.1939	0.1532	0.1308	0.1244	0.1519	0.1294	0.1192	0.1160	0.1146
		RMSE	0.2811	0.1992	0.1573	0.1353	0.1377	0.1524	0.1295	0.1192	0.1161	0.1153
		$\overline{SE}$	0.2341	0.1445	0.1130	0.1032	0.1019	0.1310	0.1104	0.1014	0.0974	0.0956
		CR	94%	89%	87%	89%	88%	91%	91%	91%	91%	90%
	MSII-B	*Mean*	1.0703	1.0456	1.0356	1.0344	1.0590	0.9878	0.9951	0.9974	0.9962	0.9890
		SD	0.2721	0.1939	0.1532	0.1308	0.1245	0.1520	0.1294	0.1193	0.1161	0.1150
		RMSE	0.2811	0.1992	0.1573	0.1353	0.1377	0.1525	0.1295	0.1193	0.1162	0.1155
		$\overline{SE}$	0.2341	0.1445	0.1130	0.1032	0.1019	0.1311	0.1104	0.1014	0.0974	0.0958
		CR	94%	89%	87%	89%	89%	91%	91%	90%	91%	90%
$(1000, 1000)$	OLS*	*Mean*	1.0004					0.9970				
$\Longrightarrow \kappa = 1$		*SD*	0.0253					0.0527				
		RMSE	0.0253					0.0528				
		$\overline{SE}$	0.0247					0.0529				
		CR	95%					95%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.2821	0.4751	0.6606	0.8039	0.9018	1.1686	1.1156	1.0724	1.0428	1.0208
		SD	0.0575	0.0646	0.0712	0.0777	0.0822	0.1064	0.1011	0.0997	0.0995	0.0992
		RMSE	0.7202	0.5288	0.3468	0.2109	0.1280	0.1994	0.1536	0.1232	0.1083	0.1013
	MSOLS-B	*Mean*	0.2821	0.4751	0.6606	0.8039	0.9019	1.1685	1.1156	1.0724	1.0428	1.0211
		SD	0.0575	0.0646	0.0712	0.0777	0.0822	0.1065	0.1011	0.0997	0.0996	0.0992
		RMSE	0.7202	0.5288	0.3468	0.2109	0.1280	0.1994	0.1536	0.1232	0.1084	0.1015
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSII-A	*Mean*	1.0391	1.0222	1.0143	1.0115	1.0168	0.9901	0.9942	0.9967	0.9994	0.9969
		SD	0.2265	0.1625	0.1228	0.1047	0.0963	0.1328	0.1149	0.1067	0.1034	0.1011
		RMSE	0.2298	0.1641	0.1236	0.1053	0.0977	0.1332	0.1150	0.1068	0.1034	0.1012
		$\overline{SE}$	0.2006	0.1326	0.1085	0.1003	0.0980	0.1272	0.1095	0.1012	0.0972	0.0954
		CR	94%	90%	92%	94%	95%	95%	94%	93%	93%	94%
	MSII-B	*Mean*	1.0391	1.0222	1.0143	1.0116	1.0168	0.9901	0.9942	0.9967	0.9994	0.9972
		SD	0.2265	0.1625	0.1228	0.1047	0.0963	0.1329	0.1149	0.1068	0.1034	0.1012
		RMSE	0.2298	0.1641	0.1236	0.1053	0.0977	0.1332	0.1150	0.1068	0.1034	0.1012
		$\overline{SE}$	0.2006	0.1326	0.1085	0.1003	0.0980	0.1272	0.1095	0.1012	0.0972	0.0954
		CR	94%	90%	92%	94%	95%	95%	93%	93%	93%	94%

Table B1: *Continued*

Model B: *Continued*

(n, m)	Estimator		β_{22}					γ_1				
(1000, 2000)	OLS*	*Mean*	0.9988					0.9981				
$\Longrightarrow \kappa = 1/2$		*SD*	0.0244					0.0535				
		RMSE	0.0244					0.0536				
		$\overline{SE}$	0.0248					0.0529				
		CR	96%					94%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.2809	0.4717	0.6557	0.7963	0.8898	1.1667	1.1163	1.0737	1.0434	1.0229
		SD	0.0540	0.0610	0.0677	0.0728	0.0763	0.1101	0.1034	0.0997	0.0966	0.0968
		RMSE	0.7211	0.5318	0.3509	0.2164	0.1340	0.1998	0.1557	0.1239	0.1059	0.0995
	MSOLS-B	*Mean*	0.2809	0.4717	0.6557	0.7963	0.8898	1.1666	1.1163	1.0736	1.0434	1.0230
		SD	0.0540	0.0610	0.0677	0.0728	0.0763	0.1101	0.1034	0.0996	0.0966	0.0968
		RMSE	0.7211	0.5318	0.3509	0.2164	0.1340	0.1998	0.1557	0.1239	0.1059	0.0995
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSII-A	*Mean*	1.0310	1.0096	1.0047	1.0006	1.0023	0.9914	0.9984	0.9993	1.0008	0.9996
		SD	0.2006	0.1402	0.1102	0.0948	0.0875	0.1326	0.1137	0.1045	0.0984	0.0977
		RMSE	0.2030	0.1405	0.1103	0.0948	0.0876	0.1329	0.1138	0.1045	0.0984	0.0977
		$\overline{SE}$	0.1838	0.1257	0.1059	0.0988	0.0965	0.1252	0.1088	0.1009	0.0970	0.0952
		CR	95%	93%	94%	96%	98%	94%	94%	95%	94%	94%
	MSII-B	*Mean*	1.0310	1.0096	1.0047	1.0006	1.0023	0.9914	0.9984	0.9993	1.0008	0.9997
		SD	0.2006	0.1402	0.1102	0.0948	0.0875	0.1326	0.1137	0.1045	0.0984	0.0977
		RMSE	0.2030	0.1405	0.1103	0.0948	0.0876	0.1328	0.1138	0.1045	0.0984	0.0977
		$\overline{SE}$	0.1838	0.1257	0.1059	0.0988	0.0965	0.1252	0.1088	0.1009	0.0971	0.0952
		CR	94%	93%	94%	96%	98%	94%	94%	94%	94%	94%
(2000, 1000)	OLS*	*Mean*	0.9992					0.9981				
$\Longrightarrow \kappa = 2$		*SD*	0.0169					0.0377				
		RMSE	0.0169					0.0377				
		$\overline{SE}$	0.0175					0.0375				
		CR	96%					95%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.2814	0.4738	0.6604	0.8051	0.9047	1.1649	1.1134	1.0708	1.0387	1.0173
		SD	0.0445	0.0503	0.0584	0.0647	0.0706	0.0822	0.0785	0.0778	0.0773	0.0774
		RMSE	0.7200	0.5286	0.3446	0.2054	0.1186	0.1843	0.1379	0.1052	0.0864	0.0794
	MSOLS-B	*Mean*	0.2814	0.4738	0.6604	0.8051	0.9047	1.1648	1.1134	1.0708	1.0388	1.0176
		SD	0.0445	0.0503	0.0584	0.0647	0.0706	0.0822	0.0785	0.0779	0.0773	0.0775
		RMSE	0.7200	0.5286	0.3446	0.2054	0.1186	0.1842	0.1379	0.1052	0.0865	0.0794
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSII-A	*Mean*	1.0290	1.0161	1.0140	1.0134	1.0203	0.9916	0.9959	0.9969	0.9958	0.9937
		SD	0.1762	0.1307	0.1065	0.0908	0.0850	0.1036	0.0889	0.0844	0.0806	0.0792
		RMSE	0.1786	0.1317	0.1074	0.0918	0.0874	0.1039	0.0890	0.0844	0.0807	0.0794
		$\overline{SE}$	0.1558	0.0990	0.0785	0.0716	0.0697	0.0905	0.0776	0.0717	0.0688	0.0675
		CR	93%	87%	87%	88%	89%	92%	92%	90%	90%	90%
	MSII-B	*Mean*	1.0291	1.0161	1.0140	1.0134	1.0202	0.9915	0.9959	0.9969	0.9958	0.9940
		SD	0.1762	0.1307	0.1065	0.0908	0.0850	0.1036	0.0889	0.0844	0.0806	0.0792
		RMSE	0.1786	0.1317	0.1074	0.0918	0.0874	0.1039	0.0890	0.0844	0.0807	0.0794
		$\overline{SE}$	0.1558	0.0990	0.0785	0.0716	0.0697	0.0905	0.0776	0.0717	0.0689	0.0675
		CR	93%	87%	87%	88%	89%	92%	92%	91%	90%	90%

Table B1: *Continued*

Model B: *Continued*

(n, m)	Estimator		β_{22}					γ_1				
(2000, 2000)	OLS*	*Mean*	1.0004					0.9987				
$\Longrightarrow \kappa = 1$		*SD*	0.0172					0.0373				
		RMSE	0.0172					0.0373				
		$\overline{SE}$	0.0175					0.0375				
		CR	95%					94%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.2825	0.4758	0.6618	0.8015	0.8945	1.1666	1.1139	1.0711	1.0403	1.0204
		SD	0.0404	0.0462	0.0520	0.0565	0.0613	0.0781	0.0745	0.0722	0.0714	0.0715
		RMSE	0.7186	0.5262	0.3422	0.2064	0.1220	0.1840	0.1360	0.1013	0.0820	0.0743
	MSOLS-B	*Mean*	0.2825	0.4758	0.6618	0.8015	0.8945	1.1666	1.1139	1.0711	1.0403	1.0205
		SD	0.0404	0.0462	0.0520	0.0565	0.0613	0.0781	0.0745	0.0722	0.0714	0.0715
		RMSE	0.7186	0.5263	0.3422	0.2064	0.1220	0.1840	0.1360	0.1013	0.0820	0.0744
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSII-A	*Mean*	1.0205	1.0133	1.0115	1.0063	1.0070	0.9927	0.9952	0.9965	0.9974	0.9970
		SD	0.1477	0.1132	0.0890	0.0760	0.0720	0.0932	0.0813	0.0760	0.0734	0.0726
		RMSE	0.1491	0.1140	0.0898	0.0763	0.0723	0.0935	0.0815	0.0761	0.0734	0.0726
		$\overline{SE}$	0.1366	0.0921	0.0759	0.0702	0.0683	0.0887	0.0771	0.0714	0.0687	0.0673
		CR	94%	90%	91%	92%	93%	94%	93%	94%	93%	93%
	MSII-B	*Mean*	1.0205	1.0133	1.0115	1.0063	1.0070	0.9927	0.9952	0.9965	0.9974	0.9971
		SD	0.1477	0.1132	0.0890	0.0760	0.0720	0.0932	0.0813	0.0760	0.0734	0.0726
		RMSE	0.1491	0.1140	0.0898	0.0763	0.0723	0.0935	0.0815	0.0761	0.0734	0.0726
		$\overline{SE}$	0.1366	0.0921	0.0759	0.0702	0.0683	0.0887	0.0771	0.0714	0.0687	0.0674
		CR	94%	90%	91%	92%	93%	94%	93%	94%	93%	93%
(2000, 4000)	OLS*	*Mean*	0.9991					1.0011				
$\Longrightarrow \kappa = 1/2$		*SD*	0.0177					0.0379				
		RMSE	0.0178					0.0379				
		$\overline{SE}$	0.0175					0.0374				
		CR	94%					94%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.2828	0.4757	0.6594	0.7997	0.8916	1.1686	1.1178	1.0754	1.0439	1.0242
		SD	0.0383	0.0431	0.0480	0.0514	0.0536	0.0754	0.0706	0.0673	0.0662	0.0654
		RMSE	0.7182	0.5261	0.3440	0.2068	0.1209	0.1847	0.1373	0.1010	0.0794	0.0697
	MSOLS-B	*Mean*	0.2828	0.4757	0.6594	0.7997	0.8916	1.1686	1.1178	1.0754	1.0439	1.0243
		SD	0.0383	0.0431	0.0480	0.0514	0.0536	0.0754	0.0706	0.0673	0.0662	0.0654
		RMSE	0.7182	0.5261	0.3440	0.2068	0.1209	0.1847	0.1373	0.1010	0.0794	0.0697
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSII-A	*Mean*	1.0154	1.0098	1.0061	1.0029	1.0032	0.9978	1.0012	1.0022	1.0016	1.0013
		SD	0.1335	0.0944	0.0758	0.0660	0.0610	0.0893	0.0772	0.0702	0.0676	0.0660
		RMSE	0.1344	0.0949	0.0761	0.0660	0.0611	0.0893	0.0772	0.0703	0.0676	0.0660
		$\overline{SE}$	0.1260	0.0882	0.0745	0.0696	0.0679	0.0875	0.0767	0.0713	0.0686	0.0673
		CR	93%	94%	95%	96%	97%	95%	95%	96%	95%	95%
	MSII-B	*Mean*	1.0154	1.0098	1.0061	1.0029	1.0032	0.9978	1.0012	1.0022	1.0016	1.0013
		SD	0.1335	0.0944	0.0758	0.0660	0.0610	0.0893	0.0772	0.0702	0.0676	0.0660
		RMSE	0.1344	0.0949	0.0761	0.0660	0.0611	0.0893	0.0772	0.0703	0.0676	0.0660
		$\overline{SE}$	0.1260	0.0882	0.0745	0.0696	0.0679	0.0875	0.0767	0.0713	0.0686	0.0673
		CR	93%	94%	95%	96%	97%	95%	95%	96%	95%	95%

Table B1: *Continued*

Model C: $g_{22}(z) = 4\sqrt{|z/2|(1-|z/2|)}\sin\{2\pi(1+\epsilon)/(|z/2|+\epsilon)\}$, $\epsilon = 0.05$

(n, m)	Estimator		β_{22}					γ_1				
(1000, 500)	OLS*	*Mean*	1.0003					1.0003				
$\Longrightarrow \kappa = 2$		*SD*	0.0209					0.0531				
		RMSE	0.0209					0.0531				
		$\overline{SE}$	0.0207					0.0528				
		CR	95%					95%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.5493	0.7088	0.8356	0.9287	1.0171	1.0547	1.0316	1.0192	1.0099	1.0001
		SD	0.0604	0.0634	0.0707	0.0777	0.0901	0.1261	0.1178	0.1128	0.1131	0.1150
		RMSE	0.4547	0.2980	0.1790	0.1055	0.0917	0.1375	0.1220	0.1145	0.1135	0.1150
	MSOLS-B	*Mean*	0.5493	0.7088	0.8356	0.9287	1.0172	1.0545	1.0314	1.0191	1.0100	1.0012
		SD	0.0604	0.0634	0.0707	0.0777	0.0901	0.1262	0.1178	0.1129	0.1132	0.1154
		RMSE	0.4547	0.2980	0.1790	0.1054	0.0917	0.1375	0.1219	0.1145	0.1137	0.1154
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSII-A	*Mean*	1.0616	1.0344	1.0338	1.0495	1.0981	1.0007	1.0031	1.0041	1.0018	0.9955
		SD	0.1356	0.1086	0.0988	0.0946	0.1024	0.1423	0.1259	0.1173	0.1156	0.1168
		RMSE	0.1489	0.1139	0.1044	0.1068	0.1418	0.1423	0.1260	0.1174	0.1156	0.1168
		$\overline{SE}$	0.1269	0.0831	0.0688	0.0674	0.0758	0.1217	0.1071	0.1001	0.0972	0.0969
		CR	87%	79%	73%	70%	60%	84%	84%	84%	83%	82%
	MSII-B	*Mean*	1.0616	1.0344	1.0338	1.0496	1.0982	1.0005	1.0029	1.0041	1.0020	0.9966
		SD	0.1356	0.1086	0.0988	0.0946	0.1024	0.1424	0.1259	0.1174	0.1158	0.1172
		RMSE	0.1489	0.1139	0.1044	0.1068	0.1418	0.1424	0.1260	0.1174	0.1158	0.1172
		$\overline{SE}$	0.1269	0.0831	0.0688	0.0674	0.0758	0.1217	0.1071	0.1001	0.0972	0.0971
		CR	87%	79%	74%	70%	60%	84%	84%	84%	83%	82%
(1000, 1000)	OLS*	*Mean*	1.0003					0.9970				
$\Longrightarrow \kappa = 1$		*SD*	0.0202					0.0529				
		RMSE	0.0202					0.0529				
		$\overline{SE}$	0.0207					0.0527				
		CR	96%					95%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.5556	0.7148	0.8355	0.9203	0.9854	1.0513	1.0272	1.0145	1.0091	1.0029
		SD	0.0512	0.0546	0.0582	0.0611	0.0658	0.1134	0.1052	0.1019	0.1008	0.1002
		RMSE	0.4474	0.2903	0.1745	0.1004	0.0674	0.1245	0.1087	0.1029	0.1012	0.1003
	MSOLS-B	*Mean*	0.5556	0.7148	0.8355	0.9203	0.9854	1.0513	1.0271	1.0145	1.0092	1.0033
		SD	0.0512	0.0546	0.0582	0.0611	0.0658	0.1135	0.1052	0.1020	0.1008	0.1003
		RMSE	0.4474	0.2903	0.1745	0.1005	0.0674	0.1245	0.1087	0.1030	0.1012	0.1004
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSII-A	*Mean*	1.0251	1.0142	1.0126	1.0221	1.0458	0.9970	0.9980	0.9993	1.0013	0.9988
		SD	0.1141	0.0906	0.0774	0.0711	0.0718	0.1231	0.1098	0.1040	0.1019	0.1008
		RMSE	0.1168	0.0917	0.0784	0.0744	0.0852	0.1231	0.1098	0.1040	0.1019	0.1008
		$\overline{SE}$	0.1040	0.0740	0.0633	0.0609	0.0634	0.1199	0.1064	0.0994	0.0961	0.0951
		CR	94%	89%	88%	90%	86%	95%	94%	93%	93%	94%
	MSII-B	*Mean*	1.0251	1.0142	1.0126	1.0221	1.0458	0.9970	0.9979	0.9993	1.0013	0.9991
		SD	0.1141	0.0906	0.0774	0.0711	0.0718	0.1231	0.1098	0.1040	0.1019	0.1009
		RMSE	0.1168	0.0917	0.0784	0.0744	0.0852	0.1231	0.1099	0.1040	0.1019	0.1009
		$\overline{SE}$	0.1040	0.0740	0.0633	0.0609	0.0634	0.1199	0.1064	0.0994	0.0962	0.0951
		CR	94%	89%	88%	89%	86%	95%	94%	93%	93%	94%

Table B1: *Continued*

Model C: *Continued*

(n,m)	Estimator		β_{22}					γ_1				
(1000, 2000)	OLS*	*Mean*	1.0009					0.9978				
$\Longrightarrow \kappa = 1/2$		*SD*	0.0210					0.0533				
		RMSE	0.0210					0.0533				
		$\overline{SE}$	0.0207					0.0528				
		CR	95%					94%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.5590	0.7188	0.8391	0.9188	0.9732	1.0495	1.0280	1.0145	1.0075	1.0023
		SD	0.0487	0.0497	0.0514	0.0533	0.0563	0.1169	0.1069	0.1016	0.0981	0.0985
		RMSE	0.4437	0.2856	0.1690	0.0971	0.0623	0.1270	0.1106	0.1026	0.0984	0.0985
	MSOLS-B	*Mean*	0.5590	0.7188	0.8391	0.9188	0.9732	1.0495	1.0280	1.0145	1.0075	1.0024
		SD	0.0487	0.0497	0.0514	0.0533	0.0563	0.1169	0.1070	0.1016	0.0981	0.0985
		RMSE	0.4437	0.2856	0.1690	0.0971	0.0623	0.1269	0.1106	0.1026	0.0984	0.0985
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSII-A	*Mean*	1.0160	1.0090	1.0090	1.0136	1.0260	0.9966	1.0002	0.9997	0.9999	0.9984
		SD	0.0996	0.0762	0.0650	0.0602	0.0601	0.1261	0.1101	0.1027	0.0986	0.0987
		RMSE	0.1008	0.0767	0.0656	0.0617	0.0654	0.1261	0.1101	0.1027	0.0986	0.0988
		$\overline{SE}$	0.0943	0.0701	0.0611	0.0582	0.0586	0.1191	0.1061	0.0991	0.0956	0.0941
		CR	93%	93%	94%	94%	93%	94%	94%	94%	94%	94%
	MSII-B	*Mean*	1.0160	1.0090	1.0090	1.0136	1.0260	0.9966	1.0002	0.9997	0.9999	0.9985
		SD	0.0996	0.0762	0.0650	0.0602	0.0601	0.1260	0.1101	0.1027	0.0986	0.0988
		RMSE	0.1008	0.0767	0.0656	0.0617	0.0654	0.1261	0.1101	0.1027	0.0986	0.0988
		$\overline{SE}$	0.0943	0.0701	0.0611	0.0582	0.0586	0.1191	0.1061	0.0991	0.0956	0.0942
		CR	93%	93%	94%	94%	93%	94%	94%	94%	94%	94%
(2000, 1000)	OLS*	*Mean*	0.9996					0.9979				
$\Longrightarrow \kappa = 2$		*SD*	0.0138					0.0375				
		RMSE	0.0138					0.0375				
		$\overline{SE}$	0.0146					0.0374				
		CR	95%					95%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.5561	0.7146	0.8361	0.9204	0.9865	1.0501	1.0272	1.0142	1.0055	1.0000
		SD	0.0413	0.0416	0.0453	0.0487	0.0531	0.0880	0.0816	0.0801	0.0791	0.0797
		RMSE	0.4458	0.2884	0.1701	0.0933	0.0547	0.1013	0.0860	0.0813	0.0793	0.0797
	MSOLS-B	*Mean*	0.5561	0.7146	0.8361	0.9204	0.9865	1.0501	1.0272	1.0142	1.0056	1.0003
		SD	0.0413	0.0416	0.0453	0.0487	0.0531	0.0880	0.0816	0.0801	0.0791	0.0797
		RMSE	0.4458	0.2884	0.1701	0.0933	0.0547	0.1012	0.0860	0.0813	0.0793	0.0797
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSII-A	*Mean*	1.0256	1.0129	1.0128	1.0221	1.0467	0.9976	0.9994	0.9997	0.9978	0.9959
		SD	0.0926	0.0716	0.0617	0.0576	0.0584	0.0991	0.0860	0.0825	0.0804	0.0805
		RMSE	0.0961	0.0728	0.0631	0.0617	0.0748	0.0991	0.0860	0.0825	0.0804	0.0806
		$\overline{SE}$	0.0824	0.0554	0.0457	0.0433	0.0449	0.0851	0.0754	0.0705	0.0681	0.0673
		CR	87%	81%	77%	76%	66%	86%	87%	84%	83%	83%
	MSII-B	*Mean*	1.0256	1.0129	1.0128	1.0221	1.0468	0.9975	0.9994	0.9997	0.9979	0.9962
		SD	0.0926	0.0716	0.0617	0.0576	0.0584	0.0991	0.0860	0.0826	0.0804	0.0805
		RMSE	0.0961	0.0728	0.0631	0.0617	0.0748	0.0991	0.0860	0.0826	0.0804	0.0806
		$\overline{SE}$	0.0824	0.0554	0.0457	0.0433	0.0449	0.0851	0.0754	0.0705	0.0681	0.0674
		CR	87%	81%	77%	76%	66%	86%	87%	84%	83%	83%

Table B1: *Continued*

Model C: *Continued*

(n,m)	Estimator		β_{22}					γ_1				
(2000, 2000)	OLS*	*Mean*	0.9995					0.9988				
$\Longrightarrow \kappa = 1$		*SD*	0.0145					0.0372				
		RMSE	0.0145					0.0372				
		$\overline{SE}$	0.0147					0.0374				
		CR	96%					94%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.5602	0.7204	0.8406	0.9191	0.9730	1.0502	1.0263	1.0137	1.0063	1.0019
		SD	0.0359	0.0380	0.0399	0.0416	0.0437	0.0814	0.0758	0.0729	0.0716	0.0719
		RMSE	0.4413	0.2821	0.1643	0.0909	0.0514	0.0956	0.0803	0.0742	0.0719	0.0719
	MSOLS-B	*Mean*	0.5602	0.7204	0.8406	0.9191	0.9729	1.0502	1.0263	1.0137	1.0063	1.0020
		SD	0.0359	0.0380	0.0399	0.0416	0.0437	0.0814	0.0758	0.0729	0.0716	0.0719
		RMSE	0.4413	0.2821	0.1643	0.0909	0.0514	0.0956	0.0803	0.0742	0.0719	0.0719
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSII-A	*Mean*	1.0144	1.0100	1.0099	1.0135	1.0253	0.9961	0.9975	0.9986	0.9985	0.9979
		SD	0.0745	0.0614	0.0519	0.0478	0.0471	0.0879	0.0790	0.0744	0.0724	0.0723
		RMSE	0.0758	0.0622	0.0528	0.0496	0.0535	0.0880	0.0790	0.0745	0.0724	0.0723
		$\overline{SE}$	0.0712	0.0512	0.0436	0.0413	0.0414	0.0843	0.0750	0.0700	0.0676	0.0666
		CR	94%	90%	90%	91%	88%	94%	94%	94%	93%	93%
	MSII-B	*Mean*	1.0144	1.0100	1.0099	1.0135	1.0253	0.9961	0.9975	0.9987	0.9985	0.9979
		SD	0.0745	0.0614	0.0519	0.0478	0.0471	0.0879	0.0790	0.0744	0.0724	0.0723
		RMSE	0.0758	0.0622	0.0528	0.0496	0.0535	0.0880	0.0790	0.0745	0.0724	0.0723
		$\overline{SE}$	0.0712	0.0512	0.0436	0.0413	0.0414	0.0843	0.0750	0.0700	0.0676	0.0666
		CR	94%	90%	90%	91%	88%	95%	94%	94%	93%	93%
(2000, 4000)	OLS*	*Mean*	0.9995					1.0010				
$\Longrightarrow \kappa = 1/2$		*SD*	0.0146					0.0377				
		RMSE	0.0146					0.0377				
		$\overline{SE}$	0.0146					0.0373				
		CR	95%					94%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.5615	0.7217	0.8404	0.9168	0.9651	1.0535	1.0312	1.0181	1.0097	1.0056
		SD	0.0327	0.0345	0.0366	0.0381	0.0390	0.0792	0.0727	0.0683	0.0667	0.0655
		RMSE	0.4397	0.2804	0.1637	0.0915	0.0524	0.0956	0.0791	0.0706	0.0674	0.0658
	MSOLS-B	*Mean*	0.5615	0.7217	0.8404	0.9168	0.9651	1.0535	1.0312	1.0181	1.0097	1.0056
		SD	0.0327	0.0345	0.0366	0.0381	0.0390	0.0792	0.0727	0.0683	0.0667	0.0655
		RMSE	0.4397	0.2804	0.1637	0.0915	0.0524	0.0956	0.0791	0.0706	0.0674	0.0658
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSII-A	*Mean*	1.0077	1.0055	1.0056	1.0075	1.0139	1.0001	1.0028	1.0033	1.0021	1.0017
		SD	0.0662	0.0521	0.0459	0.0429	0.0415	0.0865	0.0756	0.0694	0.0672	0.0657
		RMSE	0.0667	0.0524	0.0462	0.0435	0.0437	0.0865	0.0757	0.0695	0.0672	0.0658
		$\overline{SE}$	0.0655	0.0490	0.0426	0.0403	0.0398	0.0839	0.0748	0.0699	0.0674	0.0663
		CR	95%	93%	92%	93%	93%	95%	95%	96%	95%	95%
	MSII-B	*Mean*	1.0077	1.0055	1.0056	1.0075	1.0139	1.0001	1.0028	1.0033	1.0021	1.0017
		SD	0.0662	0.0521	0.0459	0.0429	0.0415	0.0865	0.0756	0.0694	0.0672	0.0657
		RMSE	0.0667	0.0524	0.0462	0.0435	0.0437	0.0865	0.0757	0.0695	0.0672	0.0658
		$\overline{SE}$	0.0655	0.0490	0.0426	0.0403	0.0398	0.0839	0.0748	0.0699	0.0674	0.0663
		CR	95%	93%	92%	93%	93%	95%	95%	96%	95%	95%

Table B2: Monte Carlo Results ($d_3 = 2$)

Model A: $g_{22}(z) = z + (5/\tau)\,\phi(z/\tau)$, $\tau = 0.75$

(n, m)	Estimator		β_{22}					γ_1				
(1000, 500)	OLS*	*Mean*	0.9995					0.9999				
$\Longrightarrow \kappa = 2$		*SD*	0.0205					0.0624				
		RMSE	0.0205					0.0624				
		$\overline{SE}$	0.0215					0.0611				
		CR	96%					94%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.6988	0.7530	0.7082	0.5053	0.0499	1.3006	1.2217	1.2213	1.3284	1.5948
		SD	0.0800	0.0866	0.1020	0.1374	0.2059	0.2182	0.2148	0.2413	0.2960	0.4040
		RMSE	0.3116	0.2618	0.3091	0.5134	0.9722	0.3715	0.3087	0.3274	0.4421	0.7190
	MSOLS-B	*Mean*	0.7126	0.7687	0.7266	0.5281	0.0821	1.1556	1.1029	1.1112	1.2120	1.4526
		SD	0.0808	0.0872	0.1026	0.1385	0.2086	0.2256	0.2183	0.2440	0.3037	0.4254
		RMSE	0.2985	0.2472	0.2921	0.4918	0.9413	0.2741	0.2413	0.2682	0.3704	0.6211
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	0.8370	0.8991	0.8973	0.9023		1.0865	1.0279	1.0302	1.0207	
		SD	0.2221	0.2277	0.2283	0.2196		0.2762	0.2873	0.2901	0.2798	
		RMSE	0.2755	0.2490	0.2503	0.2404		0.2894	0.2887	0.2917	0.2806	
		$\overline{SE}$	–	0.3053	0.3055	0.3058		–	0.3055	0.3061	0.3051	
		CR	–	99%	99%	99%		–	96%	96%	96%	
	MSII-FM-B	*Mean*	0.8706	0.9002	0.8985	0.9031		0.9249	1.0216	1.0235	1.0151	
		SD	0.2254	0.2257	0.2262	0.2182		0.2837	0.2914	0.2952	0.2828	
		RMSE	0.2599	0.2468	0.2479	0.2388		0.2934	0.2922	0.2962	0.2832	
		$\overline{SE}$	–	0.3093	0.3094	0.3098		–	0.3088	0.3094	0.3081	
		CR	–	99%	99%	99%		–	96%	96%	96%	
(1000, 1000)	OLS*	*Mean*	0.9996					0.9979				
$\Longrightarrow \kappa = 1$		*SD*	0.0220					0.0591				
		RMSE	0.0220					0.0592				
		$\overline{SE}$	0.0215					0.0613				
		CR	95%					95%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.6607	0.7490	0.7678	0.6807	0.4267	1.3184	1.2184	1.1868	1.2287	1.3823
		SD	0.0632	0.0664	0.0743	0.0867	0.1124	0.1736	0.1617	0.1618	0.1776	0.2231
		RMSE	0.3451	0.2597	0.2438	0.3308	0.5842	0.3627	0.2717	0.2472	0.2895	0.4427
	MSOLS-B	*Mean*	0.6679	0.7568	0.7766	0.6922	0.4428	1.2411	1.1566	1.1317	1.1691	1.3084
		SD	0.0633	0.0667	0.0743	0.0868	0.1128	0.1746	0.1617	0.1629	0.1789	0.2296
		RMSE	0.3381	0.2522	0.2354	0.3198	0.5685	0.2976	0.2251	0.2094	0.2462	0.3845
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	0.8982	0.9252	0.9246	0.9313		1.0614	1.0363	1.0369	1.0240	
		SD	0.1497	0.1509	0.1511	0.1491		0.2071	0.2108	0.2121	0.2131	
		RMSE	0.1810	0.1685	0.1688	0.1642		0.2160	0.2139	0.2153	0.2145	
		$\overline{SE}$	–	0.1879	0.1880	0.1878		–	0.2200	0.2202	0.2196	
		CR	–	92%	92%	94%		–	91%	90%	91%	
	MSII-FM-B	*Mean*	0.9152	0.9259	0.9252	0.9323		0.9754	1.0326	1.0335	1.0200	
		SD	0.1513	0.1507	0.1509	0.1489		0.2095	0.2128	0.2143	0.2141	
		RMSE	0.1734	0.1679	0.1684	0.1635		0.2109	0.2153	0.2169	0.2151	
		$\overline{SE}$	–	0.1891	0.1891	0.1890		–	0.2207	0.2209	0.2202	
		CR	–	92%	92%	94%		–	91%	91%	91%	

Table B2: *Continued*

Model A: *Continued*

(n, m)	Estimator		β_{22}					γ_1				
(1000, 2000)	OLS*	*Mean*	0.9995					1.0014				
$\Longrightarrow \kappa = 1/2$		*SD*	0.0215					0.0611				
		RMSE	0.0215					0.0612				
		$\overline{SE}$	0.0215					0.0612				
		CR	96%					96%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.6406	0.7496	0.8068	0.7890	0.6660	1.3207	1.2132	1.1559	1.1546	1.2254
		SD	0.0552	0.0585	0.0611	0.0652	0.0730	0.1517	0.1363	0.1323	0.1375	0.1517
		RMSE	0.3636	0.2571	0.2026	0.2208	0.3419	0.3548	0.2531	0.2045	0.2069	0.2717
	MSOLS-B	*Mean*	0.6443	0.7536	0.8113	0.7945	0.6737	1.2821	1.1824	1.1279	1.1253	1.1889
		SD	0.0554	0.0587	0.0612	0.0653	0.0731	0.1517	0.1367	0.1330	0.1389	0.1536
		RMSE	0.3600	0.2533	0.1983	0.2156	0.3344	0.3203	0.2279	0.1845	0.1871	0.2435
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	0.9382	0.9508	0.9506	0.9591		1.0328	1.0210	1.0212	1.0111	
		SD	0.1249	0.1245	0.1245	0.1249		0.1819	0.1841	0.1843	0.1831	
		RMSE	0.1393	0.1339	0.1339	0.1315		0.1848	0.1853	0.1855	0.1835	
		$\overline{SE}$	–	0.1367	0.1367	0.1367		–	0.1832	0.1833	0.1831	
		CR	–	95%	95%	95%		–	94%	95%	95%	
	MSII-FM-B	*Mean*	0.9466	0.9509	0.9507	0.9593		0.9901	1.0206	1.0207	1.0103	
		SD	0.1255	0.1241	0.1241	0.1245		0.1819	0.1844	0.1848	0.1827	
		RMSE	0.1364	0.1335	0.1336	0.1310		0.1822	0.1856	0.1859	0.1830	
		$\overline{SE}$	–	0.1371	0.1371	0.1370		–	0.1833	0.1833	0.1831	
		CR	–	95%	94%	95%		–	95%	94%	95%	
(2000, 1000)	OLS*	*Mean*	0.9995					1.0013				
$\Longrightarrow \kappa = 2$		*SD*	0.0152					0.0417				
		RMSE	0.0152					0.0417				
		$\overline{SE}$	0.0152					0.0433				
		CR	96%					96%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.6609	0.7481	0.7672	0.6777	0.4204	1.3213	1.2244	1.1872	1.2311	1.3861
		SD	0.0496	0.0554	0.0634	0.0760	0.0988	0.1335	0.1295	0.1356	0.1583	0.2075
		RMSE	0.3427	0.2579	0.2412	0.3311	0.5879	0.3480	0.2591	0.2311	0.2801	0.4383
	MSOLS-B	*Mean*	0.6678	0.7557	0.7759	0.6886	0.4358	1.2464	1.1646	1.1326	1.1728	1.3138
		SD	0.0502	0.0561	0.0642	0.0767	0.0993	0.1357	0.1321	0.1393	0.1627	0.2149
		RMSE	0.3360	0.2507	0.2331	0.3207	0.5729	0.2812	0.2111	0.1923	0.2374	0.3803
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	0.8954	0.9228	0.9221	0.9297		1.0657	1.0383	1.0390	1.0306	
		SD	0.1179	0.1194	0.1197	0.1202		0.1624	0.1650	0.1658	0.1667	
		RMSE	0.1576	0.1422	0.1428	0.1392		0.1751	0.1694	0.1703	0.1695	
		$\overline{SE}$	–	0.1685	0.1685	0.1687		–	0.1767	0.1769	0.1765	
		CR	–	98%	98%	98%		–	96%	96%	96%	
	MSII-FM-B	*Mean*	0.9117	0.9230	0.9224	0.9299		0.9828	1.0374	1.0375	1.0295	
		SD	0.1198	0.1196	0.1197	0.1202		0.1654	0.1662	0.1670	0.1667	
		RMSE	0.1488	0.1423	0.1427	0.1391		0.1663	0.1704	0.1711	0.1693	
		$\overline{SE}$	–	0.1695	0.1696	0.1698		–	0.1775	0.1776	0.1772	
		CR	–	98%	98%	98%		–	96%	95%	96%	

Table B2: *Continued*

Model A: *Continued*

(n,m)	Estimator		β_{22}					γ_1				
(2000, 2000)	OLS*	*Mean*	0.9997					1.0013				
$\Longrightarrow \kappa = 1$		*SD*	0.0152					0.0425				
		RMSE	0.0152					0.0425				
		$\overline{SE}$	0.0152					0.0433				
		CR	95%					95%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.6419	0.7501	0.8071	0.7874	0.6640	1.3198	1.2134	1.1506	1.1512	1.2243
		SD	0.0430	0.0438	0.0485	0.0540	0.0637	0.1089	0.1018	0.1007	0.1055	0.1193
		RMSE	0.3606	0.2537	0.1989	0.2194	0.3420	0.3379	0.2364	0.1812	0.1844	0.2541
	MSOLS-B	*Mean*	0.6455	0.7540	0.8116	0.7928	0.6717	1.2805	1.1825	1.1227	1.1222	1.1879
		SD	0.0432	0.0441	0.0486	0.0541	0.0639	0.1100	0.1026	0.1014	0.1065	0.1219
		RMSE	0.3571	0.2499	0.1946	0.2141	0.3344	0.3013	0.2094	0.1592	0.1621	0.2239
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	0.9376	0.9498	0.9496	0.9571		1.0335	1.0218	1.0218	1.0129	
		SD	0.0960	0.0970	0.0970	0.0968		0.1301	0.1310	0.1310	0.1313	
		RMSE	0.1145	0.1092	0.1093	0.1059		0.1344	0.1328	0.1328	0.1320	
		$\overline{SE}$	–	0.1140	0.1140	0.1140		–	0.1387	0.1388	0.1388	
		CR	–	91%	91%	92%		–	92%	92%	93%	
	MSII-FM-B	*Mean*	0.9460	0.9501	0.9498	0.9572		0.9900	1.0207	1.0207	1.0122	
		SD	0.0966	0.0968	0.0968	0.0967		0.1315	0.1319	0.1319	0.1328	
		RMSE	0.1107	0.1089	0.1090	0.1057		0.1319	0.1335	0.1335	0.1334	
		$\overline{SE}$	–	0.1143	0.1143	0.1144		–	0.1389	0.1389	0.1389	
		CR	–	91%	91%	92%		–	92%	92%	93%	
(2000, 4000)	OLS*	*Mean*	1.0001					1.0002				
$\Longrightarrow \kappa = 1/2$		*SD*	0.0155					0.0424				
		RMSE	0.0155					0.0424				
		$\overline{SE}$	0.0152					0.0433				
		CR	94%					95%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.6329	0.7495	0.8281	0.8499	0.8044	1.3248	1.2153	1.1418	1.1153	1.1372
		SD	0.0382	0.0394	0.0418	0.0440	0.0475	0.0979	0.0915	0.0892	0.0898	0.0944
		RMSE	0.3691	0.2536	0.1769	0.1564	0.2013	0.3392	0.2340	0.1675	0.1461	0.1666
	MSOLS-B	*Mean*	0.6347	0.7514	0.8303	0.8526	0.8079	1.3054	1.1999	1.1279	1.1012	1.1203
		SD	0.0383	0.0394	0.0419	0.0441	0.0476	0.0985	0.0918	0.0894	0.0902	0.0951
		RMSE	0.3673	0.2517	0.1748	0.1539	0.1979	0.3209	0.2200	0.1561	0.1356	0.1533
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	0.9664	0.9715	0.9715	0.9773		1.0183	1.0125	1.0126	1.0073	
		SD	0.0812	0.0815	0.0815	0.0817		0.1177	0.1178	0.1178	0.1199	
		RMSE	0.0878	0.0863	0.0863	0.0848		0.1191	0.1185	0.1185	0.1201	
		$\overline{SE}$	–	0.0887	0.0887	0.0888		–	0.1220	0.1220	0.1222	
		CR	–	95%	95%	95%		–	95%	95%	95%	
	MSII-FM-B	*Mean*	0.9706	0.9715	0.9715	0.9774		0.9968	1.0124	1.0125	1.0070	
		SD	0.0814	0.0815	0.0815	0.0817		0.1186	0.1187	0.1187	0.1204	
		RMSE	0.0866	0.0864	0.0864	0.0848		0.1187	0.1194	0.1193	0.1206	
		$\overline{SE}$	–	0.0889	0.0889	0.0889		–	0.1220	0.1221	0.1222	
		CR	–	95%	95%	95%		–	95%	95%	95%	

Table B2: *Continued*

Model B: $g_{22}(z) = 2|z|$

(n,m)	Estimator		β_{22}					γ_1				
$(1000, 500)$	OLS*	*Mean*	1.0003					0.9994				
$\Longrightarrow \kappa = 2$		*SD*	0.0203					0.0599				
		RMSE	0.0203					0.0599				
		$\overline{SE}$	0.0196					0.0587				
		CR	93%					95%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.4612	0.6874	0.9167	1.1884	1.5820	1.1596	1.0848	1.0062	0.9024	0.7455
		SD	0.0609	0.0674	0.0825	0.1064	0.1546	0.1855	0.1875	0.2116	0.2629	0.3553
		RMSE	0.5422	0.3198	0.1173	0.2164	0.6022	0.2447	0.2058	0.2117	0.2804	0.4371
	MSOLS-B	*Mean*	0.4627	0.6890	0.9188	1.1918	1.5891	1.0713	1.0151	0.9436	0.8366	0.6582
		SD	0.0611	0.0677	0.0828	0.1070	0.1558	0.1893	0.1893	0.2137	0.2697	0.3748
		RMSE	0.5408	0.3183	0.1159	0.2196	0.6093	0.2023	0.1899	0.2210	0.3153	0.5073
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	1.1865	1.1771	1.1783	1.1989		0.9219	0.9191	0.9197	0.9106	
		SD	0.1697	0.1706	0.1710	0.1751		0.2308	0.2355	0.2373	0.2413	
		RMSE	0.2521	0.2459	0.2471	0.2650		0.2437	0.2490	0.2505	0.2574	
		$\overline{SE}$	–	0.1793	0.1795	0.1817		–	0.1853	0.1860	0.1881	
		CR	–	91%	90%	88%		–	87%	87%	85%	
	MSII-FM-B	*Mean*	1.1902	1.1771	1.1783	1.1987		0.8325	0.9161	0.9164	0.9083	
		SD	0.1703	0.1705	0.1709	0.1750		0.2348	0.2419	0.2446	0.2454	
		RMSE	0.2553	0.2459	0.2470	0.2648		0.2885	0.2560	0.2585	0.2620	
		$\overline{SE}$	–	0.1795	0.1796	0.1819		–	0.1852	0.1860	0.1876	
		CR	–	91%	90%	88%		–	85%	85%	84%	
$(1000, 1000)$	OLS*	*Mean*	0.9996					0.9976				
$\Longrightarrow \kappa = 1$		*SD*	0.0194					0.0574				
		RMSE	0.0194					0.0574				
		$\overline{SE}$	0.0196					0.0589				
		CR	94%					96%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.4975	0.7009	0.8843	1.0728	1.3237	1.1423	1.0768	1.0249	0.9607	0.8665
		SD	0.0516	0.0552	0.0604	0.0697	0.0873	0.1512	0.1451	0.1465	0.1624	0.2017
		RMSE	0.5052	0.3041	0.1305	0.1007	0.3353	0.2076	0.1642	0.1486	0.1671	0.2419
	MSOLS-B	*Mean*	0.4984	0.7019	0.8853	1.0741	1.3262	1.0942	1.0399	0.9937	0.9277	0.8243
		SD	0.0517	0.0554	0.0605	0.0700	0.0876	0.1514	0.1451	0.1476	0.1646	0.2088
		RMSE	0.5043	0.3032	0.1297	0.1019	0.3378	0.1783	0.1504	0.1478	0.1797	0.2729
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	1.1180	1.1144	1.1147	1.1190		0.9565	0.9554	0.9554	0.9485	
		SD	0.1204	0.1208	0.1208	0.1221		0.1784	0.1804	0.1814	0.1847	
		RMSE	0.1685	0.1663	0.1666	0.1705		0.1837	0.1859	0.1868	0.1918	
		$\overline{SE}$	–	0.1241	0.1242	0.1249		–	0.1606	0.1608	0.1621	
		CR	–	89%	89%	89%		–	92%	91%	91%	
	MSII-FM-B	*Mean*	1.1199	1.1145	1.1148	1.1191		0.9081	0.9529	0.9531	0.9461	
		SD	0.1207	0.1208	0.1209	0.1220		0.1789	0.1825	0.1833	0.1857	
		RMSE	0.1701	0.1664	0.1667	0.1705		0.2012	0.1885	0.1892	0.1934	
		$\overline{SE}$	–	0.1242	0.1242	0.1250		–	0.1603	0.1605	0.1616	
		CR	–	89%	89%	89%		–	91%	91%	90%	

Table B2: *Continued*

Model B: *Continued*

(n,m)	Estimator		β_{22}					γ_1				
(1000, 2000)	OLS*	*Mean*	0.9998					1.0010				
$\Longrightarrow \kappa = 1/2$		*SD*	0.0201					0.0589				
		RMSE	0.0201					0.0589				
		$\overline{SE}$	0.0195					0.0587				
		CR	95%					96%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.5184	0.7075	0.8636	1.0004	1.1588	1.1253	1.0699	1.0277	0.9846	0.9264
		SD	0.0451	0.0482	0.0505	0.0534	0.0592	0.1357	0.1253	0.1239	0.1285	0.1409
		RMSE	0.4837	0.2965	0.1455	0.0534	0.1695	0.1848	0.1435	0.1270	0.1294	0.1589
	MSOLS-B	*Mean*	0.5188	0.7079	0.8640	1.0010	1.1598	1.1017	1.0518	1.0120	0.9687	0.9065
		SD	0.0452	0.0482	0.0506	0.0535	0.0593	0.1361	0.1257	0.1243	0.1296	0.1427
		RMSE	0.4833	0.2961	0.1451	0.0535	0.1705	0.1699	0.1359	0.1249	0.1333	0.1706
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	1.0710	1.0700	1.0701	1.0693		0.9693	0.9687	0.9687	0.9662	
		SD	0.0981	0.0982	0.0981	0.0991		0.1530	0.1534	0.1537	0.1549	
		RMSE	0.1210	0.1206	0.1206	0.1209		0.1560	0.1565	0.1569	0.1586	
		$\overline{SE}$	–	0.0982	0.0982	0.0985		–	0.1472	0.1473	0.1479	
		CR	–	93%	93%	92%		–	95%	95%	94%	
	MSII-FM-B	*Mean*	1.0718	1.0700	1.0701	1.0693		0.9455	0.9685	0.9683	0.9657	
		SD	0.0983	0.0982	0.0981	0.0991		0.1533	0.1545	0.1549	0.1555	
		RMSE	0.1217	0.1206	0.1206	0.1209		0.1627	0.1576	0.1581	0.1592	
		$\overline{SE}$	–	0.0982	0.0983	0.0985		–	0.1470	0.1470	0.1476	
		CR	–	93%	93%	92%		–	94%	94%	93%	
(2000, 1000)	OLS*	*Mean*	0.9995					1.0010				
$\Longrightarrow \kappa = 2$		*SD*	0.0138					0.0396				
		RMSE	0.0138					0.0396				
		$\overline{SE}$	0.0139					0.0416				
		CR	95%					96%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.4978	0.7009	0.8843	1.0734	1.3253	1.1439	1.0811	1.0242	0.9602	0.8656
		SD	0.0401	0.0445	0.0499	0.0610	0.0794	0.1164	0.1139	0.1211	0.1422	0.1863
		RMSE	0.5038	0.3024	0.1260	0.0954	0.3348	0.1851	0.1398	0.1235	0.1476	0.2297
	MSOLS-B	*Mean*	0.4986	0.7018	0.8854	1.0748	1.3278	1.0979	1.0459	0.9932	0.9280	0.8242
		SD	0.0403	0.0446	0.0500	0.0612	0.0798	0.1167	0.1148	0.1231	0.1456	0.1937
		RMSE	0.5030	0.3015	0.1251	0.0967	0.3373	0.1523	0.1236	0.1233	0.1624	0.2616
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	1.1109	1.1073	1.1077	1.1129		0.9613	0.9594	0.9594	0.9566	
		SD	0.1040	0.1045	0.1045	0.1043		0.1391	0.1400	0.1403	0.1439	
		RMSE	0.1520	0.1498	0.1501	0.1537		0.1444	0.1458	0.1461	0.1504	
		$\overline{SE}$	–	0.1030	0.1030	0.1036		–	0.1144	0.1146	0.1153	
		CR	–	77%	77%	74%		–	81%	81%	79%	
	MSII-FM-B	*Mean*	1.1126	1.1073	1.1077	1.1128		0.9150	0.9591	0.9586	0.9561	
		SD	0.1042	0.1045	0.1046	0.1044		0.1394	0.1408	0.1415	0.1441	
		RMSE	0.1535	0.1498	0.1501	0.1537		0.1633	0.1466	0.1474	0.1506	
		$\overline{SE}$	–	0.1030	0.1031	0.1036		–	0.1142	0.1144	0.1150	
		CR	–	76%	76%	74%		–	80%	80%	80%	

Table B2: *Continued*

Model B: *Continued*

(n,m)	Estimator		β_{22}					γ_1				
(2000, 2000)	OLS*	*Mean*	0.9994					1.0011				
$\Longrightarrow \kappa = 1$		*SD*	0.0141					0.0408				
		RMSE	0.0141					0.0408				
		$\overline{SE}$	0.0139					0.0416				
		CR	95%					95%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.5152	0.7058	0.8625	1.0002	1.1584	1.1267	1.0714	1.0237	0.9809	0.9242
		SD	0.0349	0.0370	0.0395	0.0429	0.0504	0.0971	0.0916	0.0909	0.0962	0.1082
		RMSE	0.4861	0.2966	0.1431	0.0429	0.1663	0.1596	0.1161	0.0939	0.0981	0.1321
	MSOLS-B	*Mean*	0.5155	0.7062	0.8629	1.0008	1.1593	1.1026	1.0532	1.0080	0.9652	0.9047
		SD	0.0350	0.0372	0.0396	0.0431	0.0506	0.0979	0.0921	0.0913	0.0973	0.1107
		RMSE	0.4857	0.2962	0.1427	0.0431	0.1672	0.1418	0.1063	0.0916	0.1033	0.1461
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	1.0621	1.0610	1.0611	1.0610		0.9715	0.9707	0.9705	0.9682	
		SD	0.0747	0.0746	0.0746	0.0751		0.1097	0.1105	0.1105	0.1103	
		RMSE	0.0971	0.0963	0.0964	0.0968		0.1133	0.1143	0.1144	0.1147	
		$\overline{SE}$	–	0.0764	0.0764	0.0765		–	0.1045	0.1045	0.1051	
		CR	–	83%	82%	82%		–	87%	87%	87%	
	MSII-FM-B	*Mean*	1.0629	1.0610	1.0611	1.0610		0.9471	0.9699	0.9698	0.9678	
		SD	0.0748	0.0746	0.0746	0.0752		0.1107	0.1119	0.1120	0.1119	
		RMSE	0.0978	0.0964	0.0964	0.0968		0.1227	0.1158	0.1160	0.1165	
		$\overline{SE}$	–	0.0764	0.0764	0.0766		–	0.1043	0.1044	0.1049	
		CR	–	82%	83%	82%		–	86%	86%	86%	
(2000, 4000)	OLS*	*Mean*	0.9999					1.0003				
$\Longrightarrow \kappa = 1/2$		*SD*	0.0135					0.0400				
		RMSE	0.0135					0.0400				
		$\overline{SE}$	0.0139					0.0415				
		CR	96%					95%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.5263	0.7077	0.8497	0.9584	1.0627	1.1196	1.0705	1.0328	1.0023	0.9673
		SD	0.0317	0.0339	0.0354	0.0374	0.0395	0.0895	0.0857	0.0834	0.0835	0.0865
		RMSE	0.4748	0.2943	0.1544	0.0560	0.0741	0.1493	0.1110	0.0896	0.0835	0.0925
	MSOLS-B	*Mean*	0.5265	0.7079	0.8500	0.9587	1.0631	1.1078	1.0614	1.0250	0.9948	0.9585
		SD	0.0318	0.0340	0.0354	0.0374	0.0395	0.0898	0.0857	0.0834	0.0836	0.0870
		RMSE	0.4746	0.2941	0.1541	0.0557	0.0745	0.1403	0.1054	0.0870	0.0838	0.0963
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	1.0385	1.0383	1.0383	1.0357		0.9841	0.9834	0.9835	0.9835	
		SD	0.0673	0.0674	0.0674	0.0677		0.0983	0.0984	0.0983	0.1013	
		RMSE	0.0776	0.0775	0.0775	0.0766		0.0996	0.0998	0.0997	0.1026	
		$\overline{SE}$	–	0.0649	0.0649	0.0649		–	0.0992	0.0992	0.0996	
		CR	–	83%	84%	85%		–	90%	90%	89%	
	MSII-FM-B	*Mean*	1.0389	1.0383	1.0383	1.0357		0.9722	0.9833	0.9834	0.9834	
		SD	0.0674	0.0674	0.0674	0.0677		0.0988	0.0989	0.0988	0.1015	
		RMSE	0.0778	0.0775	0.0775	0.0766		0.1026	0.1003	0.1002	0.1028	
		$\overline{SE}$	–	0.0649	0.0649	0.0649		–	0.0991	0.0991	0.0994	
		CR	–	84%	84%	85%		–	90%	90%	89%	

Table B2: *Continued*

Model C: $g_{22}(z) = 4\sqrt{|z/2|(1-|z/2|)}\sin\{2\pi(1+\epsilon)/(|z/2|+\epsilon)\}$, $\epsilon = 0.05$

(n,m)	Estimator		β_{22}					γ_1				
$(1000, 500)$	OLS*	*Mean*	0.9998					0.9995				
$\Longrightarrow \kappa = 2$		*SD*	0.0164					0.0598				
		RMSE	0.0164					0.0598				
		$\overline{SE}$	0.0164					0.0586				
		CR	95%					95%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.3955	0.5479	0.7069	0.8872	1.1755	1.0742	1.0368	0.9975	0.9445	0.8696
		SD	0.0608	0.0728	0.0967	0.1413	0.2329	0.2113	0.2130	0.2384	0.2908	0.3722
		RMSE	0.6076	0.4580	0.3086	0.1808	0.2916	0.2239	0.2161	0.2384	0.2960	0.3944
	MSOLS-B	*Mean*	0.3957	0.5482	0.7073	0.8881	1.1783	0.9863	0.9678	0.9355	0.8800	0.7880
		SD	0.0610	0.0730	0.0972	0.1423	0.2348	0.2154	0.2150	0.2420	0.2989	0.3917
		RMSE	0.6074	0.4577	0.3085	0.1811	0.2948	0.2159	0.2174	0.2505	0.3221	0.4453
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	1.2714	1.2743	1.2751	1.2392		0.9455	0.9404	0.9413	0.9378	
		SD	0.2956	0.2968	0.2971	0.2967		0.2772	0.2838	0.2863	0.2841	
		RMSE	0.4013	0.4042	0.4049	0.3811		0.2825	0.2900	0.2923	0.2908	
		$\overline{SE}$	–	0.2996	0.2999	0.2966		–	0.2207	0.2215	0.2227	
		CR	–	97%	97%	97%		–	88%	88%	88%	
	MSII-FM-B	*Mean*	1.2722	1.2742	1.2750	1.2390		0.8573	0.9375	0.9383	0.9359	
		SD	0.2960	0.2969	0.2972	0.2968		0.2803	0.2899	0.2936	0.2876	
		RMSE	0.4021	0.4041	0.4049	0.3810		0.3145	0.2965	0.3000	0.2947	
		$\overline{SE}$	–	0.2996	0.2999	0.2966		–	0.2206	0.2215	0.2221	
		CR	–	97%	97%	97%		–	87%	87%	87%	
$(1000, 1000)$	OLS*	*Mean*	0.9986					0.9977				
$\Longrightarrow \kappa = 1$		*SD*	0.0165					0.0571				
		RMSE	0.0166					0.0572				
		$\overline{SE}$	0.0164					0.0588				
		CR	95%					95%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.4733	0.6337	0.7856	0.9459	1.1348	1.0597	1.0291	1.0100	0.9780	0.9319
		SD	0.0528	0.0571	0.0662	0.0847	0.1211	0.1767	0.1725	0.1766	0.1967	0.2391
		RMSE	0.5294	0.3707	0.2243	0.1005	0.1812	0.1865	0.1749	0.1769	0.1979	0.2486
	MSOLS-B	*Mean*	0.4735	0.6340	0.7858	0.9461	1.1355	1.0123	0.9931	0.9795	0.9457	0.8910
		SD	0.0529	0.0573	0.0664	0.0850	0.1218	0.1782	0.1731	0.1786	0.1991	0.2466
		RMSE	0.5292	0.3705	0.2242	0.1006	0.1822	0.1786	0.1732	0.1798	0.2064	0.2696
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	1.1785	1.1803	1.1805	1.1588		0.9740	0.9723	0.9725	0.9667	
		SD	0.1768	0.1772	0.1773	0.1750		0.2100	0.2123	0.2133	0.2165	
		RMSE	0.2512	0.2528	0.2530	0.2363		0.2116	0.2141	0.2150	0.2191	
		$\overline{SE}$	–	0.1688	0.1689	0.1679		–	0.1869	0.1871	0.1891	
		CR	–	87%	87%	90%		–	92%	92%	92%	
	MSII-FM-B	*Mean*	1.1791	1.1803	1.1805	1.1587		0.9272	0.9710	0.9714	0.9654	
		SD	0.1770	0.1772	0.1773	0.1750		0.2114	0.2153	0.2160	0.2185	
		RMSE	0.2518	0.2528	0.2530	0.2363		0.2236	0.2173	0.2179	0.2212	
		$\overline{SE}$	–	0.1688	0.1689	0.1679		–	0.1866	0.1868	0.1887	
		CR	–	87%	87%	90%		–	90%	90%	91%	

Table B2: *Continued*

Model C: *Continued*

(n,m)	Estimator		β_{22}					γ_1				
$(1000, 2000)$	OLS*	*Mean*	0.9996					1.0010				
$\Longrightarrow \kappa = 1/2$		*SD*	0.0167					0.0589				
		RMSE	0.0167					0.0589				
		$\overline{SE}$	0.0164					0.0586				
		CR	95%					96%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.5383	0.6968	0.8378	0.9698	1.1154	1.0418	1.0200	1.0042	0.9840	0.9520
		SD	0.0456	0.0487	0.0538	0.0608	0.0789	0.1527	0.1419	0.1404	0.1503	0.1668
		RMSE	0.4639	0.3071	0.1709	0.0679	0.1398	0.1584	0.1433	0.1404	0.1511	0.1736
	MSOLS-B	*Mean*	0.5384	0.6968	0.8378	0.9699	1.1157	1.0186	1.0018	0.9885	0.9683	0.9326
		SD	0.0457	0.0487	0.0538	0.0609	0.0791	0.1530	0.1424	0.1406	0.1519	0.1689
		RMSE	0.4639	0.3071	0.1709	0.0679	0.1401	0.1542	0.1424	0.1411	0.1552	0.1819
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	1.1289	1.1300	1.1302	1.1191		0.9807	0.9799	0.9799	0.9772	
		SD	0.1183	0.1176	0.1177	0.1183		0.1744	0.1748	0.1753	0.1770	
		RMSE	0.1749	0.1753	0.1755	0.1679		0.1755	0.1760	0.1765	0.1785	
		$\overline{SE}$	–	0.1141	0.1142	0.1140		–	0.1672	0.1673	0.1692	
		CR	–	83%	83%	86%		–	94%	94%	94%	
	MSII-FM-B	*Mean*	1.1291	1.1300	1.1302	1.1191		0.9576	0.9802	0.9801	0.9774	
		SD	0.1186	0.1176	0.1177	0.1183		0.1752	0.1766	0.1771	0.1784	
		RMSE	0.1753	0.1753	0.1755	0.1679		0.1803	0.1777	0.1782	0.1799	
		$\overline{SE}$	–	0.1141	0.1142	0.1140		–	0.1670	0.1671	0.1689	
		CR	–	83%	83%	86%		–	94%	94%	94%	
$(2000, 1000)$	OLS*	*Mean*	0.9994					1.0009				
$\Longrightarrow \kappa = 2$		*SD*	0.0117					0.0395				
		RMSE	0.0117					0.0396				
		$\overline{SE}$	0.0116					0.0415				
		CR	96%					96%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.4740	0.6327	0.7863	0.9445	1.1323	1.0610	1.0335	1.0078	0.9777	0.9314
		SD	0.0413	0.0459	0.0544	0.0743	0.1090	0.1360	0.1337	0.1446	0.1675	0.2109
		RMSE	0.5277	0.3701	0.2205	0.0928	0.1714	0.1491	0.1378	0.1448	0.1690	0.2218
	MSOLS-B	*Mean*	0.4741	0.6330	0.7865	0.9448	1.1328	1.0151	0.9984	0.9772	0.9458	0.8913
		SD	0.0414	0.0461	0.0545	0.0746	0.1095	0.1363	0.1347	0.1465	0.1705	0.2180
		RMSE	0.5276	0.3699	0.2204	0.0928	0.1722	0.1372	0.1347	0.1482	0.1790	0.2436
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	1.1691	1.1709	1.1713	1.1526		0.9772	0.9743	0.9746	0.9734	
		SD	0.1419	0.1414	0.1415	0.1403		0.1699	0.1704	0.1705	0.1778	
		RMSE	0.2208	0.2219	0.2221	0.2073		0.1714	0.1723	0.1724	0.1798	
		$\overline{SE}$	–	0.1396	0.1396	0.1389		–	0.1321	0.1323	0.1337	
		CR	–	82%	82%	87%		–	87%	87%	85%	
	MSII-FM-B	*Mean*	1.1694	1.1709	1.1713	1.1525		0.9313	0.9740	0.9738	0.9729	
		SD	0.1422	0.1414	0.1415	0.1404		0.1702	0.1715	0.1720	0.1782	
		RMSE	0.2212	0.2219	0.2221	0.2073		0.1836	0.1735	0.1739	0.1803	
		$\overline{SE}$	–	0.1396	0.1396	0.1389		–	0.1319	0.1321	0.1334	
		CR	–	82%	82%	86%		–	87%	86%	86%	

Table B2: *Continued*

Model C: *Continued*

(n, m)	Estimator		β_{22}					γ_1				
(2000, 2000)	OLS*	*Mean*	0.9997					1.0009				
$\Longrightarrow \kappa = 1$		*SD*	0.0116					0.0405				
		RMSE	0.0116					0.0406				
		$\overline{SE}$	0.0116					0.0415				
		CR	95%					95%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.5365	0.6953	0.8374	0.9698	1.1123	1.0429	1.0200	1.0000	0.9811	0.9524
		SD	0.0350	0.0372	0.0421	0.0502	0.0646	0.1095	0.1049	0.1071	0.1160	0.1319
		RMSE	0.4648	0.3070	0.1680	0.0586	0.1295	0.1176	0.1068	0.1071	0.1175	0.1403
	MSOLS-B	*Mean*	0.5365	0.6953	0.8374	0.9699	1.1124	1.0192	1.0020	0.9844	0.9656	0.9333
		SD	0.0351	0.0372	0.0421	0.0503	0.0649	0.1105	0.1055	0.1077	0.1171	0.1347
		RMSE	0.4648	0.3069	0.1679	0.0587	0.1298	0.1121	0.1055	0.1089	0.1220	0.1503
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	1.1229	1.1242	1.1243	1.1132		0.9787	0.9778	0.9776	0.9752	
		SD	0.0932	0.0933	0.0933	0.0924		0.1250	0.1254	0.1256	0.1274	
		RMSE	0.1543	0.1553	0.1554	0.1461		0.1268	0.1274	0.1276	0.1298	
		$\overline{SE}$	–	0.0894	0.0894	0.0892		–	0.1183	0.1183	0.1198	
		CR	–	63%	63%	69%		–	87%	87%	88%	
	MSII-FM-B	*Mean*	1.1230	1.1242	1.1243	1.1131		0.9548	0.9774	0.9772	0.9753	
		SD	0.0933	0.0933	0.0933	0.0924		0.1258	0.1267	0.1269	0.1288	
		RMSE	0.1544	0.1553	0.1554	0.1461		0.1337	0.1287	0.1289	0.1312	
		$\overline{SE}$	–	0.0894	0.0894	0.0892		–	0.1182	0.1182	0.1196	
		CR	–	63%	63%	69%		–	86%	86%	87%	
(2000, 4000)	OLS*	*Mean*	1.0004					1.0003				
$\Longrightarrow \kappa = 1/2$		*SD*	0.0115					0.0399				
		RMSE	0.0115					0.0399				
		$\overline{SE}$	0.0116					0.0414				
		CR	95%					95%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.5879	0.7403	0.8679	0.9784	1.0875	1.0367	1.0190	1.0052	0.9924	0.9741
		SD	0.0302	0.0327	0.0350	0.0393	0.0474	0.0992	0.0957	0.0944	0.0970	0.1036
		RMSE	0.4132	0.2618	0.1367	0.0448	0.0995	0.1057	0.0975	0.0945	0.0973	0.1068
	MSOLS-B	*Mean*	0.5879	0.7403	0.8679	0.9784	1.0876	1.0246	1.0095	0.9972	0.9848	0.9653
		SD	0.0302	0.0327	0.0351	0.0392	0.0474	0.0997	0.0957	0.0944	0.0973	0.1044
		RMSE	0.4132	0.2618	0.1367	0.0448	0.0996	0.1027	0.0962	0.0944	0.0985	0.1100
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	1.0855	1.0861	1.0862	1.0803		0.9881	0.9872	0.9873	0.9869	
		SD	0.0655	0.0656	0.0656	0.0657		0.1101	0.1100	0.1099	0.1140	
		RMSE	0.1077	0.1083	0.1083	0.1038		0.1108	0.1107	0.1107	0.1148	
		$\overline{SE}$	–	0.0650	0.0650	0.0650		–	0.1094	0.1095	0.1106	
		CR	–	67%	67%	70%		–	90%	90%	90%	
	MSII-FM-B	*Mean*	1.0855	1.0861	1.0862	1.0803		0.9759	0.9868	0.9869	0.9864	
		SD	0.0656	0.0656	0.0656	0.0657		0.1107	0.1108	0.1107	0.1146	
		RMSE	0.1077	0.1083	0.1083	0.1038		0.1133	0.1116	0.1115	0.1154	
		$\overline{SE}$	–	0.0650	0.0650	0.0650		–	0.1094	0.1094	0.1105	
		CR	–	67%	67%	70%		–	90%	90%	90%	

Table B3: Monte Carlo Results ($d_3 = 3$)

Model A: $g_{22}(z) = z + (5/\tau)\,\phi(z/\tau)$, $\tau = 0.75$

(n,m)	Estimator		β_{22}					γ_1				
$(1000, 500)$	OLS*	*Mean*	0.9998					1.0004				
$\Longrightarrow \kappa = 2$		*SD*	0.0179					0.0595				
		RMSE	0.0179					0.0595				
		$\overline{SE}$	0.0182					0.0603				
		CR	95%					95%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	1.1216	0.9998	0.7247	0.3344	-0.1169	1.0739	1.0735	1.1935	1.3952	1.6127
		SD	0.1232	0.1372	0.1787	0.2461	0.3599	0.4073	0.4165	0.4487	0.5282	0.6401
		RMSE	0.1731	0.1372	0.3282	0.7096	1.1735	0.4139	0.4229	0.4887	0.6597	0.8860
	MSOLS-B	*Mean*	1.2502	1.1261	0.8567	0.4898	0.1097	-0.0781	0.1476	0.3845	0.6191	0.7544
		SD	0.1258	0.1401	0.1806	0.2465	0.3741	0.4126	0.4306	0.4760	0.5700	0.7174
		RMSE	0.2800	0.1885	0.2305	0.5667	0.9657	1.1544	0.9550	0.7780	0.6855	0.7582
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	0.6853	1.1387	1.1345	0.9234		1.2147	0.8184	0.8224	0.9692	
		SD	0.3615	0.3842	0.3897	0.3940		0.5147	0.5294	0.5443	0.5404	
		RMSE	0.4793	0.4085	0.4122	0.4014		0.5577	0.5597	0.5726	0.5413	
		$\overline{SE}$	–	0.4538	0.4550	0.4675		–	0.4885	0.4927	0.4918	
		CR	–	96%	97%	99%		–	91%	90%	92%	
	MSII-FM-B	*Mean*	0.9286	1.2006	1.1964	0.9696		-0.0206	0.4094	0.4122	0.5733	
		SD	0.3849	0.3774	0.3802	0.3898		0.5304	0.5803	0.5930	0.5700	
		RMSE	0.3914	0.4274	0.4280	0.3910		1.1502	0.8280	0.8349	0.7121	
		$\overline{SE}$	–	0.4966	0.4977	0.5114		–	0.5177	0.5215	0.5177	
		CR	–	97%	97%	99%		–	75%	75%	82%	
$(1000, 1000)$	OLS*	*Mean*	1.0004					0.9992				
$\Longrightarrow \kappa = 1$		*SD*	0.0187					0.0597				
		RMSE	0.0187					0.0597				
		$\overline{SE}$	0.0182					0.0603				
		CR	95%					95%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	1.0105	0.9051	0.6807	0.3214	-0.1630	1.1301	1.1272	1.2316	1.4342	1.7089
		SD	0.0962	0.1014	0.1199	0.1514	0.2128	0.3290	0.3183	0.3397	0.3873	0.4674
		RMSE	0.0967	0.1388	0.3411	0.6953	1.1823	0.3538	0.3428	0.4112	0.5818	0.8491
	MSOLS-B	*Mean*	1.0902	0.9792	0.7550	0.4024	-0.0597	0.3008	0.4906	0.6911	0.9211	1.1527
		SD	0.0979	0.1037	0.1216	0.1537	0.1537	0.3351	0.3263	0.3567	0.4138	0.4138
		RMSE	0.1331	0.1057	0.2735	0.6170	1.0811	0.7754	0.6049	0.4719	0.4213	0.5276
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	0.7877	1.0676	1.0640	0.9427		1.1580	0.9078	0.9081	0.9845	
		SD	0.2137	0.2263	0.2277	0.2261		0.3693	0.3679	0.3714	0.3544	
		RMSE	0.3012	0.2362	0.2366	0.2332		0.4017	0.3793	0.3826	0.3547	
		$\overline{SE}$	–	0.2679	0.2684	0.2682		–	0.3574	0.3591	0.3477	
		CR	–	97%	97%	98%		–	94%	94%	95%	
	MSII-FM-B	*Mean*	0.9305	1.0881	1.0853	0.9586		0.2842	0.7065	0.7038	0.7863	
		SD	0.2231	0.2215	0.2224	0.2224		0.3831	0.4064	0.4118	0.3929	
		RMSE	0.2336	0.2384	0.2382	0.2262		0.8119	0.5013	0.5073	0.4472	
		$\overline{SE}$	–	0.2807	0.2811	0.2812		–	0.3668	0.3685	0.3547	
		CR	–	98%	98%	99%		–	85%	85%	89%	

Table B3: *Continued*

Model A: *Continued*

(n,m)	Estimator		β_{22}					γ_1				
(1000, 2000)	OLS*	*Mean*	1.0006					0.9983				
$\Longrightarrow \kappa = 1/2$		*SD*	0.0185					0.0608				
		RMSE	0.0185					0.0608				
		$\overline{SE}$	0.0182					0.0602				
		CR	95%					95%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.9305	0.8640	0.7019	0.4255	0.0184	1.1432	1.1475	1.2235	1.3814	1.6197
		SD	0.0798	0.0808	0.0860	0.1045	0.1332	0.2679	0.2373	0.2348	0.2517	0.3003
		RMSE	0.1059	0.1582	0.3103	0.5839	0.9906	0.3038	0.2794	0.3241	0.4569	0.6886
	MSOLS-B	*Mean*	0.9816	0.9104	0.7459	0.4715	0.0713	0.5673	0.7149	0.8657	1.0485	1.2690
		SD	0.0810	0.0826	0.0865	0.1047	0.1333	0.2793	0.2478	0.2420	0.2636	0.3155
		RMSE	0.0831	0.1218	0.2684	0.5388	0.9382	0.5150	0.3777	0.2768	0.2680	0.4146
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	0.8607	1.0333	1.0318	0.9702		1.1012	0.9424	0.9441	0.9881	
		SD	0.1523	0.1581	0.1587	0.1522		0.2958	0.2983	0.2991	0.2855	
		RMSE	0.2064	0.1616	0.1619	0.1551		0.3126	0.3039	0.3043	0.2858	
		$\overline{SE}$	–	0.1764	0.1766	0.1735		–	0.2864	0.2869	0.2755	
		CR	–	97%	97%	98%		–	95%	95%	94%	
	MSII-FM-B	*Mean*	0.9509	1.0423	1.0406	0.9777		0.4943	0.8397	0.8414	0.8862	
		SD	0.1569	0.1563	0.1567	0.1509		0.3100	0.3239	0.3249	0.3139	
		RMSE	0.1644	0.1619	0.1618	0.1525		0.5931	0.3614	0.3615	0.3339	
		$\overline{SE}$	–	0.1807	0.1808	0.1778		–	0.2905	0.2911	0.2779	
		CR	–	97%	97%	98%		–	88%	88%	90%	
(2000, 1000)	OLS*	*Mean*	0.9996					1.0007				
$\Longrightarrow \kappa = 2$		*SD*	0.0130					0.0429				
		RMSE	0.0130					0.0430				
		$\overline{SE}$	0.0129					0.0427				
		CR	95%					95%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	1.0144	0.9119	0.6848	0.3269	-0.1556	1.1267	1.1333	1.2447	1.4379	1.7020
		SD	0.0751	0.0828	0.1003	0.1365	0.1926	0.2567	0.2579	0.2797	0.3333	0.4144
		RMSE	0.0765	0.1209	0.3308	0.6868	1.1715	0.2862	0.2903	0.3717	0.5504	0.8152
	MSOLS-B	*Mean*	1.0956	0.9879	0.7600	0.4093	-0.0524	0.2957	0.4913	0.7009	0.9220	1.1476
		SD	0.0775	0.0849	0.1022	0.1387	0.1967	0.2641	0.2731	0.2937	0.3518	0.4394
		RMSE	0.1230	0.0858	0.2609	0.6068	1.0706	0.7522	0.5774	0.4192	0.3604	0.4635
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	0.7951	1.0719	1.0690	0.9545		1.1584	0.9104	0.9139	0.9871	
		SD	0.1801	0.1857	0.1869	0.1819		0.2994	0.3037	0.3062	0.2898	
		RMSE	0.2728	0.1992	0.1993	0.1875		0.3387	0.3166	0.3180	0.2901	
		$\overline{SE}$	–	0.2412	0.2415	0.2434		–	0.2788	0.2798	0.2734	
		CR	–	98%	98%	99%		–	92%	91%	94%	
	MSII-FM-B	*Mean*	0.9408	1.0946	1.0920	0.9718		0.2790	0.6999	0.7023	0.7832	
		SD	0.1895	0.1839	0.1845	0.1808		0.3125	0.3315	0.3355	0.3187	
		RMSE	0.1985	0.2069	0.2061	0.1830		0.7858	0.4471	0.4485	0.3854	
		$\overline{SE}$	–	0.2540	0.2543	0.2564		–	0.2887	0.2897	0.2817	
		CR	–	98%	98%	99%		–	77%	78%	85%	

Table B3: *Continued*

Model A: *Continued*

(n,m)	Estimator		β_{22}					γ_1				
(2000, 2000)	OLS*	*Mean*	0.9999					0.9992				
$\Longrightarrow \kappa = 1$		*SD*	0.0131					0.0431				
		RMSE	0.0131					0.0431				
		$\overline{SE}$	0.0129					0.0427				
		CR	95%					94%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.9289	0.8668	0.7056	0.4301	0.0225	1.1461	1.1436	1.2127	1.3675	1.5993
		SD	0.0593	0.0631	0.0713	0.0862	0.1159	0.2027	0.1882	0.1866	0.2113	0.2614
		RMSE	0.0926	0.1474	0.3029	0.5764	0.9843	0.2499	0.2368	0.2829	0.4239	0.6539
	MSOLS-B	*Mean*	0.9793	0.9129	0.7491	0.4760	0.0770	0.5751	0.7141	0.8586	1.0349	1.2431
		SD	0.0609	0.0643	0.0722	0.0872	0.1162	0.2073	0.1934	0.1912	0.2192	0.2694
		RMSE	0.0643	0.1082	0.2611	0.5312	0.9302	0.4728	0.3452	0.2378	0.2219	0.3629
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	0.8607	1.0296	1.0285	0.9666		1.1016	0.9464	0.9470	0.9884	
		SD	0.1172	0.1196	0.1200	0.1158		0.2236	0.2245	0.2252	0.2130	
		RMSE	0.1821	0.1232	0.1233	0.1205		0.2457	0.2308	0.2314	0.2133	
		$\overline{SE}$	–	0.1503	0.1504	0.1491		–	0.2124	0.2128	0.2053	
		CR	–	95%	96%	97%		–	88%	88%	88%	
	MSII-FM-B	*Mean*	0.9492	1.0372	1.0360	0.9729		0.5015	0.8511	0.8517	0.8928	
		SD	0.1218	0.1189	0.1192	0.1153		0.2316	0.2453	0.2465	0.2304	
		RMSE	0.1319	0.1246	0.1245	0.1184		0.5497	0.2870	0.2877	0.2541	
		$\overline{SE}$	–	0.1544	0.1545	0.1533		–	0.2168	0.2172	0.2084	
		CR	–	96%	96%	98%		–	78%	79%	82%	
(2000, 4000)	OLS*	*Mean*	1.0006					0.9997				
$\Longrightarrow \kappa = 1/2$		*SD*	0.0125					0.0426				
		RMSE	0.0125					0.0426				
		$\overline{SE}$	0.0129					0.0427				
		CR	96%					96%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.8680	0.8456	0.7484	0.5620	0.2663	1.1698	1.1454	1.1866	1.2876	1.4625
		SD	0.0476	0.0493	0.0522	0.0598	0.0740	0.1609	0.1463	0.1462	0.1576	0.1774
		RMSE	0.1403	0.1621	0.2569	0.4421	0.7374	0.2339	0.2063	0.2371	0.3279	0.4954
	MSOLS-B	*Mean*	0.8998	0.8740	0.7747	0.5892	0.2976	0.7801	0.8600	0.9558	1.0731	1.2347
		SD	0.0483	0.0499	0.0530	0.0601	0.0747	0.1654	0.1525	0.1513	0.1637	0.1870
		RMSE	0.1112	0.1356	0.2315	0.4152	0.7063	0.2751	0.2071	0.1576	0.1793	0.3001
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	0.9108	1.0158	1.0154	0.9846		1.0662	0.9697	0.9704	0.9822	
		SD	0.0849	0.0862	0.0866	0.0841		0.1728	0.1705	0.1713	0.1708	
		RMSE	0.1231	0.0876	0.0879	0.0855		0.1850	0.1732	0.1738	0.1717	
		$\overline{SE}$	–	0.1021	0.1021	0.1003		–	0.1734	0.1735	0.1673	
		CR	–	98%	98%	98%		–	95%	95%	94%	
	MSII-FM-B	*Mean*	0.9661	1.0188	1.0184	0.9869		0.6581	0.9241	0.9252	0.9390	
		SD	0.0871	0.0855	0.0855	0.0831		0.1783	0.1827	0.1835	0.1801	
		RMSE	0.0935	0.0875	0.0874	0.0841		0.3856	0.1978	0.1982	0.1902	
		$\overline{SE}$	–	0.1036	0.1036	0.1018		–	0.1752	0.1754	0.1685	
		CR	–	98%	98%	98%		–	92%	92%	92%	

Table B3: *Continued*

Model B: $g_{22}(z) = 2|z|$

(n,m)	Estimator		β_{22}					γ_1				
$(1000, 500)$	OLS*	*Mean*	1.0003					1.0001				
$\Longrightarrow \kappa = 2$		*SD*	0.0161					0.0581				
		RMSE	0.0161					0.0581				
		$\overline{SE}$	0.0161					0.0586				
		CR	95%					96%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.2363	0.5494	0.8987	1.2655	1.6227	1.3068	1.1610	1.0081	0.8499	0.6838
		SD	0.0821	0.0945	0.1140	0.1561	0.2216	0.3164	0.3359	0.3733	0.4421	0.5264
		RMSE	0.7681	0.4604	0.1525	0.3080	0.6610	0.4407	0.3725	0.3734	0.4669	0.6141
	MSOLS-B	*Mean*	0.2465	0.5623	0.9171	1.2958	1.6881	0.6130	0.6130	0.5331	0.3937	0.1744
		SD	0.0835	0.0952	0.1154	0.1580	0.2267	0.3285	0.3521	0.3992	0.4879	0.6110
		RMSE	0.7581	0.4479	0.1421	0.3353	0.7244	0.5076	0.5231	0.6143	0.7782	1.0271
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	1.1273	1.0590	1.0632	1.2896		0.9368	0.9271	0.9273	0.8593	
		SD	0.2386	0.2417	0.2426	0.2779		0.4106	0.4239	0.4339	0.4503	
		RMSE	0.2704	0.2487	0.2506	0.4014		0.4154	0.4301	0.4400	0.4717	
		$\overline{SE}$	–	0.2377	0.2386	0.2546		–	0.3281	0.3323	0.3396	
		CR	–	96%	96%	86%		–	88%	87%	84%	
	MSII-FM-B	*Mean*	1.1585	1.0592	1.0636	1.2937		0.2298	0.6899	0.6893	0.6180	
		SD	0.2436	0.2419	0.2428	0.2796		0.4257	0.4833	0.4963	0.4900	
		RMSE	0.2907	0.2490	0.2510	0.4056		0.8800	0.5742	0.5855	0.6213	
		$\overline{SE}$	–	0.2399	0.2407	0.2574		–	0.3270	0.3311	0.3340	
		CR	–	96%	96%	86%		–	73%	73%	71%	
$(1000, 1000)$	OLS*	*Mean*	0.9995					0.9997				
$\Longrightarrow \kappa = 1$		*SD*	0.0162					0.0580				
		RMSE	0.0162					0.0580				
		$\overline{SE}$	0.0161					0.0586				
		CR	95%					96%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.3731	0.6713	0.9796	1.3117	1.6686	1.2515	1.1158	0.9867	0.8516	0.7005
		SD	0.0704	0.0737	0.0829	0.1037	0.1391	0.2681	0.2678	0.2918	0.3287	0.3905
		RMSE	0.6309	0.3368	0.0854	0.3285	0.6829	0.3676	0.2918	0.2921	0.3607	0.4921
	MSOLS-B	*Mean*	0.3803	0.6796	0.9898	1.3268	1.6963	0.7441	0.7329	0.6641	0.5418	0.3553
		SD	0.0715	0.0743	0.0840	0.1050	0.1417	0.2729	0.2737	0.3061	0.3520	0.4288
		RMSE	0.6238	0.3289	0.0846	0.3432	0.7106	0.3741	0.3824	0.4545	0.5778	0.7743
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	1.0871	1.0445	1.0461	1.1812		0.9672	0.9593	0.9569	0.9118	
		SD	0.1532	0.1539	0.1543	0.1620		0.3164	0.3197	0.3215	0.3241	
		RMSE	0.1762	0.1602	0.1610	0.2431		0.3180	0.3223	0.3243	0.3359	
		$\overline{SE}$	–	0.1515	0.1518	0.1569		–	0.2750	0.2764	0.2759	
		CR	–	89%	89%	71%		–	82%	83%	82%	
	MSII-FM-B	*Mean*	1.1042	1.0443	1.0461	1.1823		0.4556	0.8377	0.8331	0.7883	
		SD	0.1553	0.1539	0.1542	0.1619		0.3247	0.3595	0.3636	0.3618	
		RMSE	0.1871	0.1601	0.1609	0.2438		0.6339	0.3944	0.4001	0.4192	
		$\overline{SE}$	–	0.1521	0.1524	0.1576		–	0.2758	0.2774	0.2746	
		CR	–	89%	90%	71%		–	76%	75%	73%	

Table B3: *Continued*

Model B: *Continued*

(n,m)	Estimator		β_{22}					γ_1				
(1000, 2000)	OLS*	*Mean*	0.9994					0.9988				
$\Longrightarrow \kappa = 1/2$		*SD*	0.0164					0.0591				
		RMSE	0.0164					0.0591				
		$\overline{SE}$	0.0161					0.0585				
		CR	94%					94%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.4706	0.7356	0.9960	1.2694	1.5771	1.1907	1.0924	0.9896	0.8783	0.7489
		SD	0.0565	0.0581	0.0623	0.0724	0.0903	0.2219	0.2118	0.2103	0.2271	0.2642
		RMSE	0.5324	0.2707	0.0624	0.2790	0.5841	0.2926	0.2311	0.2106	0.2577	0.3645
	MSOLS-B	*Mean*	0.4758	0.7407	1.0018	1.2769	1.5890	0.8343	0.8300	0.7738	0.6767	0.5315
		SD	0.0564	0.0582	0.0624	0.0729	0.0908	0.2279	0.2151	0.2153	0.2366	0.2781
		RMSE	0.5272	0.2657	0.0624	0.2863	0.5959	0.2817	0.2741	0.3123	0.4006	0.5448
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	1.0590	1.0328	1.0338	1.1133		0.9730	0.9675	0.9677	0.9456	
		SD	0.1085	0.1103	0.1105	0.1136		0.2456	0.2499	0.2507	0.2487	
		RMSE	0.1236	0.1150	0.1155	0.1604		0.2471	0.2520	0.2527	0.2546	
		$\overline{SE}$	–	0.1077	0.1078	0.1097		–	0.2358	0.2362	0.2344	
		CR	–	94%	94%	85%		–	94%	94%	93%	
	MSII-FM-B	*Mean*	1.0694	1.0330	1.0340	1.1139		0.6140	0.9033	0.9035	0.8809	
		SD	0.1090	0.1099	0.1101	0.1132		0.2514	0.2742	0.2754	0.2743	
		RMSE	0.1292	0.1147	0.1153	0.1606		0.4606	0.2908	0.2919	0.2990	
		$\overline{SE}$	–	0.1079	0.1080	0.1099		–	0.2368	0.2373	0.2341	
		CR	–	94%	94%	85%		–	90%	88%	87%	
(2000, 1000)	OLS*	*Mean*	0.9999					1.0004				
$\Longrightarrow \kappa = 2$		*SD*	0.0117					0.0416				
		RMSE	0.0117					0.0416				
		$\overline{SE}$	0.0114					0.0415				
		CR	94%					95%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.3704	0.6684	0.9765	1.3096	1.6622	1.2498	1.1254	1.0016	0.8592	0.7033
		SD	0.0519	0.0601	0.0707	0.0902	0.1214	0.2071	0.2168	0.2406	0.2867	0.3501
		RMSE	0.6318	0.3370	0.0745	0.3224	0.6732	0.3244	0.2505	0.2406	0.3194	0.4589
	MSOLS-B	*Mean*	0.3773	0.6762	0.9863	1.3241	1.6890	0.7421	0.7401	0.6780	0.5496	0.3627
		SD	0.0524	0.0605	0.0715	0.0914	0.1237	0.2126	0.2277	0.2517	0.3050	0.3811
		RMSE	0.6249	0.3294	0.0728	0.3368	0.7000	0.3342	0.3456	0.4087	0.5440	0.7426
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	1.0791	1.0366	1.0385	1.1737		0.9747	0.9672	0.9678	0.9240	
		SD	0.1247	0.1256	0.1258	0.1310		0.2475	0.2546	0.2563	0.2530	
		RMSE	0.1476	0.1308	0.1316	0.2176		0.2488	0.2567	0.2583	0.2641	
		$\overline{SE}$	–	0.1276	0.1341	0.1327		–	0.1956	0.2041	0.1962	
		CR	–	95%	94%	79%		–	87%	86%	86%	
	MSII-FM-B	*Mean*	1.0959	1.0367	1.0386	1.1750		0.4599	0.8387	0.8391	0.7963	
		SD	0.1260	0.1252	0.1252	0.1307		0.2544	0.2814	0.2849	0.2802	
		RMSE	0.1583	0.1305	0.1311	0.2184		0.5970	0.3244	0.3272	0.3464	
		$\overline{SE}$	–	0.1281	0.1283	0.1334		–	0.1965	0.1976	0.1953	
		CR	–	95%	95%	80%		–	77%	77%	73%	

Table B3: *Continued*

Model B: *Continued*

(n,m)	Estimator		β_{22}					γ_1				
(2000, 2000)	OLS*	*Mean*	1.0005					0.9990				
$\Longrightarrow \kappa = 1$		*SD*	0.0108					0.0420				
		RMSE	0.0109					0.0420				
		$\overline{SE}$	0.0114					0.0416				
		CR	97%					94%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.4721	0.7349	0.9930	1.2668	1.5746	1.1927	1.0914	0.9839	0.8710	0.7361
		SD	0.0402	0.0437	0.0503	0.0609	0.0786	0.1712	0.1625	0.1671	0.1896	0.2302
		RMSE	0.5295	0.2687	0.0508	0.2737	0.5799	0.2578	0.1864	0.1679	0.2293	0.3502
	MSOLS-B	*Mean*	0.4772	0.7401	0.9988	1.2744	1.5869	0.8413	0.8312	0.7712	0.6700	0.5149
		SD	0.0406	0.0440	0.0504	0.0611	0.0791	0.1717	0.1646	0.1699	0.1961	0.2395
		RMSE	0.5244	0.2636	0.0504	0.2812	0.5922	0.2338	0.2358	0.2850	0.3839	0.5410
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	1.0596	1.0337	1.0344	1.1126		0.9735	0.9678	0.9675	0.9431	
		SD	0.0819	0.0827	0.0828	0.0865		0.1888	0.1907	0.1908	0.1892	
		RMSE	0.1013	0.0892	0.0897	0.1420		0.1907	0.1934	0.1936	0.1975	
		$\overline{SE}$	–	0.0858	0.0858	0.0875		–	0.1670	0.1674	0.1658	
		CR	–	95%	95%	77%		–	90%	91%	90%	
	MSII-FM-B	*Mean*	1.0699	1.0337	1.0344	1.1131		0.6198	0.9096	0.9093	0.8834	
		SD	0.0828	0.0826	0.0828	0.0865		0.1929	0.2087	0.2095	0.2047	
		RMSE	0.1084	0.0892	0.0897	0.1424		0.4263	0.2274	0.2283	0.2356	
		$\overline{SE}$	–	0.0859	0.0860	0.0877		–	0.1685	0.1689	0.1661	
		CR	–	95%	95%	77%		–	86%	86%	83%	
(2000, 4000)	OLS*	*Mean*	0.9996					1.0002				
$\Longrightarrow \kappa = 1/2$		*SD*	0.0117					0.0414				
		RMSE	0.0117					0.0414				
		$\overline{SE}$	0.0114					0.0415				
		CR	95%					95%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.5408	0.7702	0.9797	1.1909	1.4316	1.1577	1.0708	0.9919	0.9042	0.8036
		SD	0.0356	0.0369	0.0392	0.0446	0.0545	0.1374	0.1271	0.1294	0.1416	0.1586
		RMSE	0.4606	0.2328	0.0442	0.1960	0.4350	0.2092	0.1455	0.1297	0.1710	0.2525
	MSOLS-B	*Mean*	0.5441	0.7735	0.9831	1.1950	1.4374	0.9161	0.8968	0.8526	0.7746	0.6635
		SD	0.0358	0.0371	0.0395	0.0449	0.0548	0.1412	0.1315	0.1331	0.1473	0.1667
		RMSE	0.4573	0.2295	0.0429	0.2001	0.4408	0.1642	0.1671	0.1986	0.2692	0.3755
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	1.0409	1.0252	1.0255	1.0696		0.9828	0.9793	0.9796	0.9595	
		SD	0.0610	0.0614	0.0614	0.0632		0.1481	0.1483	0.1487	0.1524	
		RMSE	0.0735	0.0664	0.0665	0.0940		0.1491	0.1497	0.1501	0.1577	
		$\overline{SE}$	–	0.0641	0.0641	0.0647		–	0.1457	0.1459	0.1445	
		CR	–	95%	95%	82%		–	95%	94%	92%	
	MSII-FM-B	*Mean*	1.0469	1.0252	1.0255	1.0697		0.7398	0.9511	0.9517	0.9324	
		SD	0.0614	0.0613	0.0613	0.0631		0.1512	0.1594	0.1604	0.1620	
		RMSE	0.0772	0.0663	0.0664	0.0940		0.3009	0.1667	0.1675	0.1755	
		$\overline{SE}$	–	0.0641	0.0642	0.0648		–	0.1464	0.1466	0.1447	
		CR	–	95%	95%	83%		–	91%	91%	90%	

Table B3: *Continued*

Model C: $g_{22}(z) = 4\sqrt{|z/2|\,(1-|z/2|)}\,\sin\{2\pi\,(1+\epsilon)\,/\,(|z/2|+\epsilon)\}$, $\epsilon = 0.05$

(n, m)	Estimator		β_{22}					γ_1				
$(1000, 500)$	OLS*	*Mean*	1.0000					1.0004				
$\Longrightarrow \kappa = 2$		*SD*	0.0141					0.0580				
		RMSE	0.0141					0.0580				
		$\overline{SE}$	0.0139					0.0585				
		CR	94%					95%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.1411	0.2718	0.4936	0.9182	1.7621	1.1797	1.0863	0.9996	0.9106	0.7789
		SD	0.0924	0.1171	0.1571	0.2391	0.4217	0.3710	0.3812	0.4103	0.4737	0.5816
		RMSE	0.8638	0.7376	0.5302	0.2527	0.8710	0.4123	0.3908	0.4103	0.4821	0.6223
	MSOLS-B	*Mean*	0.1424	0.2741	0.4978	0.9293	1.7980	0.4887	0.5422	0.5281	0.4619	0.2917
		SD	0.0932	0.1176	0.1578	0.2403	0.4264	0.3778	0.3963	0.4331	0.5164	0.6687
		RMSE	0.8627	0.7354	0.5264	0.2505	0.9048	0.6357	0.6055	0.6405	0.7458	0.9741
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	1.3813	1.3024	1.3108	1.3214		0.9379	0.9091	0.9112	0.8966	
		SD	1.0069	1.0051	1.0179	1.1190		0.5240	0.5362	0.5495	0.5593	
		RMSE	1.0767	1.0496	1.0642	1.1643		0.5277	0.5439	0.5566	0.5688	
		$\overline{SE}$	–	0.8795	0.8859	0.9109		–	0.4318	0.4369	0.4397	
		CR	–	94%	93%	94%		–	82%	81%	81%	
	MSII-FM-B	*Mean*	1.3958	1.3013	1.3091	1.3184		0.2421	0.6741	0.6740	0.6597	
		SD	1.0155	1.0025	1.0128	1.1083		0.5232	0.5876	0.6031	0.5840	
		RMSE	1.0899	1.0468	1.0589	1.1531		0.9210	0.6719	0.6856	0.6759	
		$\overline{SE}$	–	0.8807	0.8865	0.9108		–	0.4252	0.4300	0.4265	
		CR	–	94%	93%	95%		–	70%	69%	69%	
$(1000, 1000)$	OLS*	*Mean*	0.9994					0.9997				
$\Longrightarrow \kappa = 1$		*SD*	0.0135					0.0580				
		RMSE	0.0135					0.0580				
		$\overline{SE}$	0.0139					0.0585				
		CR	96%					96%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.2193	0.3687	0.5758	0.8942	1.5035	1.1498	1.0658	0.9978	0.9333	0.8457
		SD	0.0748	0.0887	0.1163	0.1528	0.2340	0.3103	0.3050	0.3246	0.3601	0.4262
		RMSE	0.7843	0.6375	0.4398	0.1859	0.5552	0.3445	0.3121	0.3246	0.3663	0.4532
	MSOLS-B	*Mean*	0.2205	0.3703	0.5788	0.8994	1.5166	0.6439	0.6835	0.6775	0.6299	0.5144
		SD	0.0755	0.0895	0.1168	0.1542	0.2370	0.3176	0.3146	0.3406	0.3837	0.4664
		RMSE	0.7832	0.6360	0.4371	0.1842	0.5684	0.4772	0.4463	0.4691	0.5332	0.6733
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	1.1151	1.0889	1.0901	1.0651		0.9763	0.9550	0.9534	0.9404	
		SD	0.4064	0.4009	0.4005	0.3953		0.3698	0.3751	0.3770	0.3712	
		RMSE	0.4224	0.4106	0.4105	0.4007		0.3705	0.3778	0.3799	0.3760	
		$\overline{SE}$	–	0.3718	0.3726	0.3669		–	0.3288	0.3304	0.3245	
		CR	–	92%	92%	91%		–	85%	85%	86%	
	MSII-FM-B	*Mean*	1.1217	1.0890	1.0903	1.0649		0.4709	0.8358	0.8318	0.8200	
		SD	0.4099	0.4012	0.4009	0.3954		0.3777	0.4210	0.4249	0.4136	
		RMSE	0.4275	0.4110	0.4110	0.4007		0.6501	0.4519	0.4570	0.4511	
		$\overline{SE}$	–	0.3722	0.3730	0.3673		–	0.3273	0.3290	0.3200	
		CR	–	92%	92%	91%		–	77%	77%	76%	

Table B3: *Continued*

Model C: *Continued*

(n, m)	Estimator		β_{22}					γ_1				
(1000, 2000)	OLS*	*Mean*	1.0007					0.9987				
$\Longrightarrow \kappa = 1/2$		*SD*	0.0139					0.0589				
		RMSE	0.0139					0.0589				
		$\overline{SE}$	0.0139					0.0584				
		CR	95%					95%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.2986	0.4622	0.6628	0.9166	1.2987	1.1071	1.0556	1.0025	0.9469	0.8785
		SD	0.0611	0.0689	0.0858	0.1115	0.1546	0.2610	0.2493	0.2474	0.2608	0.2978
		RMSE	0.7040	0.5422	0.3480	0.1393	0.3363	0.2821	0.2554	0.2475	0.2661	0.3217
	MSOLS-B	*Mean*	0.2995	0.4634	0.6643	0.9190	1.3038	0.7526	0.7953	0.7895	0.7492	0.6670
		SD	0.0617	0.0693	0.0862	0.1121	0.1555	0.2659	0.2499	0.2505	0.2688	0.3134
		RMSE	0.7032	0.5411	0.3466	0.1383	0.3413	0.3632	0.3230	0.3272	0.3677	0.4573
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	1.0628	1.0538	1.0548	1.0260		0.9831	0.9690	0.9694	0.9679	
		SD	0.2291	0.2295	0.2303	0.2254		0.2985	0.3018	0.3029	0.2987	
		RMSE	0.2376	0.2357	0.2367	0.2268		0.2990	0.3034	0.3044	0.3004	
		$\overline{SE}$	–	0.2326	0.2328	0.2287		–	0.2821	0.2826	0.2789	
		CR	–	92%	92%	91%		–	88%	88%	87%	
	MSII-FM-B	*Mean*	1.0660	1.0538	1.0548	1.0258		0.6275	0.9051	0.9057	0.9038	
		SD	0.2308	0.2294	0.2302	0.2253		0.3033	0.3302	0.3315	0.3262	
		RMSE	0.2401	0.2356	0.2366	0.2267		0.4803	0.3436	0.3446	0.3401	
		$\overline{SE}$	–	0.2327	0.2329	0.2288		–	0.2823	0.2830	0.2771	
		CR	–	92%	92%	91%		–	81%	82%	82%	
(2000, 1000)	OLS*	*Mean*	1.0003					1.0004				
$\Longrightarrow \kappa = 2$		*SD*	0.0101					0.0416				
		RMSE	0.0101					0.0416				
		$\overline{SE}$	0.0098					0.0414				
		CR	94%					95%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.2211	0.3747	0.5831	0.9049	1.5066	1.1452	1.0718	1.0079	0.9321	0.8381
		SD	0.0553	0.0683	0.0920	0.1298	0.2091	0.2451	0.2486	0.2668	0.3085	0.3753
		RMSE	0.7809	0.6290	0.4270	0.1609	0.5480	0.2849	0.2587	0.2669	0.3159	0.4087
	MSOLS-B	*Mean*	0.2220	0.3760	0.5853	0.9098	1.5189	0.6377	0.6881	0.6873	0.6292	0.5113
		SD	0.0556	0.0687	0.0931	0.1313	0.2118	0.2469	0.2579	0.2755	0.3275	0.4091
		RMSE	0.7800	0.6278	0.4250	0.1593	0.5605	0.4384	0.4048	0.4167	0.4947	0.6374
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	1.1149	1.0863	1.0877	1.0644		0.9773	0.9577	0.9593	0.9470	
		SD	0.3100	0.3091	0.3101	0.3007		0.2945	0.3046	0.3075	0.2941	
		RMSE	0.3306	0.3209	0.3222	0.3075		0.2953	0.3075	0.3102	0.2988	
		$\overline{SE}$	–	0.3010	0.3016	0.2983		–	0.2318	0.2329	0.2289	
		CR	–	92%	92%	92%		–	79%	78%	78%	
	MSII-FM-B	*Mean*	1.1202	1.0860	1.0873	1.0638		0.4662	0.8278	0.8287	0.8188	
		SD	0.3119	0.3092	0.3101	0.3007		0.2932	0.3264	0.3308	0.3158	
		RMSE	0.3343	0.3209	0.3222	0.3074		0.6090	0.3691	0.3725	0.3641	
		$\overline{SE}$	–	0.3013	0.3018	0.2986		–	0.2314	0.2326	0.2259	
		CR	–	92%	92%	92%		–	70%	69%	69%	

Table B3: *Continued*

Model C: *Continued*

(n, m)	Estimator		β_{22}					γ_1				
(2000, 2000)	OLS*	*Mean*	1.0002					0.9991				
$\Longrightarrow \kappa = 1$		*SD*	0.0096					0.0419				
		RMSE	0.0096					0.0419				
		$\overline{SE}$	0.0099					0.0415				
		CR	96%					94%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.2994	0.4653	0.6632	0.9149	1.2939	1.1037	1.0492	0.9910	0.9347	0.8633
		SD	0.0454	0.0541	0.0657	0.0877	0.1231	0.2007	0.1904	0.1946	0.2169	0.2535
		RMSE	0.7021	0.5374	0.3432	0.1222	0.3187	0.2259	0.1967	0.1948	0.2265	0.2880
	MSOLS-B	*Mean*	0.3003	0.4664	0.6648	0.9175	1.2991	0.7534	0.7911	0.7804	0.7366	0.6483
		SD	0.0459	0.0546	0.0664	0.0886	0.1243	0.2033	0.1931	0.1977	0.2235	0.2622
		RMSE	0.7012	0.5364	0.3417	0.1211	0.3239	0.3195	0.2845	0.2955	0.3454	0.4387
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	1.0576	1.0477	1.0481	1.0191		0.9800	0.9667	0.9663	0.9617	
		SD	0.1826	0.1816	0.1818	0.1787		0.2277	0.2305	0.2307	0.2239	
		RMSE	0.1915	0.1877	0.1881	0.1797		0.2286	0.2328	0.2332	0.2271	
		$\overline{SE}$	–	0.1800	0.1802	0.1771		–	0.1985	0.1989	0.1961	
		CR	–	97%	97%	96%		–	90%	90%	91%	
	MSII-FM-B	*Mean*	1.0608	1.0477	1.0481	1.0189		0.6300	0.9094	0.9094	0.9032	
		SD	0.1840	0.1817	0.1819	0.1788		0.2328	0.2526	0.2530	0.2438	
		RMSE	0.1938	0.1879	0.1882	0.1798		0.4371	0.2683	0.2687	0.2623	
		$\overline{SE}$	–	0.1801	0.1802	0.1772		–	0.1996	0.2000	0.1955	
		CR	–	96%	96%	96%		–	84%	85%	85%	
(2000, 4000)	OLS*	*Mean*	0.9996					1.0002				
$\Longrightarrow \kappa = 1/2$		*SD*	0.0101					0.0413				
		RMSE	0.0101					0.0413				
		$\overline{SE}$	0.0099					0.0414				
		CR	94%					96%				
		K	*1*	*2*	*4*	*8*	*16*	*1*	*2*	*4*	*8*	*16*
	MSOLS-A	*Mean*	0.3710	0.5431	0.7357	0.9459	1.2056	1.0850	1.0386	0.9990	0.9525	0.9005
		SD	0.0392	0.0442	0.0498	0.0609	0.0823	0.1632	0.1510	0.1552	0.1676	0.1832
		RMSE	0.6302	0.4590	0.2690	0.0814	0.2215	0.1840	0.1559	0.1552	0.1742	0.2084
	MSOLS-B	*Mean*	0.3715	0.5439	0.7366	0.9472	1.2078	0.8424	0.8644	0.8599	0.8239	0.7632
		SD	0.0393	0.0444	0.0500	0.0610	0.0826	0.1675	0.1556	0.1586	0.1736	0.1910
		RMSE	0.6297	0.4583	0.2681	0.0807	0.2236	0.2300	0.2064	0.2116	0.2473	0.3042
		Poly.	*(initial)*	*2nd*	*3rd*	*4th*		*(initial)*	*2nd*	*3rd*	*4th*	
	MSII-FM-A	*Mean*	1.0282	1.0256	1.0257	0.9994		0.9895	0.9816	0.9820	0.9723	
		SD	0.1203	0.1214	0.1214	0.1187		0.1809	0.1807	0.1811	0.1849	
		RMSE	0.1235	0.1241	0.1241	0.1187		0.1812	0.1817	0.1820	0.1870	
		$\overline{SE}$	–	0.1206	0.1206	0.1188		–	0.1742	0.1744	0.1730	
		CR	–	95%	95%	96%		–	94%	94%	93%	
	MSII-FM-B	*Mean*	1.0298	1.0257	1.0258	0.9994		0.7466	0.9515	0.9522	0.9437	
		SD	0.1203	0.1213	0.1213	0.1186		0.1849	0.1959	0.1964	0.1983	
		RMSE	0.1240	0.1240	0.1240	0.1186		0.3137	0.2018	0.2021	0.2061	
		$\overline{SE}$	–	0.1206	0.1206	0.1188		–	0.1749	0.1751	0.1729	
		CR	–	95%	95%	96%		–	91%	91%	91%	

C An Order Selection Rule for the Polynomial Approximation in MSII-FM

An important practical question on implementing MSII-FM is how to choose the order of polynomials in the power-series approximation. This section suggests a data-driven block-deletion rule that can determine the order of polynomials. We first assume that $\mathcal{K}(m)$ takes the form of $\mathcal{K}(m) = \bar{\mathcal{K}} m^{\bar{\nu}}$ for some constants $\bar{\mathcal{K}} \in (0, \infty)$ and $\bar{\nu}$ satisfying the range of ν in Assumption 6. Because

$$\min\left\{\frac{2}{4d_3+3}, \frac{2}{4d_3^2 - d_3}\right\} = \begin{cases} 1/7 & \text{for } d_3 = 2 \\ 2/33 & \text{for } d_3 = 3 \end{cases},$$

we set the divergence rate of $\mathcal{K}(m)$ equal to

$$\bar{\nu} = \begin{cases} 1/8 & \text{for } d_3 = 2 \\ 1/17 & \text{for } d_3 = 3 \end{cases}.$$

Also observe that the total number of terms in the qth-order polynomial constructed from d_3 variables can be expressed as $(1/d_3!) \prod_{k=1}^{d_3} (q+k)$. After setting the proportionality constant equal to

$$\bar{\mathcal{K}} = \begin{cases} 4 & \text{for } d_3 = 2 \\ 8 & \text{for } d_3 = 3 \end{cases},$$

we can determine the order q^* via

$$\frac{1}{d_3!} \prod_{k=1}^{d_3} (q^* + k) \leq \bar{\mathcal{K}} m^{\bar{\nu}} < \frac{1}{d_3!} \prod_{k=1}^{d_3} (q^* + 1 + k).$$

Under such q^*, $K^* = (1/d_3!) \prod_{k=1}^{d_3} (q^* + k)$ indeed satisfies $K^* \leq O(m^{\bar{\nu}})$.