

# Online Appendix to Testing the Endogeneity of a Spatial Weight Matrix in the Weak-Tied Spatial Dynamic Panel Data Model

Jieun Lee\*

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## Abstract

This online appendix includes additional simulation results with 5,000 replications for various pairs of  $(n, T) \in \{(25, 10), (121, 10), (25, 50)\}$ . Moreover, it presents simulation results for local misspecifications in the time dynamic coefficient (i.e.,  $\gamma$ ) and the spatial time dynamic coefficient (i.e.,  $\rho$ ), followed by joint local misspecifications in  $\eta = (\lambda, \gamma, \rho)$ . The discussion follows.

Additionally, this online appendix includes autocorrelation function plots for the 55 countries analyzed in Section 5 Empirical Illustration.

## OA.1 Simulation Results for Various Pairs of $(n, T)$

The simulation results for various pairs of  $(n, T)$  are reported in Tables OA.1 to OA.11, and the corresponding figures are presented in Figures OA.1 to OA.7. The results for non-normal errors are also reported in Tables OA.12 and OA.13.

### OA.1.1 Local Misspecification in $\lambda$

Overall, the results look inspiring and satisfactory for learning the nice finite sample properties of my proposed test. Notably, the size of unadjusted score tests ( $RS_{\delta}^{B,P}(\tilde{\theta})$ ,  $RS_{\delta}^P(\tilde{\theta})$ ) gets explosive as the magnitude of the local parametric misspecification in  $\lambda$  increases (Figure OA.1 and Tables OA.1 to OA.3). Meanwhile, the size of  $RS_{\delta}^*(\tilde{\theta})$  stays comparatively settled, in particular when the ratio of  $n$  over  $T$  (or vice versa) is getting larger along with more interactive network structure. For example, the solid and outstanding performance of  $RS_{\delta}^*(\tilde{\theta})$  is found in the cases of  $(n, T) = (25, 50)$  or  $(121, 10)$  with the queen contiguity, where more interactive scheme is allowed than with the rook contiguity.

Also, the powers of  $RS_{\delta}^{B,P}(\tilde{\theta})$  and  $RS_{\delta}^P(\tilde{\theta})$  seem to increase merely due to the presence of local parametric misspecification, while the power of  $RS_{\delta}^*(\tilde{\theta})$  stays stable regardless of the magnitude of the local parametric misspecifications in  $\lambda$  (Figure OA.2 and Tables OA.4 to OA.11). These results

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\*First author, Corresponding author. Hubert Department of Global Health, Rollins School of Public Health, Emory University. [jieun.lee@emory.edu](mailto:jieun.lee@emory.edu).

imply how invalid the unadjusted score tests are in some instances, while my proposed test gives asymptotically valid inference when the ratio of  $n$  over  $T$  is large or small.

### OA.2 Local Misspecification in $(\gamma, \rho)$

Unlike the case of  $\lambda$ , the size of the unadjusted score tests turns out to be almost unaffected by the presence of local parametric misspecification in  $\gamma$  (Figure OA.3) or  $\rho$  (Figure OA.4). This seems to be due to the *i.i.d.* assumption over  $i$  and  $t$  for the disturbance terms, where  $\lambda$  is thus the only parameter about the endogenous variable (i.e.,  $W_{nt}Y_{nt}$ ). In contrast,  $(\gamma, \rho)$  are the parameters associated with the exogenous variables relative to  $Y_{nt}$  (i.e.,  $Y_{n,t-1}, W_{n,t-1}Y_{n,t-1}$ ), respectively. It seems that long time periods with small size of network worsens the size of  $RS_{\delta}^*(\tilde{\theta})$ , while its best size performance is found when the ratio of  $n$  over  $T$  is large. Meanwhile, the power in the presence of local misspecifications in  $\gamma$  or  $\rho$  shows fair performance (Figure OA.5).

### OA.3 Joint Local Misspecification in $\eta = (\lambda, \gamma, \rho)$

Now while  $RS_{\delta}^*(\tilde{\theta})$  performs nicely in general, in terms of the size and power regardless of the presence of the marginal- or joint local parametric misspecifications, observe that it starts to give poor size when the joint local parametric misspecification magnitude exceeds 0.15, i.e.,  $\eta = (\lambda, \gamma, \rho) = (0.15, 0.15, 0.15)$  with its norm greater than 0.2 (Figure OA.6 and OA.7). The numerical threshold for the local parametric misspecification magnitude for  $RS_{\delta}^*$  appears to be around 0.2, although it may vary for different pairs of  $(n, T)$ .

### OA.4 Robustness Check against Non-Normality of the Error

When the sample size is small or outliers and extreme values are present, the error term may deviate from normality. In such instances, using a  $t$ -distribution for the error terms is often more realistic. Therefore, it is beneficial to examine the  $t$ -distribution to assess if  $RS_{\delta}^*(\tilde{\theta})$  can better handle extreme values and produce more accurate results in small or moderate sample scenarios.

To investigate this, the robustness of  $RS_{\delta}(\tilde{\theta})$  against non-normality, such as when the error terms follow a bivariate t-distribution, is analyzed (Tables OA.12 and OA.13). The findings show that as the degrees of freedom increase,  $RS_{\delta}(\tilde{\theta})$  rapidly attains its true size. Additionally, its power under non-normal errors also recovers to match that under normal errors as the degrees of freedom increase, demonstrating its robustness and reliability.

Table OA.1: Size of the Test Statistics for  $(n, T) = (25, 10)$ 

n	T	Local misspecification				$W_{nt}^{\text{Rook}} \circ W_{nt}^e$				$W_{nt}^{\text{Queen}} \circ W_{nt}^e$				
		$\lambda$	$\gamma$	$\rho$	$RS_{\delta}^{BP}$	$RS_{\delta}^B$	$RS_{\delta}^P$	$RS_{\delta}^*$	$RS_{\delta}^C$	$RS_{\delta}^{BP}$	$RS_{\delta}^B$	$RS_{\delta}^P$	$RS_{\delta}^*$	$RS_{\delta}^C$
25	10	0	0	0	0.0442	0.0464	0.0442	0.0478	0.0504	0.0442	0.0476	0.0442	0.0454	0.0502
	0.05	0	0	0	0.0482	0.0474	0.0482	0.048	0.0504	0.0482	0.048	0.0482	0.045	0.0502
	0.1	0	0	0	0.051	0.047	0.051	0.0468	0.0508	0.0514	0.0476	0.0514	0.0458	0.05
	0.15	0	0	0	0.0528	0.0462	0.0528	0.0448	0.0514	0.0554	0.047	0.0554	0.0452	0.0508
	0.2	0	0	0	0.0578	0.0434	0.0578	0.0428	0.0516	0.0588	0.0454	0.0588	0.0444	0.051
	0.25	0	0	0	0.061	0.0398	0.061	0.041	0.052	0.0622	0.0436	0.0622	0.0426	0.0516
	0.3	0	0	0	0.0628	0.0364	0.0628	0.037	0.0522	0.0662	0.0416	0.0662	0.0398	0.0522
	0	0.05	0	0	0.0452	0.0472	0.0452	0.048	0.05	0.0454	0.048	0.0454	0.0452	0.0504
	0	0.1	0	0	0.0456	0.0464	0.0456	0.0462	0.0506	0.0456	0.0468	0.0456	0.045	0.0506
	0	0.15	0	0	0.0466	0.0446	0.0466	0.045	0.0502	0.0466	0.0456	0.0466	0.0436	0.051
33	0	0.2	0	0	0.0482	0.042	0.0482	0.0436	0.051	0.048	0.0436	0.048	0.0426	0.0508
	0	0.25	0	0	0.0486	0.039	0.0486	0.0414	0.052	0.0486	0.0404	0.0486	0.0388	0.051
	0	0.3	0	0	0.0494	0.0356	0.0494	0.037	0.052	0.0492	0.0364	0.0492	0.0356	0.0514
	0	0	0.05	0	0.0444	0.046	0.0444	0.0476	0.051	0.0444	0.0468	0.0444	0.0448	0.0504
	0	0	0.1	0	0.0436	0.0454	0.0436	0.0466	0.051	0.0448	0.0462	0.0448	0.0448	0.0506
	0	0	0.15	0	0.0428	0.0446	0.0428	0.046	0.0516	0.0438	0.0448	0.0438	0.0444	0.0496
	0	0	0.2	0	0.0432	0.0434	0.0432	0.0446	0.0518	0.0428	0.0438	0.0428	0.0428	0.0498
	0	0	0.25	0	0.0444	0.0414	0.0444	0.0428	0.052	0.0434	0.042	0.0434	0.0414	0.0498
	0	0	0.3	0	0.0444	0.0382	0.0444	0.0392	0.0518	0.0436	0.0406	0.0436	0.0396	0.0496
	0.05	0.05	0.05	0	0.0472	0.048	0.0472	0.0476	0.0508	0.0484	0.048	0.0484	0.0456	0.0502
33	0.1	0.1	0.1	0	0.0494	0.0444	0.0494	0.0452	0.0518	0.0492	0.0466	0.0492	0.045	0.0518
	0.15	0.15	0.15	0	0.0528	0.0392	0.0528	0.04	0.0526	0.056	0.0434	0.056	0.0412	0.053
	0.2	0.2	0.2	0	0.0558	0.034	0.0558	0.0334	0.0546	0.0604	0.0378	0.0604	0.0354	0.0542
	0.25	0.25	0.25	0	0.0582	0.025	0.0582	0.0242	0.0566	0.0656	0.0298	0.0656	0.0274	0.055
	0.3	0.3	0.3	0	0.0592	0.0146	0.0592	0.0136	0.0572	0.0644	0.0184	0.0644	0.0184	0.056

Table OA.2: Size of the Test Statistics for  $(n, T) = (121, 10)$ 

$n$	$T$	Local misspecification			$W_n^{\text{Rook}} \circ W_{nt}^e$			$W_n^{\text{Queen}} \circ W_{nt}^e$			
		$\lambda$	$\gamma$	$\rho$	$RS_{\delta}^{BP}$	$RS_{\delta}^B$	$RS_{\delta}^P$	$RS_{\delta}^*$	$RS_{\delta}^{BP}$	$RS_{\delta}^B$	$RS_{\delta}^P$
121	10	0	0	0	0.0492	0.0504	0.0492	0.049	0.0514	0.049	0.0494
		0.05	0	0	0.0526	0.0508	0.0526	0.049	0.0524	0.0512	0.0524
		0.1	0	0	0.0546	0.049	0.0546	0.0484	0.056	0.0492	0.056
		0.15	0	0	0.0576	0.0466	0.0576	0.0458	0.0594	0.0476	0.0594
		0.2	0	0	0.0606	0.044	0.0606	0.0422	0.0626	0.0454	0.0626
		0.25	0	0	0.0612	0.0398	0.0612	0.0398	0.0656	0.0418	0.0656
		0.3	0	0	0.0626	0.0342	0.0626	0.0372	0.0686	0.0378	0.0686
		0	0.05	0	0.0506	0.0506	0.0506	0.05	0.0506	0.0514	0.0506
		0	0.1	0	0.0494	0.05	0.0494	0.0494	0.0494	0.0508	0.0494
		0	0.15	0	0.0492	0.0492	0.0492	0.0478	0.0492	0.0498	0.0492
0	20	0	0.2	0	0.0488	0.047	0.0488	0.0458	0.0488	0.0478	0.0488
		0	0.25	0	0.0468	0.0444	0.0468	0.0436	0.0468	0.0446	0.0468
		0	0.3	0	0.0458	0.042	0.0458	0.0392	0.0458	0.041	0.0458
		0	0	0.05	0.0486	0.05	0.0486	0.0486	0.0486	0.0512	0.0486
		0	0	0.1	0.0488	0.0494	0.0488	0.0482	0.0488	0.0506	0.0488
		0	0	0.15	0.0466	0.048	0.0466	0.0468	0.048	0.0486	0.0482
		0	0	0.2	0.0458	0.0458	0.0458	0.0442	0.0464	0.0478	0.0464
		0	0	0.25	0.0462	0.0432	0.0462	0.0428	0.0442	0.0462	0.0442
		0	0	0.3	0.0462	0.041	0.0462	0.0404	0.0444	0.0436	0.0444
		0.05	0.05	0.05	0.0514	0.0502	0.0514	0.0498	0.0522	0.051	0.0522
0.1	30	0.1	0.1	0.0532	0.0484	0.0532	0.0472	0.053	0.049	0.053	0.0486
		0.15	0.15	0.0548	0.042	0.0548	0.0426	0.058	0.0448	0.058	0.044
		0.2	0.2	0.0568	0.0332	0.0568	0.0344	0.062	0.036	0.062	0.0364
		0.25	0.25	0.0574	0.024	0.0574	0.0236	0.0652	0.0282	0.0652	0.0278
		0.3	0.3	0.3	0.062	0.0124	0.062	0.0126	0.0664	0.0162	0.0664
		0.3	0.3	0.3	0.064	0.0124	0.064	0.0126	0.0664	0.0166	0.0166

Table OA.3: Size of the Test Statistics for  $(n, T) = (25, 50)$ 

$n$	$T$	Local misspecification			$W_n^{\text{Rook}} \circ W_{nt}^e$			$W_n^{\text{Queen}} \circ W_{nt}^e$				
		$\lambda$	$\gamma$	$\rho$	$RS_{\delta}^{BP}$	$RS_{\delta}^B$	$RS_{\delta}^P$	$RS_{\delta}^*$	$RS_{\delta}^{BP}$	$RS_{\delta}^B$	$RS_{\delta}^P$	$RS_{\delta}^*$
25	50	0	0	0	0.0456	0.0468	0.0456	0.0458	0.0456	0.0484	0.0456	0.0458
	0.05	0	0	0	0.0506	0.0474	0.0506	0.046	0.0512	0.0496	0.0512	0.0458
	0.1	0	0	0	0.0546	0.047	0.0546	0.0454	0.0566	0.0492	0.0566	0.0452
	0.15	0	0	0	0.0574	0.045	0.0574	0.0432	0.0612	0.048	0.0612	0.0442
	0.2	0	0	0	0.0606	0.0432	0.0606	0.0408	0.0648	0.0456	0.0648	0.043
	0.25	0	0	0	0.0626	0.0404	0.0626	0.0366	0.069	0.0442	0.069	0.0396
	0.3	0	0	0	0.067	0.0356	0.067	0.0342	0.0736	0.041	0.0736	0.037
	0	0.05	0	0	0.0448	0.0466	0.0448	0.0452	0.0448	0.0482	0.0448	0.0448
	0	0.1	0	0	0.0452	0.045	0.0452	0.0438	0.0452	0.0462	0.0452	0.0434
	0	0.15	0	0	0.0452	0.0428	0.0452	0.0416	0.0452	0.0438	0.0452	0.042
51	0	0.2	0	0	0.0454	0.039	0.0454	0.0364	0.0456	0.0402	0.0456	0.0366
	0	0.25	0	0	0.0452	0.0348	0.0452	0.0344	0.0452	0.0362	0.0452	0.0342
	0	0.3	0	0	0.0456	0.032	0.0456	0.0298	0.0456	0.032	0.0456	0.0302
	0	0	0.05	0.05	0.0462	0.0468	0.0462	0.045	0.0458	0.0478	0.0458	0.0454
	0	0	0.1	0.0444	0.0458	0.0444	0.044	0.0456	0.047	0.0456	0.0446	0.0446
	0	0	0.15	0.0434	0.0444	0.0434	0.043	0.0476	0.0456	0.0476	0.043	0.043
	0	0	0.2	0.0448	0.0422	0.0448	0.0404	0.047	0.0438	0.047	0.042	0.042
	0	0	0.25	0.045	0.0398	0.045	0.038	0.0466	0.0424	0.0466	0.04	0.04
	0	0	0.3	0.0454	0.0378	0.0454	0.0352	0.0458	0.0408	0.0458	0.0378	0.0378
	0.05	0.05	0.05	0.0482	0.0468	0.0482	0.0454	0.049	0.049	0.049	0.0452	0.0452
0.1	0.1	0.1	0.0506	0.0432	0.0506	0.041	0.0536	0.0458	0.0536	0.0432	0.0432	0.0432
	0.15	0.15	0.0546	0.0374	0.0546	0.0356	0.0578	0.0394	0.0578	0.037	0.037	0.037
	0.2	0.2	0.0598	0.0294	0.0598	0.0278	0.0644	0.0328	0.0644	0.031	0.031	0.031
	0.25	0.25	0.0628	0.0196	0.0628	0.0174	0.0674	0.0246	0.0674	0.023	0.023	0.023
	0.3	0.3	0.0636	0.0082	0.0636	0.007	0.0714	0.0134	0.0714	0.0104	0.0104	0.0104

Table OA.4: Power of the Test Statistics for  $\delta_0 = 0.05$  &  $(n, T) = (25, 10)$ 

n	T	Local misspecification			$W_{nt}^{\text{Rook}} \circ W_{nt}^e$			$W_{nt}^{\text{Queen}} \circ W_{nt}^e$					
		$\lambda$	$\gamma$	$\rho$	$RS_{\delta}^{BP}$	$RS_{\delta}^B$	$RS_{\delta}^P$	$RS_{\delta}^*$	$RS_{\delta}^C$	$RS_{\delta}^P$	$RS_{\delta}^B$	$RS_{\delta}^*$	$RS_{\delta}^C$
25	10	0	0	0	0.1046	0.1058	0.1046	0.1056	0.1084	0.1046	0.1062	0.1046	0.1104
	0.05	0	0	0	0.1076	0.1052	0.1076	0.1054	0.1088	0.1088	0.1078	0.1088	0.1076
	0.1	0	0	0	0.1108	0.1034	0.1108	0.1046	0.1096	0.113	0.108	0.113	0.1076
	0.15	0	0	0	0.1144	0.0998	0.1144	0.1018	0.1098	0.1158	0.1066	0.1158	0.1058
	0.2	0	0	0	0.1184	0.0978	0.1184	0.0986	0.1098	0.1196	0.1036	0.1196	0.1006
	0.25	0	0	0	0.1204	0.0938	0.1204	0.0914	0.1104	0.1236	0.0998	0.1236	0.096
	0.3	0	0	0	0.1232	0.0868	0.1232	0.0836	0.11	0.129	0.0942	0.129	0.0906
	0	0.05	0	0	0.1018	0.1062	0.1018	0.1052	0.109	0.102	0.108	0.102	0.1066
6	0	0.1	0	0	0.1024	0.1056	0.1024	0.1022	0.1088	0.1018	0.1078	0.1018	0.104
	0	0.15	0	0	0.1038	0.1016	0.1038	0.0998	0.1094	0.104	0.1048	0.104	0.104
	0	0.2	0	0	0.1022	0.097	0.1022	0.0956	0.11	0.1022	0.102	0.1022	0.098
	0	0.25	0	0	0.1024	0.0908	0.1024	0.0916	0.1108	0.1022	0.096	0.1022	0.094
	0	0.3	0	0	0.1012	0.0858	0.1012	0.0862	0.1114	0.1012	0.0874	0.1012	0.0864
	0	0	0.05	0.05	0.1042	0.1054	0.1042	0.1046	0.1088	0.1032	0.1064	0.1032	0.1052
	0	0	0.1	0.1	0.102	0.1036	0.102	0.103	0.1086	0.1018	0.1044	0.1018	0.105
	0	0	0.15	0.099	0.1012	0.099	0.1004	0.1004	0.1088	0.1006	0.1032	0.1006	0.1094
0.05	0	0	0.2	0.0968	0.0976	0.0968	0.0972	0.109	0.1	0.1014	0.1	0.1006	0.1094
	0	0	0.25	0.0964	0.0932	0.0964	0.0938	0.1092	0.0988	0.099	0.0988	0.0974	0.1098
	0	0	0.3	0.0942	0.0894	0.0942	0.088	0.1098	0.0964	0.0964	0.0964	0.0952	0.1098
	0.1	0.05	0.05	0.1068	0.1064	0.1068	0.1054	0.1096	0.1076	0.109	0.1076	0.1066	0.1112
	0.1	0.1	0.1	0.1114	0.1018	0.1114	0.1006	0.1102	0.1124	0.1068	0.1124	0.1032	0.1132
	0.15	0.15	0.15	0.113	0.093	0.113	0.0912	0.1126	0.1118	0.0996	0.1118	0.0958	0.1138
	0.2	0.2	0.2	0.1122	0.0796	0.1122	0.0778	0.1136	0.1182	0.087	0.1182	0.0848	0.1154
	0.25	0.25	0.25	0.1074	0.0602	0.1074	0.057	0.1164	0.1148	0.071	0.1148	0.0668	0.1182
	0.3	0.3	0.3	0.0972	0.0378	0.0972	0.0352	0.1194	0.1104	0.0492	0.1104	0.0482	0.1208

Table OA.5: Power of the Test Statistics for  $\delta_0 = 0.1$  &  $(n, T) = (25, 10)$ 

n	T	Local misspecification			$W_{nt}^{\text{Rook}} \circ W_{nt}^e$			$W_{nt}^{\text{Queen}} \circ W_{nt}^e$						
		$\lambda$	$\gamma$	$\rho$	$RS_{\delta}^{BP}$	$RS_{\delta}^B$	$RS_{\delta}^P$	$RS_{\delta}^*$	$RS_{\delta}^C$	$RS_{\delta}^{BP}$	$RS_{\delta}^B$	$RS_{\delta}^P$	$RS_{\delta}^*$	$RS_{\delta}^C$
25	10	0	0	0	0.2994	0.2948	0.2994	0.2872	0.3058	0.2992	0.2948	0.2992	0.2856	0.3072
		0.05	0	0	0.3048	0.2954	0.3048	0.2876	0.3064	0.307	0.2952	0.307	0.2872	0.3088
		0.1	0	0	0.309	0.2936	0.309	0.286	0.3076	0.3144	0.2948	0.3144	0.286	0.31
		0.15	0	0	0.3148	0.2888	0.3148	0.283	0.3076	0.3232	0.2912	0.3232	0.2826	0.311
		0.2	0	0	0.3184	0.2814	0.3184	0.2762	0.3088	0.3292	0.2868	0.3292	0.2776	0.3108
		0.25	0	0	0.32	0.2694	0.32	0.2648	0.3104	0.3328	0.2796	0.3328	0.2718	0.3116
		0.3	0	0	0.3204	0.257	0.3204	0.2514	0.3112	0.3348	0.2706	0.3348	0.2618	0.3126
		0	0.05	0	0.2946	0.297	0.2946	0.2896	0.3062	0.2948	0.2956	0.2948	0.2892	0.308
		0	0.1	0	0.2926	0.2942	0.2926	0.2888	0.307	0.2922	0.2952	0.2922	0.2862	0.3078
0	15	0	0.15	0	0.286	0.2904	0.286	0.2862	0.3076	0.2858	0.2904	0.2858	0.2826	0.3078
		0	0.2	0	0.2804	0.2826	0.2804	0.279	0.3076	0.2802	0.2852	0.2802	0.2772	0.3088
		0	0.25	0	0.2722	0.2736	0.2722	0.2718	0.309	0.2724	0.2758	0.2724	0.266	0.311
		0	0.3	0	0.2612	0.2624	0.2612	0.2586	0.309	0.2612	0.2628	0.2612	0.2528	0.3118
		0	0	0.05	0.2932	0.2926	0.2932	0.2874	0.3054	0.2946	0.2936	0.2946	0.2858	0.3072
		0	0	0.1	0.2888	0.291	0.2888	0.2858	0.307	0.2932	0.2924	0.2932	0.2852	0.3074
		0	0	0.15	0.2856	0.287	0.2856	0.2818	0.307	0.2894	0.2904	0.2894	0.2838	0.3082
		0	0	0.2	0.2818	0.2814	0.2818	0.2764	0.3074	0.2852	0.2884	0.2852	0.2806	0.3088
		0	0	0.25	0.2748	0.2742	0.2748	0.274	0.3072	0.2816	0.2842	0.2816	0.2732	0.3096
0	20	0	0	0.3	0.2698	0.2658	0.2698	0.262	0.3072	0.276	0.2768	0.276	0.2664	0.309
		0.05	0.05	0.05	0.3016	0.2952	0.3016	0.2904	0.307	0.3046	0.2972	0.3046	0.2894	0.3106
		0.1	0.1	0.1	0.3036	0.2884	0.3036	0.2834	0.3092	0.3056	0.2934	0.3056	0.2838	0.3122
		0.15	0.15	0.15	0.2936	0.2736	0.2936	0.2692	0.3112	0.2992	0.2828	0.2992	0.2724	0.3136
		0.2	0.2	0.2	0.2806	0.2434	0.2806	0.2356	0.3124	0.2906	0.262	0.2906	0.2516	0.3156
		0.25	0.25	0.25	0.257	0.2	0.257	0.1902	0.3158	0.2748	0.2276	0.2748	0.2158	0.3174
		0.3	0.3	0.3	0.2194	0.1452	0.2194	0.1362	0.319	0.2468	0.1782	0.2468	0.1672	0.3208

Table OA.6: Power of the Test Statistics for  $\delta_0 = 0.15$  &  $(n, T) = (25, 10)$ 

n	T	Local misspecification			$W_{nt}^{\text{Rook}} \circ W_{nt}^e$			$W_{nt}^{\text{Queen}} \circ W_{nt}^e$						
		$\lambda$	$\gamma$	$\rho$	$RS_{\delta}^{BP}$	$RS_{\delta}^B$	$RS_{\delta}^P$	$RS_{\delta}^*$	$RS_{\delta}^C$	$RS_{\delta}^{BP}$	$RS_{\delta}^B$	$RS_{\delta}^P$	$RS_{\delta}^*$	$RS_{\delta}^C$
25	10	0	0	0	0.5822	0.5788	0.5822	0.5712	0.5904	0.5818	0.5836	0.5818	0.575	0.594
	0.05	0	0	0	0.5886	0.5806	0.5886	0.5714	0.5908	0.5922	0.585	0.5922	0.5754	0.5938
	0.1	0	0	0	0.5944	0.5786	0.5944	0.5684	0.5916	0.6026	0.584	0.6026	0.573	0.594
	0.15	0	0	0	0.5984	0.572	0.5984	0.5628	0.5916	0.608	0.5782	0.608	0.5694	0.5954
	0.2	0	0	0	0.6008	0.5626	0.6008	0.5542	0.5932	0.6124	0.572	0.6124	0.5638	0.5952
	0.25	0	0	0	0.602	0.5482	0.602	0.5398	0.593	0.6112	0.5632	0.6112	0.552	0.5944
	0.3	0	0	0	0.5962	0.5322	0.5962	0.519	0.5918	0.6082	0.5478	0.6082	0.538	0.595
	0	0.05	0	0	0.5812	0.581	0.5812	0.5732	0.5912	0.581	0.5848	0.581	0.5774	0.5952
	0	0.1	0	0	0.5796	0.5788	0.5796	0.5696	0.5924	0.5794	0.5832	0.5794	0.5756	0.5954
	0	0.15	0	0	0.5718	0.5726	0.5718	0.5674	0.5922	0.572	0.5772	0.572	0.5702	0.5962
$\infty$	0	0.2	0	0	0.5596	0.5648	0.5596	0.5584	0.5928	0.5602	0.5682	0.5602	0.5588	0.5968
	0	0.25	0	0	0.5442	0.552	0.5442	0.5448	0.5926	0.542	0.5556	0.542	0.5448	0.598
	0	0.3	0	0	0.5214	0.5362	0.5214	0.529	0.5924	0.5216	0.5422	0.5216	0.526	0.5988
	0	0	0.05	0.05	0.583	0.58	0.583	0.5706	0.5914	0.583	0.5834	0.583	0.5744	0.5936
	0	0	0.1	0.1	0.5808	0.577	0.5808	0.567	0.5924	0.5808	0.581	0.5808	0.5698	0.5938
	0	0	0.15	0.15	0.5764	0.5724	0.5764	0.563	0.5932	0.576	0.578	0.576	0.5658	0.5924
	0	0	0.2	0.2	0.571	0.5658	0.571	0.5552	0.5934	0.5692	0.5744	0.5692	0.5612	0.5924
	0	0	0.25	0.25	0.5622	0.5576	0.5622	0.5478	0.5928	0.5584	0.5676	0.5584	0.553	0.5924
	0	0	0.3	0.3	0.5462	0.5466	0.5462	0.535	0.5914	0.5504	0.5558	0.5504	0.546	0.5924
	0.05	0.05	0.05	0.05	0.5914	0.5794	0.5914	0.5728	0.5924	0.5928	0.585	0.5928	0.5776	0.5948
	0.1	0.1	0.1	0.1	0.5888	0.573	0.5888	0.5632	0.5944	0.5956	0.5792	0.5956	0.5712	0.5968
	0.15	0.15	0.15	0.15	0.5518	0.57	0.5518	0.5432	0.5958	0.5822	0.565	0.5822	0.5546	0.5978
	0.2	0.2	0.2	0.2	0.5432	0.5172	0.5432	0.5018	0.5974	0.5602	0.539	0.5602	0.5234	0.6002
	0.25	0.25	0.25	0.25	0.4858	0.4568	0.4858	0.438	0.6	0.5192	0.4922	0.5192	0.4696	0.6014
	0.3	0.3	0.3	0.3	0.408	0.3708	0.408	0.351	0.6058	0.458	0.4226	0.458	0.398	0.6056

Table OA.7: Power of the Test Statistics for  $\delta_0 = 0.2$  &  $(n, T) = (25, 10)$ 

n	T	Local misspecification			$W_{nt}^{\text{Rook}} \circ W_{nt}^e$			$W_{nt}^{\text{Queen}} \circ W_{nt}^e$						
		$\lambda$	$\gamma$	$\rho$	$RS_{\delta}^{BP}$	$RS_{\delta}^B$	$RS_{\delta}^P$	$RS_{\delta}^*$	$RS_{\delta}^C$	$RS_{\delta}^{BP}$	$RS_{\delta}^B$	$RS_{\delta}^P$	$RS_{\delta}^*$	$RS_{\delta}^C$
25	10	0	0	0	0.8248	0.8238	0.8248	0.8184	0.831	0.825	0.8222	0.825	0.8174	0.8304
	0.05	0	0	0	0.8294	0.8238	0.8294	0.819	0.8312	0.8306	0.823	0.8306	0.8186	0.8318
	0.1	0	0	0	0.8328	0.8228	0.8328	0.8168	0.8314	0.834	0.8218	0.834	0.8166	0.832
	0.15	0	0	0	0.8358	0.8176	0.8358	0.8116	0.8314	0.8376	0.8196	0.8376	0.8146	0.8324
	0.2	0	0	0	0.8364	0.813	0.8364	0.8058	0.831	0.8396	0.8166	0.8396	0.8106	0.8336
	0.25	0	0	0	0.8374	0.8046	0.8374	0.7986	0.8312	0.8408	0.8116	0.8408	0.8034	0.834
	0.3	0	0	0	0.8328	0.7914	0.8328	0.7862	0.8316	0.8384	0.8034	0.8384	0.7938	0.8346
	0	0.05	0	0	0.825	0.8254	0.825	0.8206	0.8304	0.8248	0.8246	0.8248	0.8188	0.8312
	0	0.1	0	0	0.8238	0.825	0.8238	0.8196	0.831	0.8238	0.825	0.8238	0.818	0.8322
	0	0.15	0	0	0.8184	0.822	0.8184	0.8152	0.8312	0.8182	0.8216	0.8182	0.8144	0.8318
	0	0.2	0	0	0.8066	0.8172	0.8066	0.8068	0.8314	0.8066	0.8186	0.8066	0.809	0.832
	0	0.25	0	0	0.7898	0.8064	0.7898	0.7992	0.8324	0.7894	0.8108	0.7894	0.799	0.8336
	0	0.3	0	0	0.7708	0.7968	0.7708	0.7898	0.8326	0.771	0.7984	0.771	0.7862	0.8338
	0	0	0.05	0	0.8242	0.8224	0.8242	0.8182	0.8312	0.8246	0.8218	0.8246	0.8168	0.8308
	0	0	0.1	0.82	0.8204	0.82	0.8204	0.8158	0.8304	0.8218	0.8204	0.8218	0.8144	0.8312
	0	0	0.15	0.8168	0.8186	0.8168	0.8168	0.8134	0.8304	0.8162	0.8176	0.8162	0.813	0.8316
	0	0	0.2	0.8098	0.8136	0.8098	0.8098	0.8092	0.8308	0.8106	0.8152	0.8106	0.8098	0.8314
	0	0	0.25	0.8018	0.8084	0.8018	0.8018	0.8024	0.8304	0.8056	0.8132	0.8056	0.8048	0.8308
	0	0	0.3	0.792	0.8024	0.792	0.7946	0.8304	0.7976	0.8092	0.7976	0.7996	0.8298	
	0.05	0.05	0.05	0.8308	0.8258	0.8308	0.8192	0.831	0.833	0.8244	0.8218	0.8246	0.8168	0.8308
	0.1	0.1	0.1	0.8274	0.8194	0.8274	0.814	0.8318	0.8348	0.8234	0.8348	0.8348	0.816	0.834
	0.15	0.15	0.15	0.813	0.807	0.813	0.8006	0.8326	0.825	0.8158	0.825	0.8048	0.8346	
	0.2	0.2	0.2	0.7816	0.7802	0.7816	0.77	0.8334	0.8012	0.7982	0.8012	0.7824	0.8366	
	0.25	0.25	0.25	0.7258	0.734	0.7258	0.7178	0.8358	0.761	0.763	0.761	0.7462	0.837	
	0.3	0.3	0.3	0.6276	0.6528	0.6276	0.6262	0.839	0.6862	0.7014	0.6862	0.6796	0.8392	

Table OA.8: Power of the Test Statistics for  $\delta_0 = 0.05$  &  $(n, T) = (121, 10)$ 

n	T	Local misspecification			$W_n^{\text{Rook}} \circ W_{nt}^e$			$W_n^{\text{Queen}} \circ W_{nt}^e$				
		$\lambda$	$\gamma$	$\rho$	$RS_{\delta}^{BP}$	$RS_{\delta}^B$	$RS_{\delta}^P$	$RS_{\delta}^*$	$RS_{\delta}^{BP}$	$RS_{\delta}^B$	$RS_{\delta}^P$	$RS_{\delta}^*$
121	10	0	0	0	0.3692	0.3652	0.3692	0.3633	0.3688	0.3666	0.3688	0.3636
		0.05	0	0	0.3708	0.3646	0.3708	0.3624	0.3714	0.3662	0.3714	0.3634
		0.1	0	0	0.3712	0.3592	0.3712	0.3588	0.3748	0.3632	0.3748	0.3598
		0.15	0	0	0.372	0.3528	0.372	0.3516	0.3736	0.3554	0.3736	0.355
		0.2	0	0	0.3714	0.3438	0.3714	0.3408	0.3724	0.348	0.3724	0.3462
		0.25	0	0	0.369	0.3286	0.369	0.3268	0.3724	0.3366	0.3724	0.3344
		0.3	0	0	0.3628	0.3142	0.3628	0.3054	0.3676	0.322	0.3676	0.318
		0	0.05	0	0.3682	0.367	0.3682	0.3668	0.3682	0.3684	0.3682	0.366
		0	0.1	0	0.3644	0.366	0.3644	0.3646	0.3644	0.368	0.3644	0.3656
		0	0.15	0	0.3608	0.3614	0.3608	0.3604	0.3608	0.3646	0.3608	0.362
0	20	0	0.2	0	0.3498	0.3556	0.3498	0.353	0.3498	0.3578	0.3498	0.3544
		0	0.25	0	0.3348	0.3468	0.3348	0.3422	0.3348	0.3466	0.3348	0.344
		0	0.3	0	0.3214	0.331	0.3214	0.3256	0.3214	0.3298	0.3214	0.3286
		0	0	0.05	0.3686	0.3644	0.3686	0.3628	0.3684	0.3654	0.3684	0.3634
		0	0	0.1	0.3656	0.3622	0.3656	0.3606	0.3658	0.3632	0.3658	0.3618
		0	0	0.15	0.362	0.3574	0.362	0.3566	0.364	0.3608	0.364	0.358
		0	0	0.2	0.358	0.3528	0.358	0.3508	0.3582	0.3552	0.3582	0.3536
		0	0	0.25	0.35	0.3458	0.35	0.343	0.3536	0.3506	0.3536	0.3474
		0	0	0.3	0.3436	0.3392	0.3436	0.333	0.3478	0.3446	0.3478	0.34
		0.05	0.05	0.05	0.3716	0.3638	0.3716	0.364	0.3704	0.3658	0.3704	0.3658
0.1	30	0.1	0.1	0.1	0.363	0.357	0.363	0.355	0.3648	0.3606	0.3648	0.3592
		0.15	0.15	0.15	0.3484	0.3398	0.3484	0.3342	0.3552	0.3458	0.3552	0.341
		0.2	0.2	0.2	0.3286	0.307	0.3286	0.3016	0.3326	0.3156	0.3326	0.314
		0.25	0.25	0.25	0.2938	0.2626	0.2938	0.255	0.2964	0.2786	0.2964	0.2708
		0.3	0.3	0.3	0.2379	0.1886	0.2379	0.186	0.2526	0.2134	0.2526	0.2062

Table OA.9: Power of the Test Statistics for  $\delta_0 = 0.1$  &  $(n, T) = (121, 10)$ 

n	T	Local misspecification			$W_n^{\text{Rook}} \circ W_{nt}^e$			$W_n^{\text{Queen}} \circ W_{nt}^e$				
		$\lambda$	$\gamma$	$\rho$	$RS_{\delta}^{BP}$	$RS_{\delta}^B$	$RS_{\delta}^P$	$RS_{\delta}^*$	$RS_{\delta}^{BP}$	$RS_{\delta}^B$	$RS_{\delta}^P$	$RS_{\delta}^*$
121	10	0	0	0	0.9126	0.9074	0.9126	0.9036	0.9126	0.909	0.9126	0.9048
		0.05	0	0	0.9138	0.907	0.9138	0.9038	0.9132	0.9084	0.9132	0.9042
		0.1	0	0	0.9138	0.9064	0.9138	0.9028	0.914	0.908	0.914	0.902
		0.15	0	0	0.9124	0.9036	0.9124	0.899	0.914	0.9048	0.914	0.8992
		0.2	0	0	0.9092	0.8994	0.9092	0.8956	0.9128	0.9002	0.9128	0.8958
		0.25	0	0	0.9054	0.8916	0.9054	0.8876	0.9104	0.8954	0.9104	0.8922
		0.3	0	0	0.899	0.883	0.899	0.8786	0.9076	0.8886	0.9076	0.8838
		0	0.05	0	0.9098	0.9078	0.9098	0.9044	0.9098	0.909	0.9098	0.9052
		0	0.1	0	0.9056	0.9068	0.9056	0.903	0.9054	0.9076	0.9054	0.9044
		0	0.15	0	0.8978	0.9062	0.8978	0.9016	0.8978	0.9062	0.8978	0.902
0	20	0	0.2	0	0.8878	0.903	0.8878	0.8982	0.8878	0.9042	0.8878	0.8976
		0	0.25	0	0.8766	0.8984	0.8766	0.8926	0.8766	0.898	0.8766	0.8914
		0	0.3	0	0.856	0.8922	0.856	0.8844	0.856	0.8912	0.856	0.8846
		0	0	0.05	0.9102	0.9076	0.9102	0.9036	0.9104	0.9086	0.9104	0.9048
		0	0	0.1	0.9084	0.9064	0.9084	0.9036	0.909	0.908	0.909	0.904
		0	0	0.15	0.9034	0.9052	0.9034	0.9022	0.9042	0.907	0.9042	0.902
		0	0	0.2	0.901	0.9036	0.901	0.8994	0.8984	0.9058	0.8984	0.9004
		0	0	0.25	0.894	0.9012	0.894	0.8962	0.8924	0.902	0.8924	0.8984
		0	0	0.3	0.886	0.8976	0.886	0.8918	0.8862	0.8994	0.8862	0.8948
		0.05	0.05	0.05	0.9106	0.9068	0.9106	0.9036	0.9116	0.9086	0.9116	0.9048
0.1	30	0.1	0.1	0.1	0.9036	0.9054	0.9036	0.9002	0.9036	0.9062	0.9036	0.9008
		0.15	0.15	0.15	0.8876	0.8978	0.8876	0.8914	0.8924	0.8992	0.8924	0.8934
		0.2	0.2	0.2	0.8556	0.8814	0.8556	0.8738	0.8636	0.8856	0.8636	0.8794
		0.25	0.25	0.25	0.7998	0.8492	0.7998	0.8386	0.8204	0.8616	0.8204	0.851
		0.3	0.3	0.3	0.7044	0.7786	0.7044	0.7618	0.7446	0.8042	0.7446	0.7896

Table OA.10: Power of the Test Statistics for  $\delta_0 = 0.05$  &  $(n, T) = (25, 50)$ 

n	T	Local misspecification			$W_n^{\text{Book}} \circ W_{nt}^e$			$W_n^{\text{Queen}} \circ W_{nt}^e$			
		$\lambda$	$\gamma$	$\rho$	$RS_{\delta}^{BP}$	$RS_{\delta}^B$	$RS_{\delta}^P$	$RS_{\delta}^*$	$RS_{\delta}^{BP}$	$RS_{\delta}^B$	$RS_{\delta}^P$
25	50	0	0	0	0.402	0.4054	0.402	0.4028	0.402	0.413	0.402
	0.05	0	0	0	0.4124	0.4064	0.4124	0.4028	0.4172	0.4146	0.4172
	0.1	0	0	0	0.4206	0.4054	0.4206	0.3998	0.4312	0.4134	0.4312
	0.15	0	0	0	0.4286	0.4016	0.4286	0.3958	0.4416	0.4104	0.4416
	0.2	0	0	0	0.4314	0.3942	0.4314	0.3876	0.4508	0.406	0.4508
	0.25	0	0	0	0.4348	0.383	0.4348	0.3764	0.46	0.3976	0.46
	0.3	0	0	0	0.4338	0.3662	0.4338	0.3596	0.4654	0.384	0.4654
	0	0.05	0	0	0.4036	0.4056	0.4036	0.4018	0.4036	0.4116	0.4036
	0	0.1	0	0	0.3998	0.4018	0.3998	0.3984	0.3998	0.4086	0.3998
	0	0.15	0	0	0.3934	0.3964	0.3934	0.3908	0.3934	0.4002	0.3934
50	0	0.2	0	0	0.3832	0.3854	0.3832	0.3782	0.3834	0.3882	0.3884
	0	0.25	0	0	0.3662	0.3698	0.3662	0.361	0.3662	0.3716	0.3662
	0	0.3	0	0	0.347	0.3436	0.347	0.3372	0.3472	0.3508	0.3472
	0	0	0.05	0	0.4028	0.4048	0.4028	0.402	0.4038	0.4118	0.4038
	0	0	0.1	0	0.4016	0.4036	0.4016	0.4016	0.4026	0.4102	0.4026
	0	0	0.15	0	0.3994	0.4008	0.3994	0.396	0.4006	0.4072	0.4006
	0	0	0.2	0	0.3972	0.3952	0.3972	0.3896	0.3972	0.4028	0.3972
	0	0	0.25	0	0.389	0.3888	0.389	0.3822	0.395	0.3986	0.395
	0	0	0.3	0	0.3796	0.3784	0.3796	0.3714	0.3914	0.3914	0.3816
	0.05	0.05	0.05	0	0.4136	0.4058	0.4136	0.4012	0.419	0.4122	0.419
100	0.1	0.1	0.1	0	0.4148	0.3972	0.4148	0.3912	0.427	0.4062	0.427
	0.15	0.15	0.15	0	0.4012	0.3768	0.4012	0.3666	0.4206	0.3894	0.4206
	0.2	0.2	0.2	0	0.3796	0.3302	0.3796	0.3194	0.408	0.3562	0.408
	0.25	0.25	0.25	0	0.3412	0.265	0.3412	0.2536	0.3764	0.3072	0.3764
	0.3	0.3	0.3	0	0.2786	0.1756	0.2786	0.164	0.3318	0.2304	0.3318
	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0

Table OA.11: Power of the Test Statistics for  $\delta_0 = 0.1$  &  $(n, T) = (25, 50)$ 

n	T	Local misspecification			$W_n^{\text{Book}} \circ W_{nt}^e$			$W_n^{\text{Queen}} \circ W_{nt}^e$			
		$\lambda$	$\gamma$	$\rho$	$RS_{\delta}^{BP}$	$RS_{\delta}^B$	$RS_{\delta}^P$	$RS_{\delta}^*$	$RS_{\delta}^{BP}$	$RS_{\delta}^B$	$RS_{\delta}^P$
25	50	0	0	0	0.9312	0.932	0.9312	0.9314	0.9312	0.9338	0.9312
	0.05	0	0	0	0.9338	0.9322	0.9338	0.9314	0.935	0.9344	0.935
	0.1	0	0	0	0.9348	0.931	0.9348	0.9304	0.9382	0.9342	0.9382
	0.15	0	0	0	0.938	0.929	0.938	0.9286	0.9412	0.9326	0.9412
	0.2	0	0	0	0.9362	0.9272	0.9362	0.9252	0.9424	0.9302	0.9424
	0.25	0	0	0	0.9358	0.923	0.9358	0.9358	0.9428	0.928	0.9428
	0.3	0	0	0	0.9314	0.9186	0.9314	0.9166	0.943	0.9242	0.943
	0	0.05	0	0	0.9298	0.9314	0.9298	0.9306	0.9298	0.934	0.9298
50	0	0.1	0	0	0.927	0.9292	0.927	0.9286	0.9272	0.9316	0.9272
	0	0.15	0	0	0.922	0.9266	0.922	0.9264	0.922	0.9288	0.922
	0	0.2	0	0	0.9134	0.9234	0.9134	0.922	0.9134	0.925	0.9134
	0	0.25	0	0	0.8988	0.9194	0.8988	0.916	0.8988	0.9208	0.8988
	0	0.3	0	0	0.8816	0.911	0.8816	0.9078	0.8816	0.9144	0.8816
	0	0	0.05	0	0.9298	0.9314	0.9298	0.9312	0.9302	0.9338	0.9302
	0	0	0.1	0	0.9294	0.9302	0.9294	0.9298	0.93	0.9332	0.93
	0	0	0.15	0	0.9264	0.9296	0.9264	0.928	0.9288	0.9322	0.9288
75	0	0	0.2	0	0.9234	0.927	0.9234	0.9264	0.9256	0.9312	0.9256
	0	0	0.25	0	0.9206	0.9254	0.9206	0.9232	0.9218	0.9288	0.9218
	0	0	0.3	0	0.914	0.9216	0.914	0.92	0.9176	0.9274	0.9176
	0	0.05	0.05	0.05	0.9322	0.9312	0.9322	0.9302	0.9344	0.9336	0.9344
	0.1	0.1	0.1	0.1	0.9296	0.9274	0.9296	0.926	0.9326	0.9306	0.9326
	0.15	0.15	0.15	0.15	0.9178	0.9206	0.9178	0.919	0.927	0.9256	0.927
	0.2	0.2	0.2	0.2	0.8948	0.9062	0.8948	0.9004	0.9132	0.9118	0.9132
	0.25	0.25	0.25	0.25	0.8446	0.865	0.8446	0.8592	0.8802	0.8908	0.8808
100	0.3	0.3	0.3	0.3	0.7498	0.7854	0.7498	0.7728	0.8182	0.8356	0.8182
	0	0.05	0.05	0.05	0.9322	0.9312	0.9322	0.9302	0.9344	0.9336	0.9344

Table OA.12: Size if error terms follow bivariate  $t$  distribution

$n$	$T$	$p$	$\delta$	Local misspecification			$W_{nt}^{\text{Rook}} \circ W_{nt}^e$			$W_{nt}^{\text{Queen}} \circ W_{nt}^e$				
				$\lambda$	$\gamma$	$\rho$	$RS_{\delta}^{BP}$	$RS_{\delta}^B$	$RS_{\delta}^*$	$RS_{\delta}^{BP}$	$RS_{\delta}^B$	$RS_{\delta}^*$		
25	10	0	0	0	0	0	0.1604	0.1592	0.1604	0.1594	0.1602	0.1614	0.1602	0.1586
		0	0.2	0	0	0	0.1664	0.152	0.1664	0.152	0.1688	0.1574	0.1688	0.1556
		0	0.2	0	0	0	0.1546	0.1554	0.1546	0.156	0.1546	0.1564	0.1546	0.1542
		0	0	0.2	0.2	0.2	0.1572	0.1526	0.1572	0.1538	0.156	0.1556	0.156	0.1548
		0.1	0.1	0.1	0.1	0.1	0.1632	0.1584	0.1632	0.1564	0.1632	0.1616	0.1632	0.1574
		10	0	0	0	0	0.0838	0.0826	0.0838	0.0824	0.0838	0.084	0.0838	0.0804
10	15	0.2	0	0	0	0	0.0938	0.0784	0.0938	0.076	0.0956	0.0806	0.0956	0.078
		0	0.2	0	0	0	0.0812	0.0792	0.0812	0.0778	0.0812	0.0816	0.0812	0.0766
		0	0	0.2	0.2	0.2	0.0808	0.0788	0.0808	0.0764	0.0804	0.0794	0.0804	0.0786
		0.1	0.1	0.1	0.1	0.1	0.0872	0.0828	0.0872	0.079	0.0884	0.0836	0.0884	0.081
		15	0	0	0	0	0.0658	0.067	0.0658	0.0658	0.0658	0.069	0.0658	0.0666
		0.2	0	0	0	0	0.0768	0.0622	0.0768	0.0624	0.0804	0.0672	0.0804	0.065

Table OA.13: Power if error terms follow bivariate  $t$  distribution

$n$	$T$	$p$	$\delta$	Local misspecification				$W_{nt}^{\text{Rook}} \circ W_{nt}^e$				$W_{nt}^{\text{Queen}} \circ W_{nt}^e$			
				$\lambda$	$\gamma$	$\rho$	$RS_{\delta}^{BP}$	$RS_{\delta}^B$	$RS_{\delta}^P$	$RS_{\delta}^*$	$RS_{\delta}^{BP}$	$RS_{\delta}^B$	$RS_{\delta}^P$	$RS_{\delta}^*$	
25	10	0.2	0	0	0	0	0.7604	0.7564	0.7604	0.7504	0.7604	0.7556	0.7604	0.7488	
		0.1	0.1	0.1	0.1	0.1	0.7578	0.7542	0.7578	0.7468	0.7618	0.7564	0.7618	0.7474	
10	0.2	0	0	0	0	0.796	0.7982	0.796	0.7926	0.796	0.7974	0.796	0.7902		
		0.1	0.1	0.1	0.1	0.802	0.796	0.802	0.7886	0.8072	0.7996	0.8072	0.7892		
15	0.2	0	0	0	0	0.8128	0.81	0.8128	0.8042	0.8126	0.8112	0.8126	0.804		
		0.1	0.1	0.1	0.1	0.8138	0.8072	0.8138	0.801	0.8192	0.8122	0.8192	0.8022		

Figure OA.1: Size with Local Parametric Misspecification in  $\lambda$

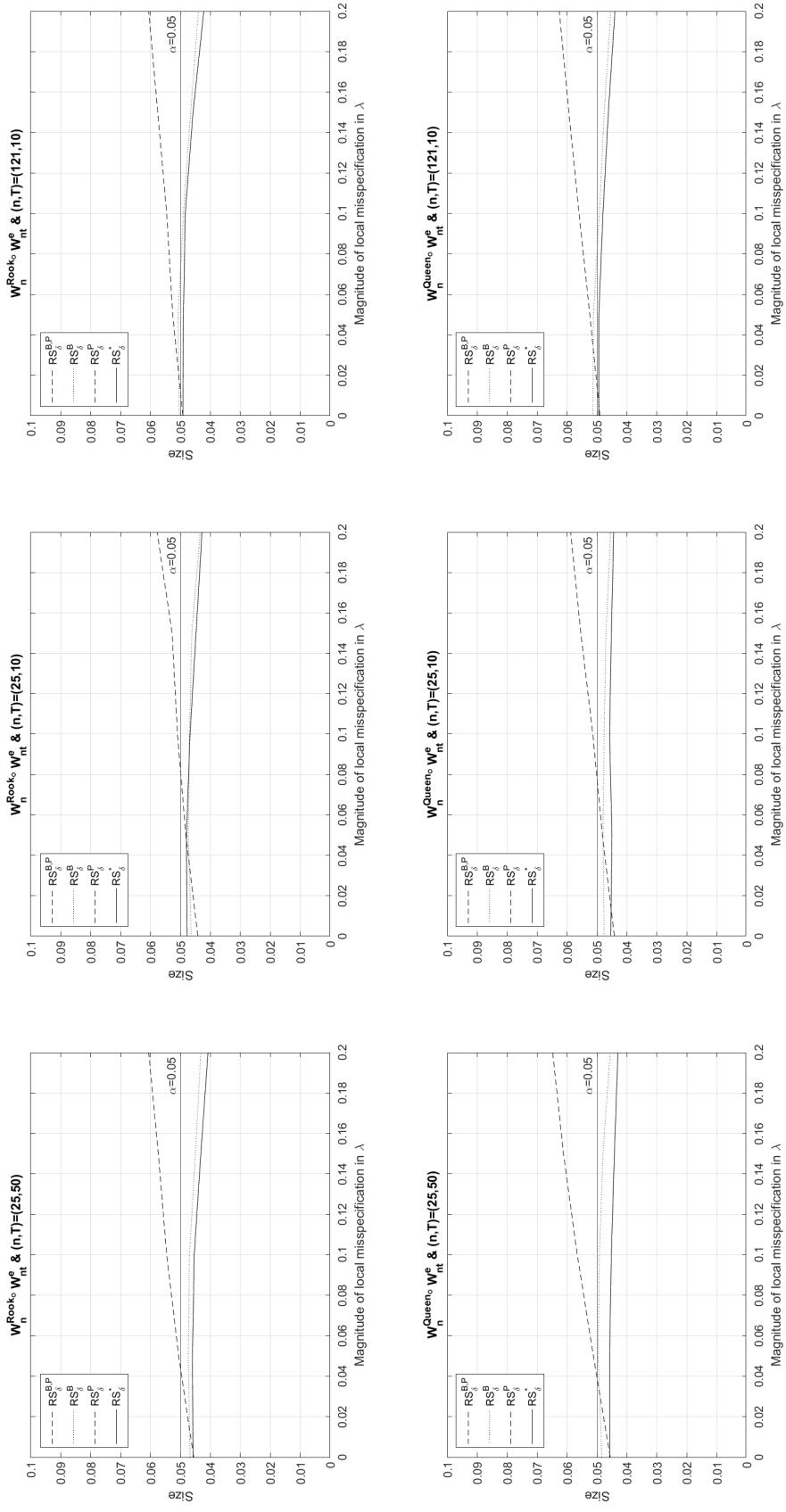


Figure OA.2: Power with Local Parametric Misspecification in  $\lambda$

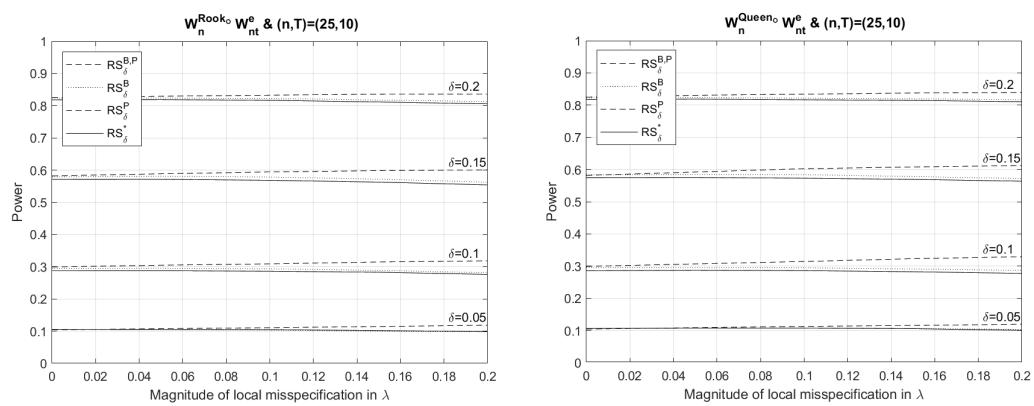


Figure OA.3: Size of the Score Tests with Local Parametric Misspecification in  $\gamma$

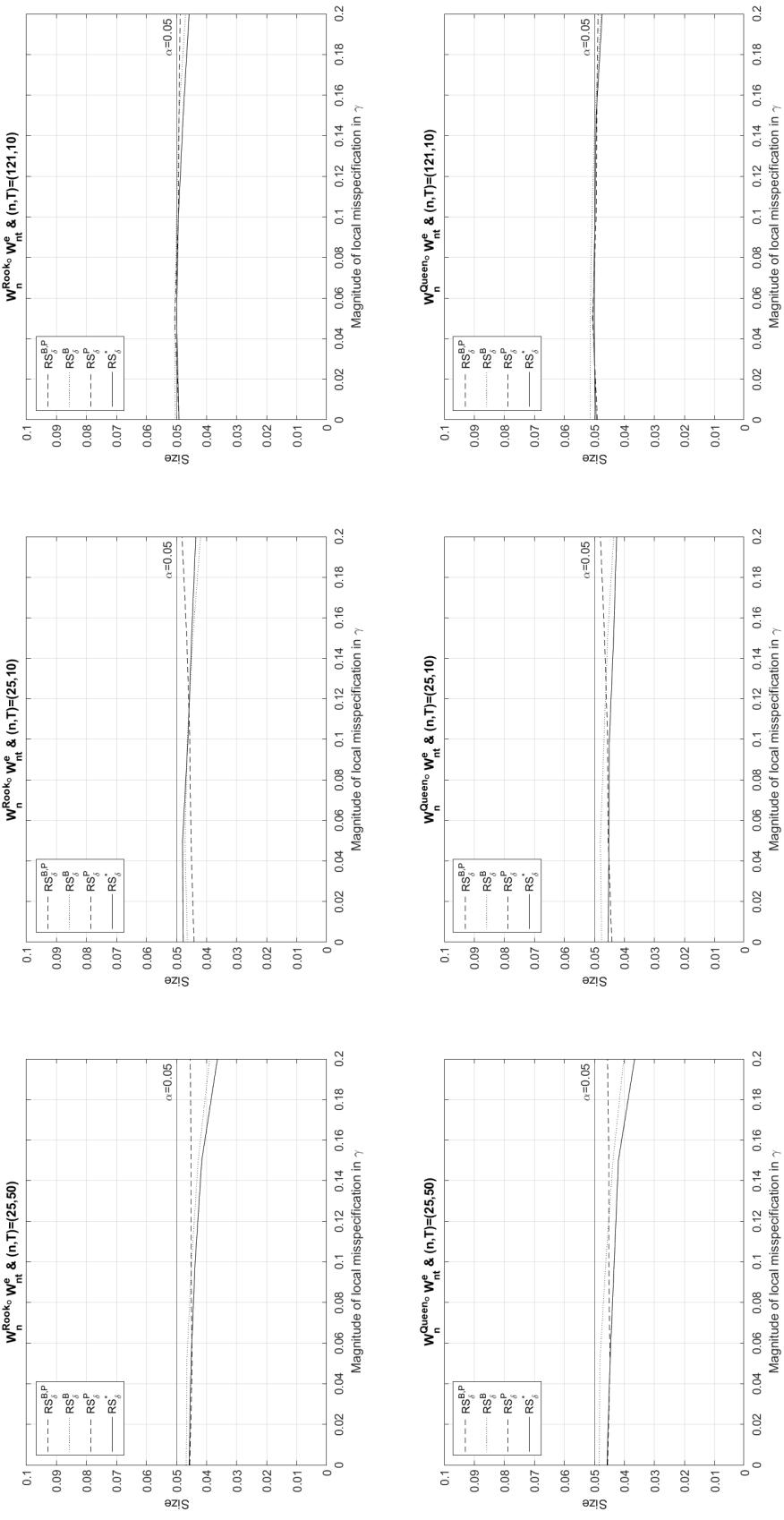


Figure OA.4: Size of the Score Tests with Local Parametric Misspecification in  $\rho$

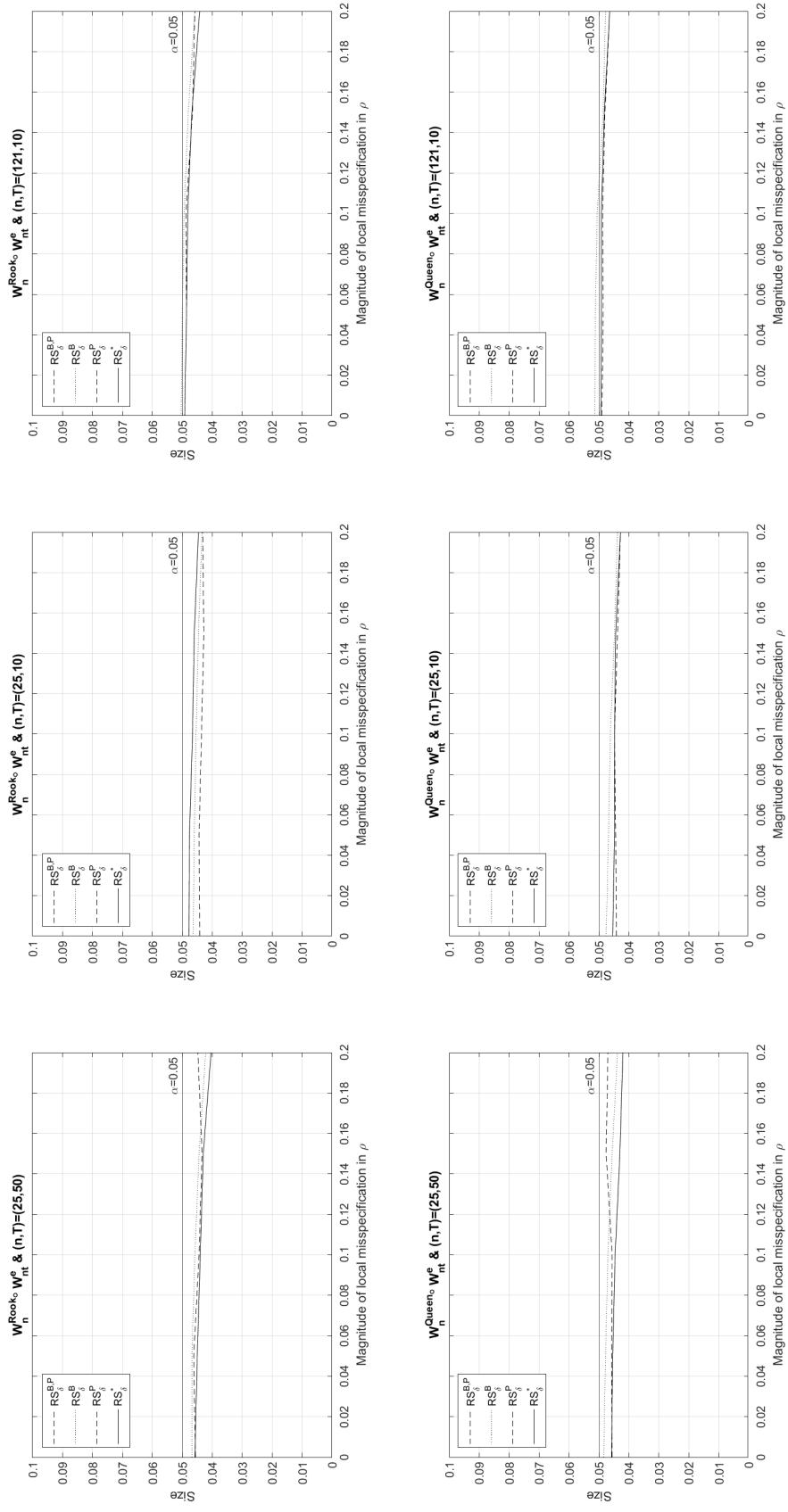


Figure OA.5: Power of the Score Tests with Local Parametric Misspecification,  $(n, T) = (25, 10)$

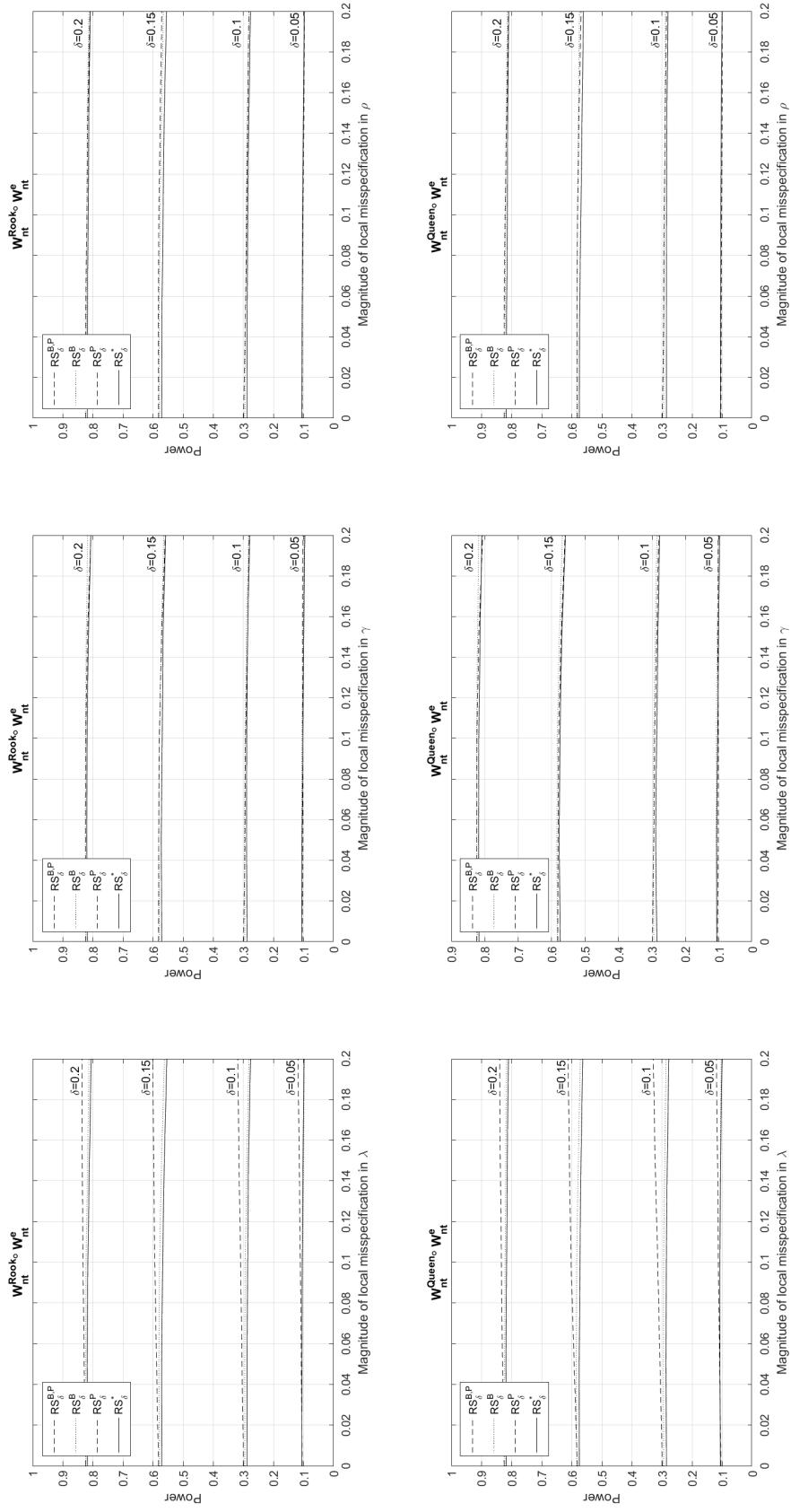


Figure OA.6: Size of the Score Tests with Joint Local Parametric Misspecification in  $\eta$

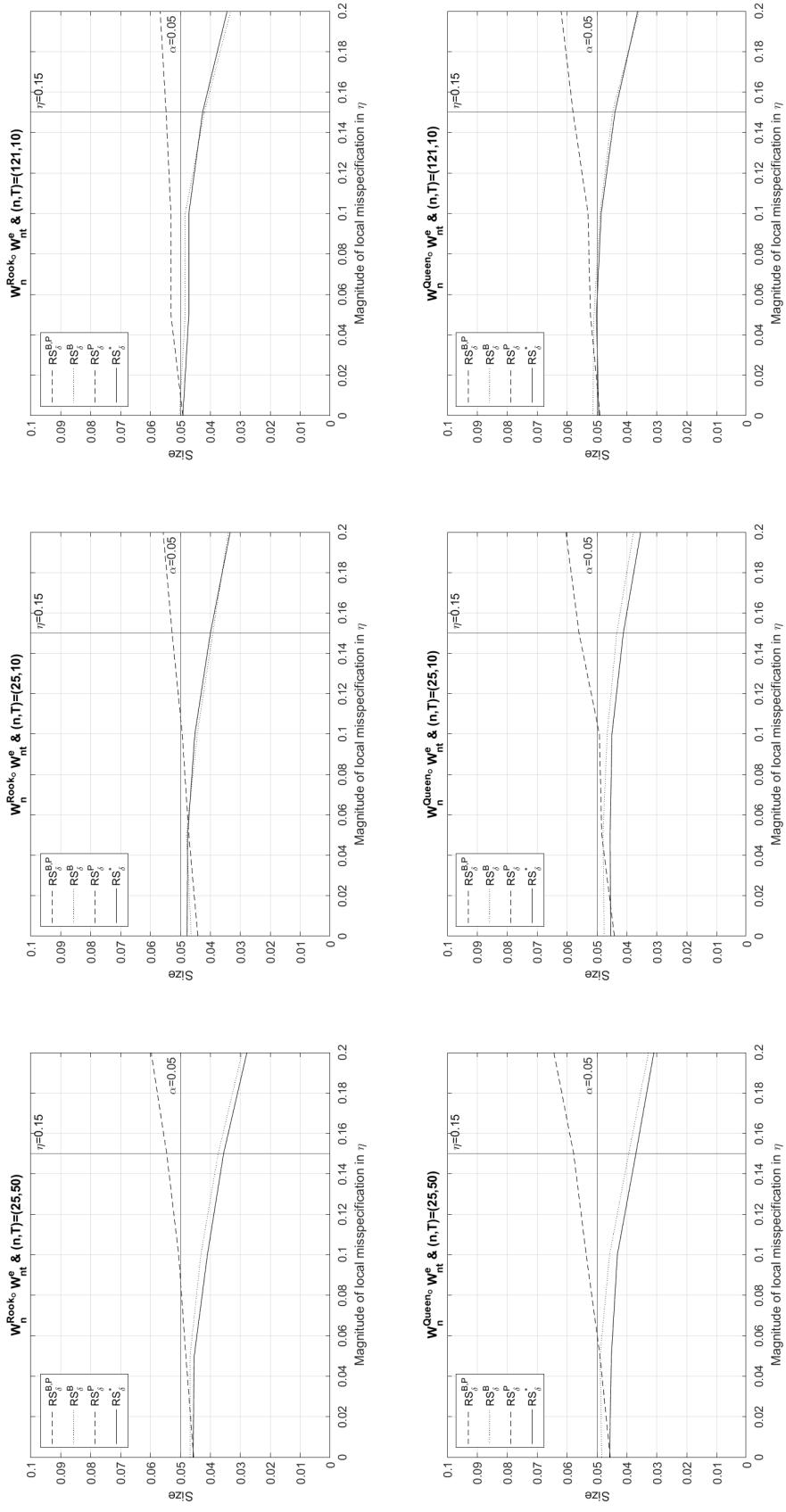
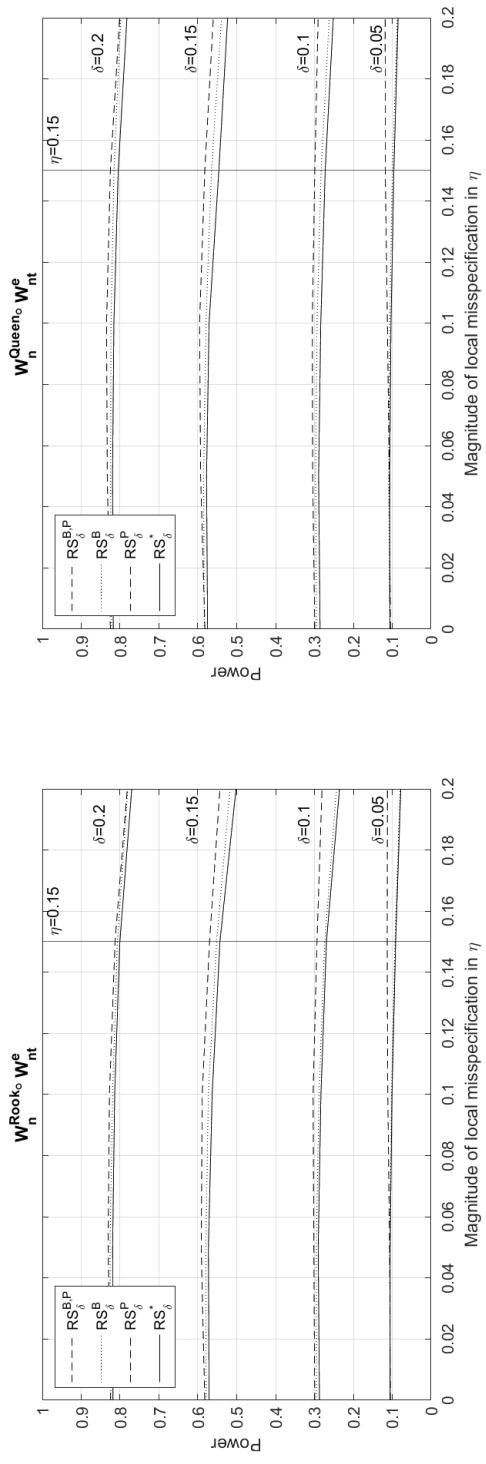
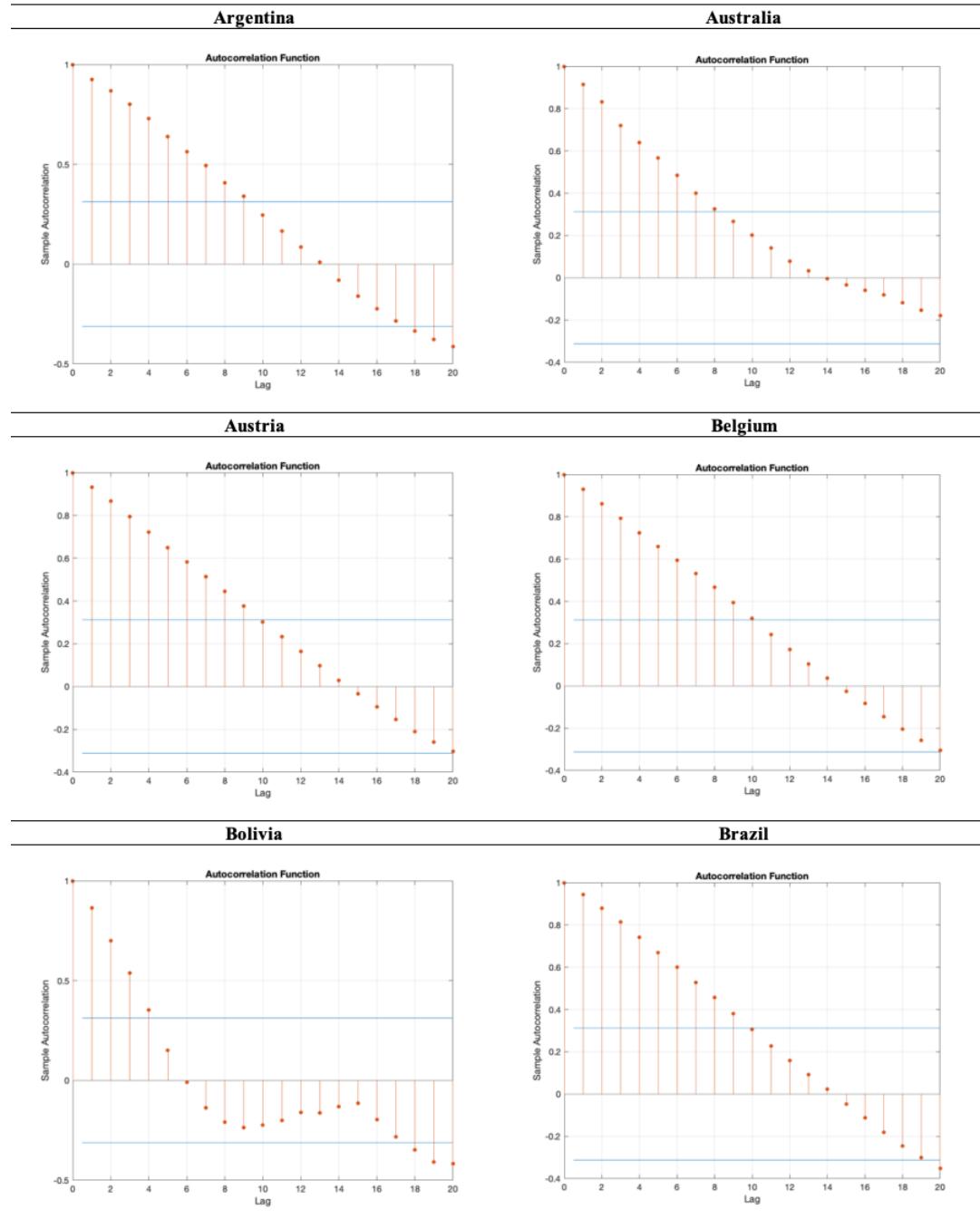
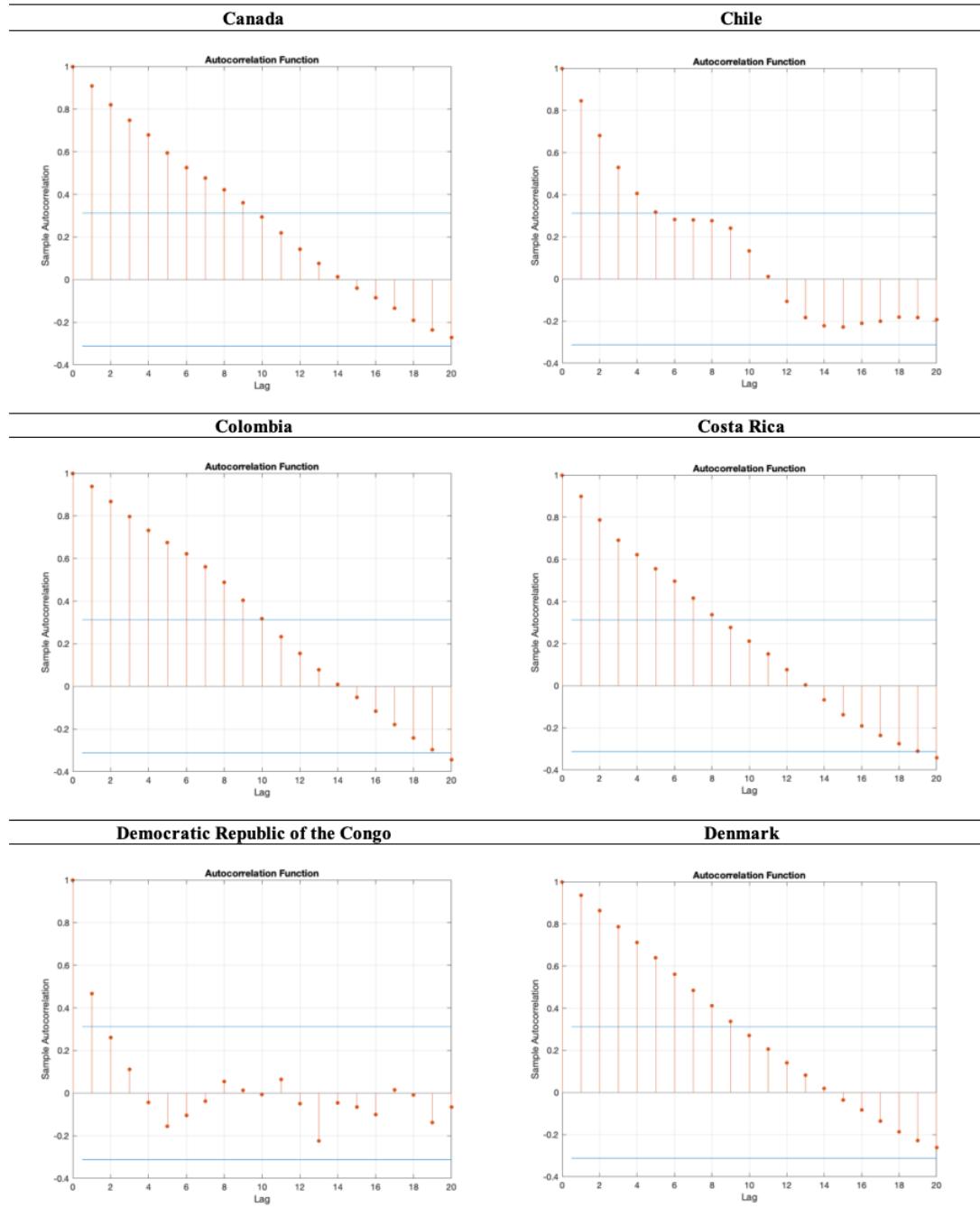


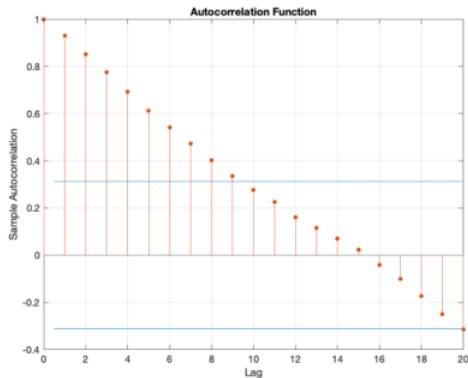
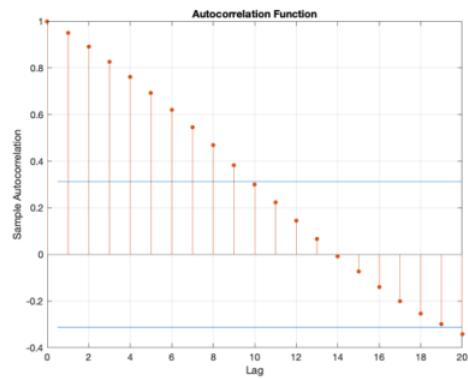
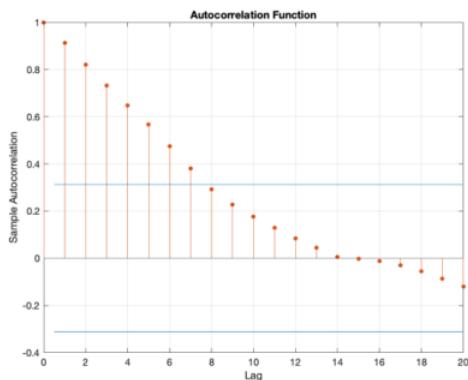
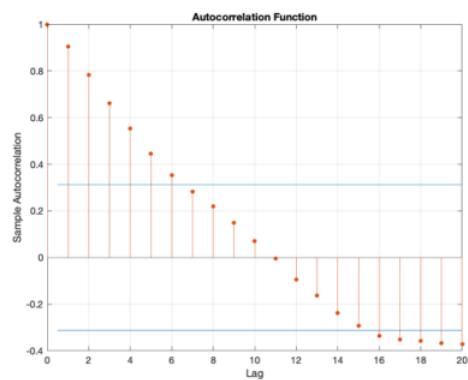
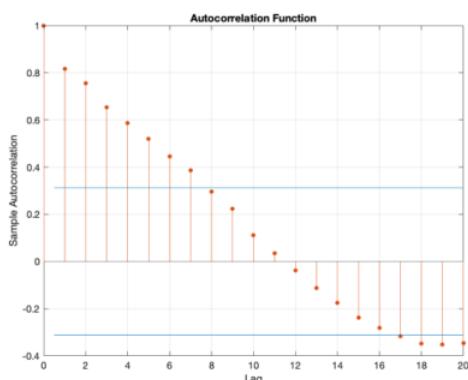
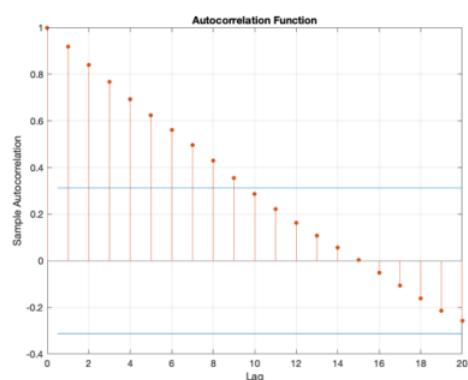
Figure OA.7: Power of the Score Tests with Joint Local Parametric Misspecification in  $\eta$ ,  $(n, T) = (25, 10)$

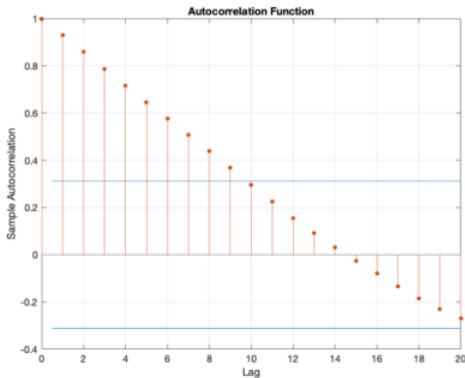
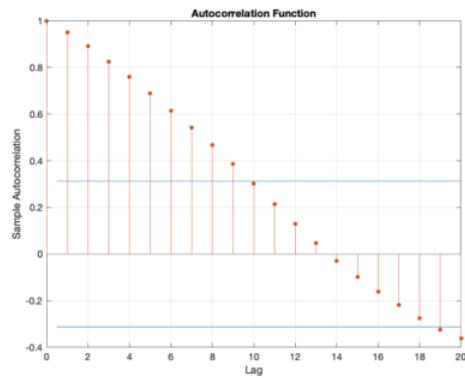
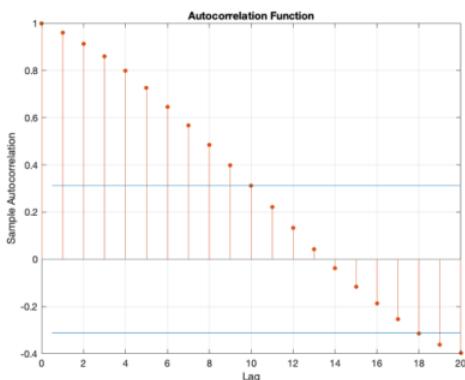
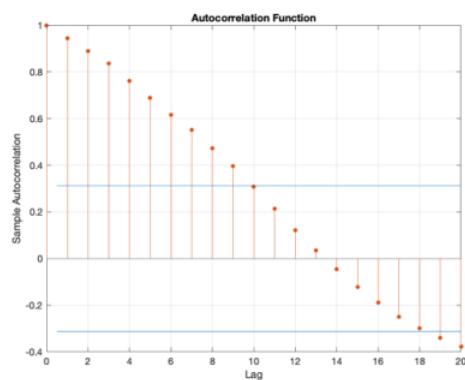
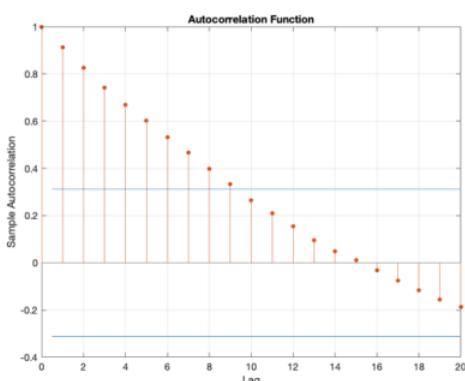
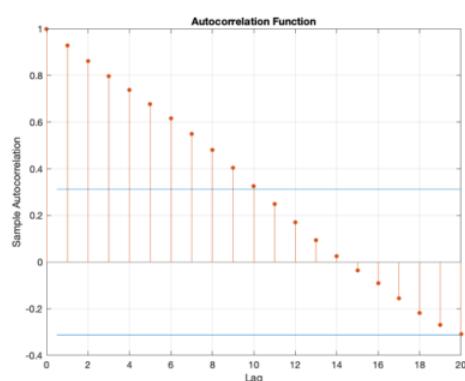


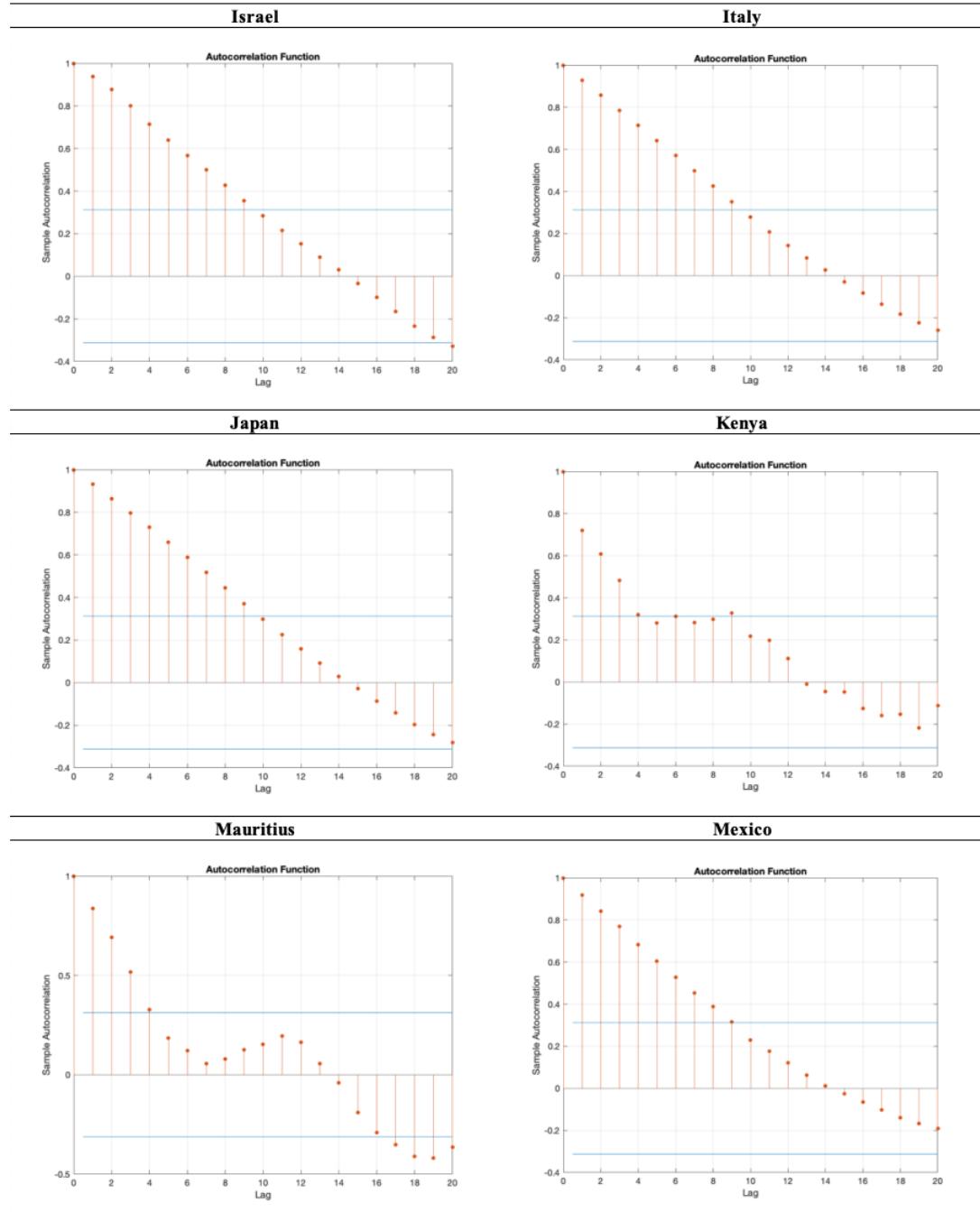
## OA.2 Autocorrelation Function Plots for Real Income per Worker

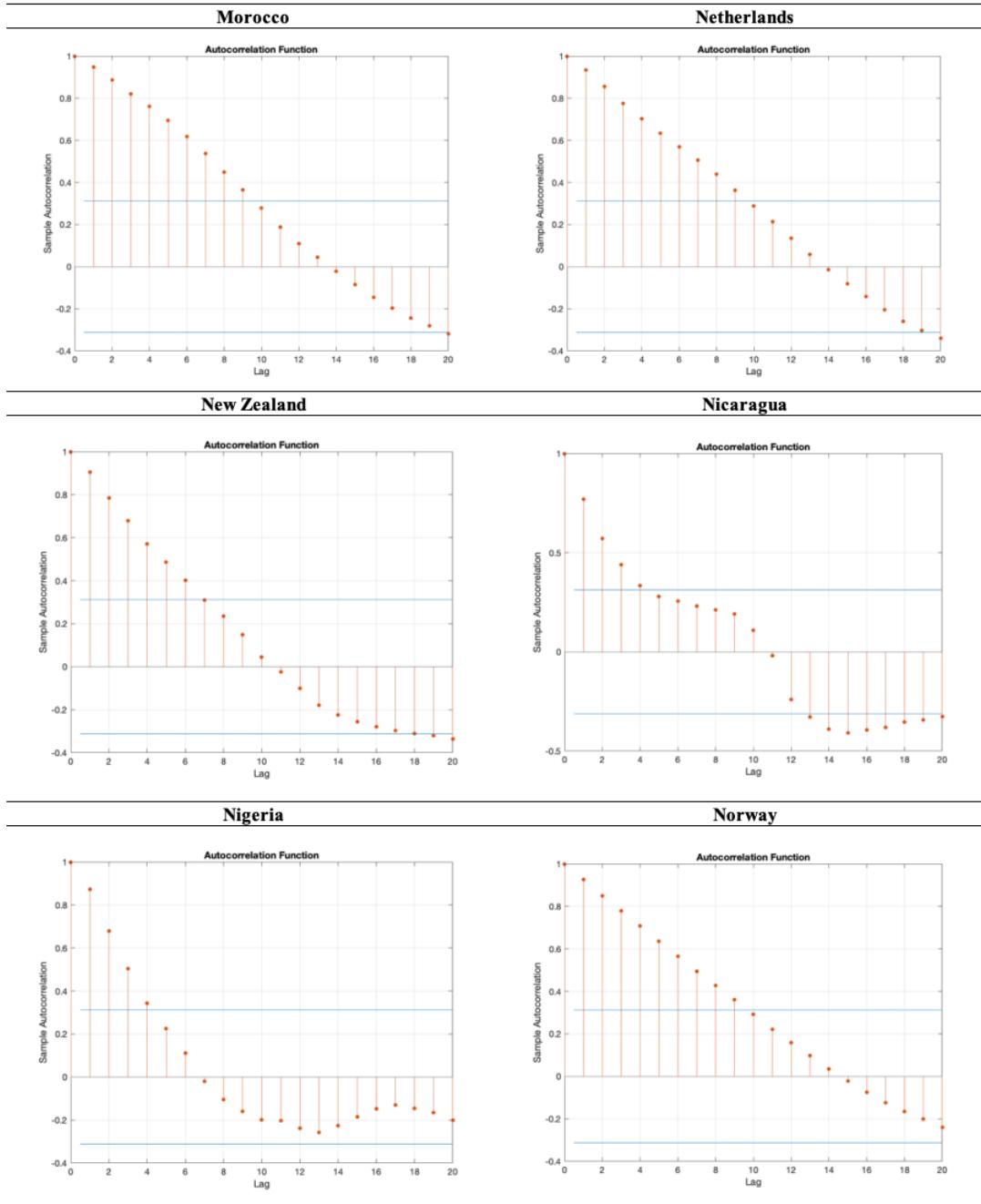


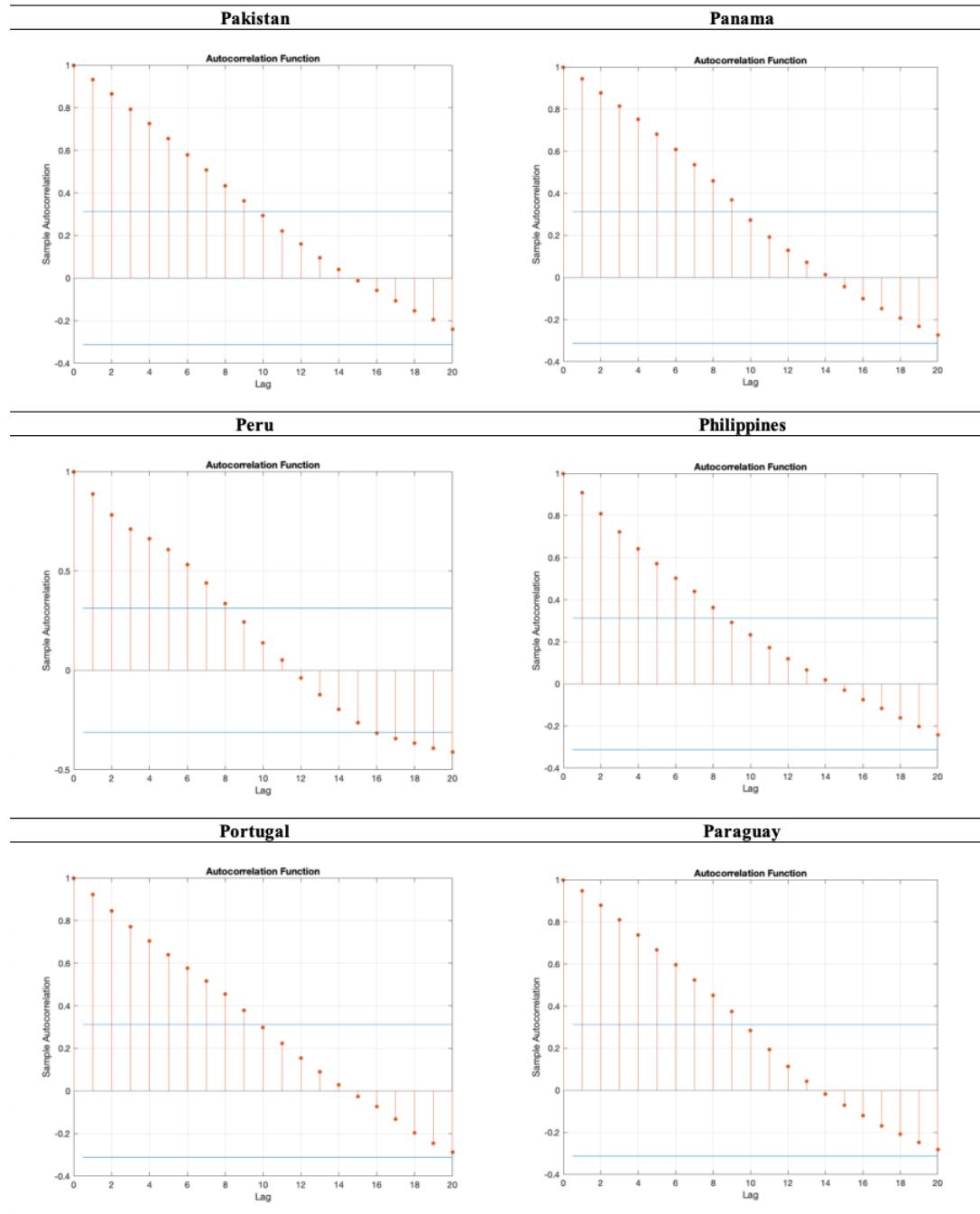


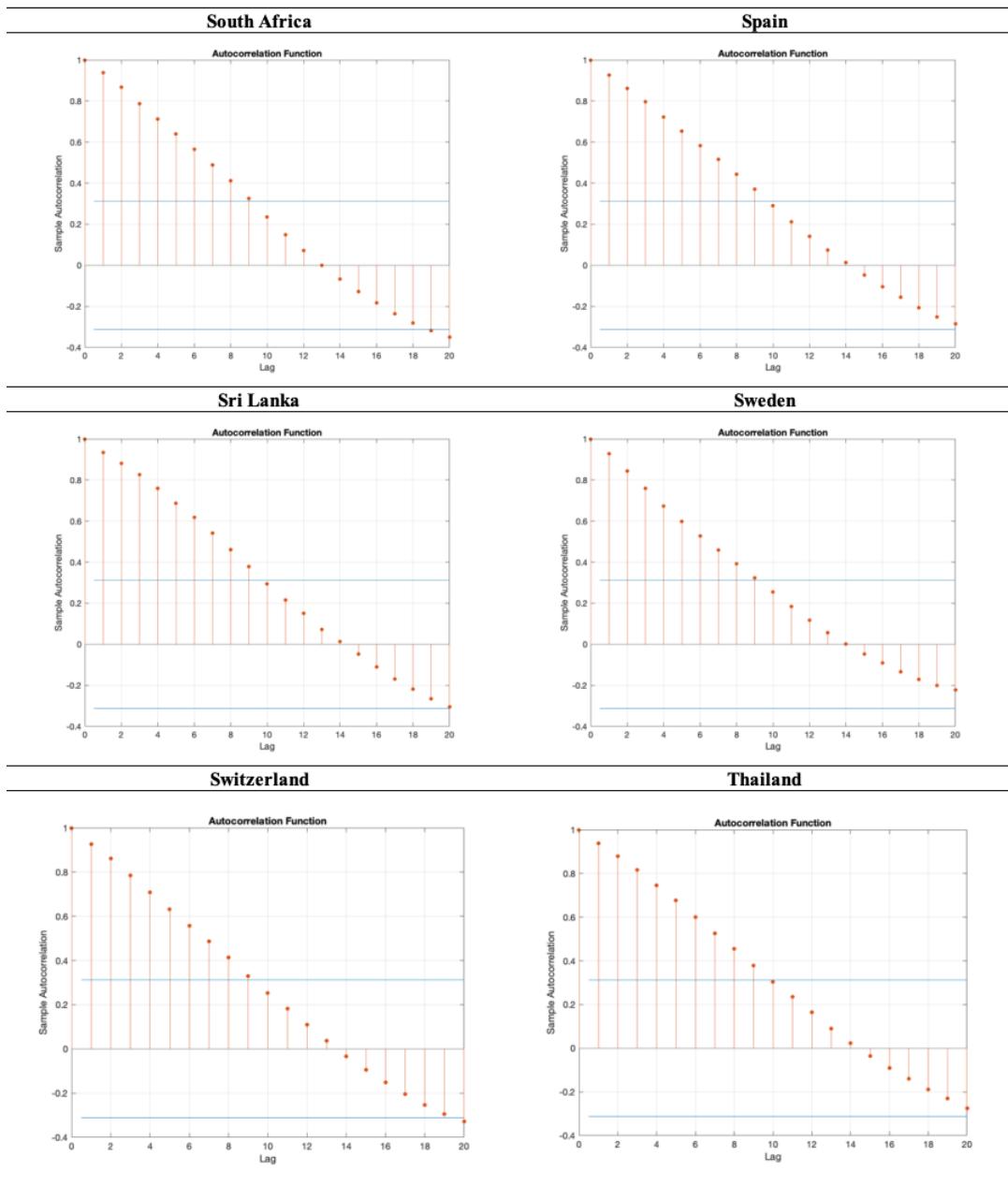
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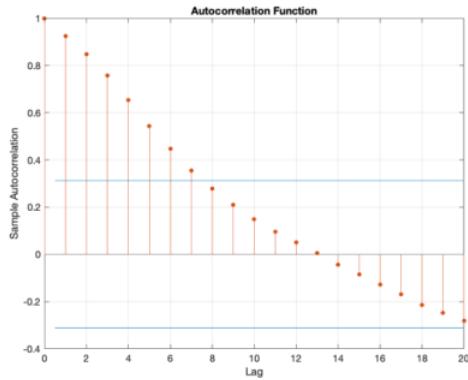
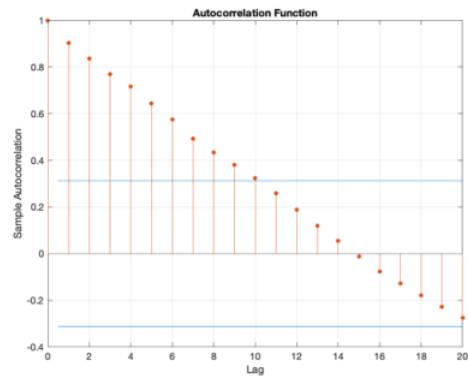
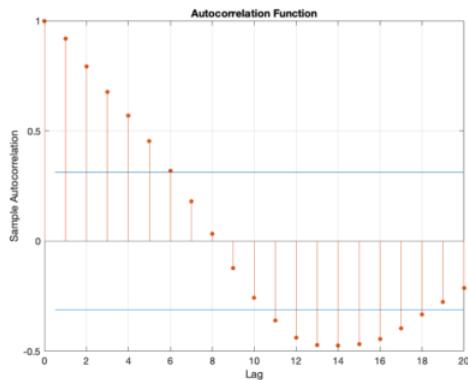
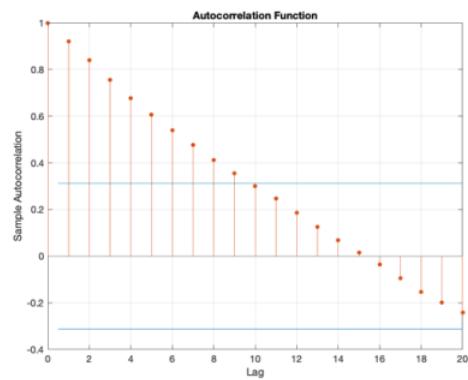
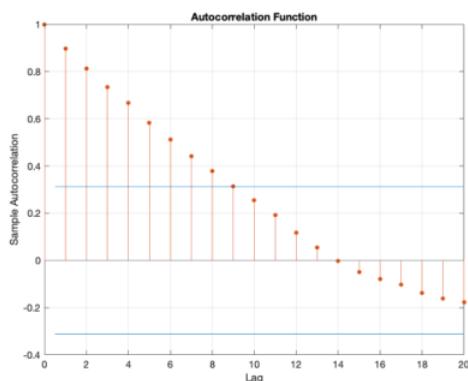
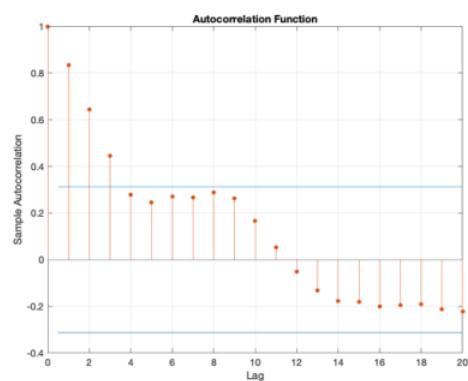
**France****Greece****Guatemala****Honduras****India****Ireland**









**Trinidad and Tobago****Turkey****Uganda****United Kingdom****United States****Uruguay**

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**Venezuela**

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