Generalized Instrumental Variables Estimation of Nonlinear Rational Expectations Models

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ERRATA

In T. B. Fomby and R. C. Hill, "Multicollinearity and the Minimax Conditions of the Bock Stein-Like Estimator," *Econometrica*, 47(1979), 211–212, the expression in the second line from the bottom of p. 211,

$$\left[2 + \rho^2 \pm \rho(\rho^2 + 8)^{1/2}\right] \div \left[2(1 - \rho^2)\right],$$

should read

$$2 \div \left[2 + \rho^2 \pm \rho(\rho^2 + 8)^{1/2}\right].$$

The remaining contents are not affected, including the reported numerical results.

The authors would like to thank Mr. Subarna Samanta for bringing this error to their attention.

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An error has been pointed out by Patrick Sevestre in the recent paper by S. J. Nickell, "Biases in Dynamic Models with Fixed Effects," *Econometrica*, 49(1981), 1417–1426. On page 1424 it is noted that the small T bias in the coefficient on the lagged dependent variable in a fixed effects model is larger if exogenous variables are included. This statement is incorrect. The following is, however, true. If the true model contains exogenous regressors and these are omitted, the "Hurwicz bias" on the lagged dependent variable coefficient becomes smaller. There will, however, also be omitted variable bias which can go either way and applies even when $T \to \infty$. The remark in the paper therefore refers only to the Hurwicz bias and this was not made clear.

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Due to an error in the monthly consumption series, the empirical results reported in the paper by Lars Peter Hansen and Kenneth J. Singleton, "Generalized Instrumental Variables Estimation of Nonlinear Rational Expectations Models," *Econometrica*, 50(1982), 1269–1286, are incorrect. Here the authors provide correct versions of Tables I and III. The correct version of Table II is presented in L. P. Hansen and K. J. Singleton, "Stochastic Consumption, Risk Aversion, and the Temporal Behavior of Asset Returns," *Journal of Political Economy*, 91(1983), 249–265.

The correction in the data has an important impact on the estimates of the coefficient of relative risk aversion, α, and the associated standard errors. For instance, the estimates of α reported in the revised version of Table I fluctuate considerably more across alternative measures of consumption (nondurables versus nondurables plus services) and across alternative sets of instruments used in estimation. Whereas previously estimates of α ranged from $-.96$ to $-.68$, now they range from -1.59 to 1.26. Values of α greater than zero imply nonconcave preferences. In addition, the estimated standard errors are considerably higher in the revised version of Table I. In all cases in which the estimate of α exceeds zero, the estimated standard error is in turn greater than the estimate of α. Similar observations apply to Table III.

In the revised version of Table III, we have included results obtained using observations on the value-weighted aggregate stock return and the nominal, risk-free bond return. These results are the instrumental variables counterparts to the maximum likelihood results reported in Table 5 of the 1983 JPE article by Hansen and Singleton. Since the nominal risk-free return at time $t + 1$, R_{t+1}^f, is known at time t, we use R_{t+1}^f / R_t^f and *NLAG* lags of this ratio as instruments in place of *NLAG* lags of the ex post real return on the bound.

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TABLE I

INSTRUMENTAL VARIABLE ESTIMATES FOR THE PERIOD 1959:2–1978:12

Cons	Return	$NLAG$	$\hat{\alpha}$	$\widehat{SE}(\hat{\alpha})$	$\hat{\beta}$	$\widehat{SE}(\hat{\beta})$	χ^2	DF	Prob
NDS	EWR	1	− 0.9360	2.5550	.9930	.0060	5.226	1	.9774
NDS	EWR	2	0.1529	2.3468	.9906	.0056	7.378	3	.9392
NDS	EWR	4	1.2605	2.2669	.9891	.0059	9.146	7	.7577
NDS	EWR	6	0.1209	2.0455	.9928	.0054	14.556	11	.7963
NDS	VWR	1	− 1.0350	1.8765	.9982	.0045	1.071	1	.6993
NDS	VWR	2	0.1426	1.7002	.9965	.0044	3.467	3	.6749
NDS	VWR	4	− 0.0210	1.6525	.9969	.0043	5.718	7	.4270
NDS	VWR	6	− 1.1643	1.5104	.9997	.0041	11.040	11	.5601
ND	EWR	1	− 1.5906	1.0941	.9930	.0034	7.186	1	.9926
ND	EWR	2	− 0.7127	0.9916	.9918	.0034	12.040	3	.9928
ND	EWR	4	− 0.1261	0.8917	.9921	.0035	14.638	7	.9591
ND	EWR	6	− 0.4193	0.8256	.9936	.0033	18.016	11	.9188
ND	VWR	1	− 1.2028	0.7789	.9976	.0027	1.457	1	.7726
ND	VWR	2	− 0.5761	0.7067	.9975	.0027	5.819	3	.8792
ND	VWR	4	− 0.6565	0.6896	.9978	.0027	7.923	7	.6606
ND	VWR	6	− 0.9638	0.6425	.9985	.0027	10.522	11	.5159

TABLE III

INSTRUMENTAL VARIABLES ESTIMATION WITH MULTIPLE RETURNS

Equally- and Value-Weighted Aggregate Returns 1959:2–1978:12

Cons	$NLAG$	$\hat{\alpha}$	$\widehat{SE}(\hat{\alpha})$	$\hat{\beta}$	$\widehat{SE}(\hat{\beta})$	χ^2	DF	Prob.
NDS	1	− 0.5901	1.7331	.9989	.0041	18.309	6	.9945
NDS	2	1.0945	1.4907	.9961	.0040	24.412	12	.9821
NDS	4	0.3835	1.4208	.9975	.0039	40.234	24	.9798
ND	1	− 0.6494	0.6838	.9982	.0025	19.976	6	.9972
ND	2	− 0.0200	0.6071	.9982	.0025	27.089	12	.9925
ND	4	− 0.1793	0.5928	.9986	.0025	42.005	24	.9871

Value-Weighted Aggregate Stock Returns and Risk-Free Bonds Returns 1959:2–1978:12

Cons	$NLAG$	$\hat{\alpha}$	$\widehat{SE}(\hat{\alpha})$	$\hat{\beta}$	$\widehat{SE}(\hat{\beta})$	χ^2	DF	Prob.
NDS	1	−.1405	.0420	.9998	.0001	31.800	8	.9999
NDS	2	−.1472	.0376	.9998	.0001	44.083	16	.9998
NDS	4	−.1405	.0320	.9996	.0001	65.250	32	.9995
ND	1	−.0962	.0461	.9995	.0001	25.623	8	.9988
ND	2	−.1150	.0377	.9995	.0001	39.874	16	.9991
ND	4	−.1611	.0364	.9994	.0001	60.846	32	.9985

Three Industry-Average Stock Returns 1959:2–1977:12

Cons	$NLAG$	$\hat{\alpha}$	$\widehat{SE}(\hat{\alpha})$	$\hat{\beta}$	$\widehat{SE}(\hat{\beta})$	χ^2	DF	Prob.
NDS	1	1.5517	1.8006	.9906	.0046	13.840	13	.6147
NDS	4	0.6713	1.2466	.9940	.0035	88.211	49	.9995
ND	1	0.7555	0.7899	.9924	.0029	13.580	13	.5959
ND	4	0.5312	0.5512	.9939	.0024	89.501	49	.9996