Erratum to "Asymptotic F and t Tests in an Efficient GMM Setting"

Table 4 in Hwang and Sun (2017) reports finite sample sizes of four tests for $T = 100$ and $\alpha = 5\%$, which includes the proposed standard F-test using J-statistic modification . All tests considered in Table 4 need to compute data-driven smoothing parameters of $\min\{K^*, 8\}$, where the even number K^* was calculated based on the AMSE criterion implemented similar to Andrews (1991), using the VAR(1) plug-in procedure in Phillips (2005). It is found to be a coding error for calculating $\min\{K^*, 8\}$ in which we instead computed $\min\{K^*/2, 8\}$. As a result, Table 4 misreports the simulation results with smaller choices of the smoothing parameters. With the correct formula of $\min\{K^*, 8\}$, the replication results corresponding in Table 4 show that the finite sample performances of the nonstandard F_∞ test and the standard F test are slightly more distorted than those in Table 4 of Hwang and Sun (2017). Still, the new simulation results do not change the paper's main implications - the standard F test still enjoys the same improved size performances compared to the conventional χ^2 test and behaves similar to the nonstandard F_∞ test proposed by Sun (2014). For completeness, we report the correct version of Table 4 below. I thank an anonymous referee of the Journal of Econometrics who reviews an article by Hwang and Valdés (2020) and brings the error to our attention.

References

[1] Andrews, D.W.K. (1991). Heteroskedasticity and autocorrelation consistent covariance matrix estimation. Econometrica 59, 817–854.

[2] Phillips, P. C. (2005). HAC estimation by automated regression. Econometric Theory, 116-142.

[3] Hwang, J., & Sun, Y. (2017). Asymptotic F and t Tests in an Efficient GMM Setting. Journal of econometrics, 198(2), 277-295.

[4] Hwang, J., & Valdés, G. (2020). Finite-sample Corrected Inference for Two-step GMM in Time Series (No. 2020-02).

[5] Sun, Y. (2014). Fixed-smoothing asymptotics in a two-step generalized method of moments framework. Econometrica, 82(6), 2327-2370.

Table 1: Empirical size of the nominal 5% χ^2 test, noncentral F test, nonstandard F_∞ test and standard F test based on the series LRV estimator under the AR design with $T = 100$, number of joint hypotheses p, and number of overidentifying restrictions q

ρ	χ^2	NCF	F_∞	F	χ^2	NCF	F_∞	F	χ^2	NCF	F_∞	F
	$p=1, q=0$				$p=2, q=0$				$p=3, q=0$			
-0.95	0.187	0.141	0.143	0.141	0.336	0.210	0.206	0.210	0.493	0.280	0.283	0.280
-0.85	0.128	0.093	0.093	0.093	0.210	0.124	0.125	0.124	0.324	0.165	0.166	0.165
-0.5	0.078	0.065	0.065	0.065	0.102	0.076	0.076	0.076	0.145	0.093	0.095	0.093
0.5	0.083	0.066	0.065	0.066	0.108	0.071	0.072	0.071	0.156	0.088	0.091	0.088
0.85	0.148	0.104	0.104	0.104	0.246	0.134	0.135	0.134	0.371	0.170	0.171	0.170
0.9	0.168	0.122	0.122	0.122	0.289	0.160	0.159	0.160	0.430	0.203	0.205	0.203
0.95	0.203	0.150	0.152	0.150	0.344	0.211	0.207	0.211	0.497	0.267	0.270	0.267
	$p=1, q=1$				$p=2, q=1$				$p=3, q=1$			
-0.95	0.316	0.193	0.188	0.182	0.520	0.271	0.270	0.258	0.703	0.336	0.343	0.316
-0.85	0.196	0.116	0.115	0.112	0.317	0.138	0.138	0.134	0.454	0.177	0.179	0.172
-0.5	0.097	0.071	0.071	0.071	0.133	0.080	0.079	0.081	0.177	0.093	0.091	0.092
0.5	0.102	0.070	0.070	0.070	0.147	0.082	0.081	0.081	0.203	0.093	0.093	0.090
0.85	0.205	0.112	0.109	0.110	0.338	0.141	0.141	0.137	0.489	0.172	0.175	0.167
0.9	0.245	0.136	0.134	0.133	0.408	0.175	0.174	0.167	0.577	0.215	0.222	0.206
0.95	0.305	0.183	0.180	0.172	0.501	0.253	0.253	0.240	0.676	0.308	0.314	0.289
	$p=1, q=2$				$p=2, q=2$				$p=3, q=2$			
-0.95	0.399	0.204	0.204	0.182	0.627	0.278	0.267	0.244	0.804	0.328	0.324	0.290
-0.85	0.257	0.118	0.120	0.114	0.412	0.145	0.137	0.137	0.568	0.172	0.171	0.161
-0.5	0.114	0.070	0.072	0.070	0.166	0.080	0.079	0.079	0.220	0.091	0.090	0.089
0.5	0.126	0.072	0.073	0.072	0.184	0.079	0.077	0.078	0.254	0.092	0.092	0.090
0.85	0.271	0.119	0.121	0.111	0.443	0.144	0.138	0.135	0.607	0.174	0.172	0.161
0.9	0.316	0.141	0.142	0.130	0.513	0.185	0.176	0.172	0.686	0.212	0.208	0.195
0.95	0.382	0.187	0.188	0.166	0.603	0.259	0.247	0.224	0.772	0.300	0.294	0.262

The first three tests χ^2, NCF, and F_∞ are based on the same unmodified Wald statistic but use different critical values. The χ^2 test uses the chi-squared critical value, the NCF test uses the noncentral F critical value, and the F_∞ test uses simulated nonstandard critical value. The standard F test is based on the modified Wald statistic and uses the standard F critical value.