Table 8.5.2. Empirical cumulative distribution of $\hat{\tau}$ for $\rho = 1$

Table 8.5.2. Empirical cumulative distribution of 1 for Probability of a Smaller Value Sample Size 0.05 0.10 0.90 0.95 0.975 0.99							
0.01	0.025	0.05	0.10	0.90	0.95	0.975	0.99
			÷.				
2//	2.26	-195		0.92	1.33	1.70	2.16
2100				0.91	1.31	1.66	2.08
2010-				0.90	1.29	1.64	2.03
				0.89	1.29	1.63	2.01
				0.89	1.28	1.62	2.00
					1.28	1.62	2.00
-2.58	-2.23	-1.93	1.02				
			$\hat{\tau}_{\mu}$				
2.75	_333	-3.00	-2.63	-0.37	0.00		0.72
			-2.60	-0.40	-0.03		0.66
			-2.58	-0.42	-0.05		0.63
				-0.42	-0.06	0.24	0.62
				-0.43	-0.07	0.24	0.61
				-0.44	-0.07	0.23	0.60
-3.43	-3.12	2.00					
			÷,		0.000	0.50	-0.15
-438	-3.95	-3.60	-3.24				-0.1.
		-3.50	-3.18	-1.19			
		-3.45	-3.15	-1.22			-0.2
		-3.43	-3.13	-1.23			-0.3
				-1.24	-0.93		- 0.3
				- 1.25	-0.94	-0.66	-0.3
	-2.66 -2.62 -2.60 -2.58 -2.58 -2.58 -3.75 -3.58 -3.51 -3.46 -3.44 -3.43 -4.38 -4.15 -4.04 -3.99 -3.98	-2.66 -2.26 -2.62 -2.25 -2.60 -2.24 -2.58 -2.23 -2.58 -2.23 -2.58 -2.23 -3.75 -3.33 -3.58 -3.22 -3.51 -3.17 -3.46 -3.14 -3.44 -3.13	-2.66 -2.26 -1.95 -2.62 -2.25 -1.95 -2.60 -2.24 -1.95 -2.58 -2.23 -1.95 -2.58 -2.23 -1.95 -2.58 -2.23 -1.95 -2.58 -2.23 -1.95 -3.75 -3.33 -3.00 -3.58 -3.22 -2.93 -3.51 -3.17 -2.89 -3.46 -3.14 -2.88 -3.44 -3.13 -2.87 -3.43 -3.12 -2.86 -4.38 -3.95 -3.60 -4.15 -3.80 -3.50 -4.04 -3.73 -3.45 -3.99 -3.69 -3.43 -3.98 -3.68 -3.44	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	7 -2.66 -2.26 -1.95 -1.60 0.92 1.33 1.70 -2.62 -2.25 -1.95 -1.61 0.91 1.31 1.66 -2.60 -2.24 -1.95 -1.61 0.90 1.29 1.64 -2.58 -2.23 -1.95 -1.62 0.89 1.29 1.63 -2.58 -2.23 -1.95 -1.62 0.89 1.28 1.62 -2.58 -2.23 -1.95 -1.62 0.89 1.28 1.62 -2.58 -2.23 -1.95 -1.62 0.89 1.28 1.62 -3.75 -3.33 -3.00 -2.63 -0.37 0.00 0.34 -3.51 -3.17 -2.89 -2.58 -0.42 -0.05 0.26 -3.51 -3.17 -2.89 -2.58 -0.42 -0.05 0.26 -3.44 -3.13 -2.87 -2.57 -0.42 -0.06 0.24 -3.44 -3.13 -2.87 -2.57 -0.43 -0.07 0.24 -3.43 -3.12 -2.86 -2.57 -0.44 -0.07 0.23 -4.38 -3.95 -3.60 -3.24 -1.14 -0.80 -0.50 -4.15 -3.80 -3.50 -3.18 -1.19 -0.87 -0.58 -4.04 -3.73 -3.45 -3.15 -1.22 -0.90 -0.62 -3.99 -3.69 -3.43 -3.13 -1.23 -0.92 -0.64 -3.98 -3.68 -3.42 -3.13 -1.24 -0.93 -0.65

This table was constructed by David A. Dickey using the Monte Carlo method. Details are given in Dickey (1975). Standard errors of the estimates vary, but most are less than 0.02.

To extend the results for the first order process with $\rho=1$ to the ρ th order autoregressive process, we consider the time series $Y_t = \sum_{j=1}^t Z_j, \qquad t=1,2,\ldots, \tag{8.5.11}$

$$Y_t = \sum_{j=1}^{t} Z_j, \qquad t = 1, 2, ...,$$
 (8.5.11)

where $\{Z_t: t \in (0, \pm 1, \pm 2, \ldots)\}$ is a (p-1) order autoregressive time series with the representation

$$Z_{t} + \sum_{i=2}^{P} a_{i} Z_{t-i+1} = e_{t}, \tag{8.5.12}$$