

**Critical values of the chi-square distribution** قيم توزيع مربع كاي

$\alpha \backslash v$	0.995	0.975	0.20	0.10	0.05	0.025	0.02	0.01
1	0.0000393	0.000982	1.642	2.706	3.841	5.024	5.412	6.635
2	0.0100	0.0506	3.219	4.605	5.991	7.378	7.824	9.210
3	0.0717	0.216	4.642	6.251	7.815	9.348	9.837	11.345
4	0.207	0.484	5.989	7.779	9.488	11.143	11.668	13.277
5	0.412	0.831	7.289	9.236	11.070	12.833	13.388	15.086
6	0.676	1.237	8.558	10.645	12.592	14.449	15.033	16.812
7	0.989	1.690	9.803	12.017	14.067	16.013	16.622	18.475
8	1.344	2.180	11.030	13.362	15.507	17.535	18.168	20.090
9	1.735	2.700	12.242	14.684	16.919	19.023	19.679	21.666
10	2.156	3.247	13.442	15.987	18.307	20.483	21.161	23.209
11	2.603	3.816	14.631	17.275	19.675	21.920	22.618	24.725
12	3.074	4.404	15.812	18.549	21.026	23.337	24.054	26.217
13	3.565	5.009	16.985	19.812	22.362	24.736	25.472	27.688
14	4.075	5.629	18.151	21.064	23.685	26.119	26.873	29.141
15	4.601	6.262	19.311	22.307	24.996	27.488	28.259	30.578
16	5.142	6.908	20.465	23.542	26.296	28.845	29.633	32.000
17	5.697	7.564	21.615	24.769	27.587	30.191	30.995	33.409
18	6.265	8.231	22.760	25.989	28.869	31.526	32.346	34.805
19	6.844	8.907	23.900	27.204	30.144	32.852	33.687	36.191
20	7.434	9.591	25.038	28.412	31.410	34.170	35.020	37.566
21	8.034	10.283	26.171	29.615	32.671	35.479	36.343	38.932
22	8.643	10.982	27.301	30.813	33.924	36.781	37.659	40.289
23	9.260	11.689	28.429	32.007	35.172	38.076	38.968	41.638
24	9.886	12.401	29.553	33.196	36.415	39.364	40.270	42.980
25	10.520	13.120	30.675	34.382	37.652	40.646	41.566	44.314
26	11.160	13.844	31.795	35.563	38.885	41.923	42.856	45.642
27	11.808	14.573	32.912	36.741	40.113	43.195	44.140	46.963
28	12.461	15.308	34.027	37.916	41.337	44.461	45.419	48.278
29	13.121	16.047	35.139	39.087	42.557	45.722	46.693	49.588
30	13.787	16.791	36.250	40.256	43.773	46.979	47.962	50.892
50	27.991	32.357	58.164	63.167	67.505	71.420	72.613	76.154
100	67.328	74.222	111.667	118.498	124.342	129.561	131.142	135.807

## Critical values of the St-distribution    قيم توزيع ستودنت

$\alpha \backslash v$	0.1	0.05	0.025	0.01	0.005	0.001	0.0005
1	3.078	6.314	12.076	31.821	63.657	318.310	636.620
2	1.886	2.920	4.303	6.965	9.925	22.326	31.598
3	1.638	2.353	3.182	4.541	5.841	10.213	12.924
4	1.533	2.132	2.776	3.747	4.604	7.173	8.610
5	1.476	2.015	2.571	3.365	4.032	5.893	6.869
6	1.440	1.943	2.447	3.143	3.707	5.208	5.959
7	1.415	1.895	2.365	2.998	3.499	4.785	5.408
8	1.397	1.860	2.306	2.896	3.355	4.501	5.041
9	1.383	1.833	2.262	2.821	3.250	4.297	4.781
10	1.372	1.812	2.228	2.764	3.169	4.144	4.587
11	1.363	1.796	2.201	2.718	3.106	4.025	4.437
12	1.356	1.782	2.179	2.681	3.055	3.930	4.318
13	1.350	1.771	2.160	2.650	3.012	3.852	4.221
14	1.345	1.761	2.145	2.624	2.977	3.787	4.140
15	1.341	1.753	2.131	2.602	2.947	3.733	4.073
16	1.337	1.746	2.120	2.583	2.921	3.686	4.015
17	1.333	1.740	2.110	2.567	2.898	3.646	3.965
18	1.330	1.734	2.101	2.552	2.878	3.610	3.922
19	1.328	1.729	2.093	2.539	2.861	3.579	3.883
20	1.325	1.725	2.086	2.528	2.845	3.552	3.850
21	1.323	1.721	2.080	2.518	2.831	3.527	3.819
22	1.321	1.717	2.074	2.508	2.819	3.505	3.792
23	1.319	1.714	2.069	2.500	2.807	3.485	3.767
24	1.318	1.711	2.064	2.492	2.797	3.467	3.745
25	1.316	1.708	2.060	2.485	2.787	3.450	3.725
26	1.315	1.706	2.056	2.479	2.779	3.435	3.707
27	1.314	1.703	2.052	2.473	2.771	3.421	3.690
28	1.313	1.701	2.048	2.467	2.763	3.408	3.674
29	1.311	1.699	2.045	2.462	2.756	3.396	3.659
30	1.310	1.697	2.042	2.457	2.750	3.385	3.646
40	1.303	1.684	2.021	2.423	2.704	3.307	3.551
60	1.296	1.671	2.000	2.390	2.660	3.232	3.460
120	1.289	1.658	1.980	2.358	2.617	3.160	3.373
$\infty$	1.282	1.645	1.960	2.326	2.576	3.090	3.291

## Critical values of the F-distribution قیم توزیع فیشر

$v_2$	$v_1 = 1$		$v_1 = 2$		$v_1 = 3$		$v_1 = 4$		$v_1 = 5$	
	$\alpha = 5\%$	$\alpha = 1\%$	$\alpha = 5\%$	$\alpha = 1\%$	$\alpha = 5\%$	$\alpha = 1\%$	$\alpha = 5\%$	$\alpha = 1\%$	$\alpha = 5\%$	$\alpha = 1\%$
1	161.4	4052.00	199.5	4999.00	213.7	3403.00	224.6	5625.00	230.2	5764.00
2	18.51	98.49	19.00	99.00	19.16	99.17	19.25	99.25	19.30	99.30
3	10.13	34.12	9.55	30.81	9.28	29.46	9.12	28.71	9.01	28.24
4	7.71	21.20	6.94	18.00	6.59	16.69	6.39	13.98	6.26	13.32
5	6.61	16.26	5.79	13.27	5.41	12.06	5.19	11.39	5.03	10.97
6	3.99	13.74	3.14	10.91	4.76	9.78	4.53	9.13	4.39	8.75
7	3.39	12.23	4.74	9.35	4.33	8.43	4.12	7.85	3.97	7.45
8	3.32	11.26	4.46	8.63	4.07	7.39	3.84	7.01	3.69	6.63
9	5.12	10.56	4.26	8.02	3.86	6.99	3.63	6.42	3.48	6.06
10	4.96	10.04	4.10	7.56	3.71	6.33	3.48	5.99	3.33	5.64
11	4.84	9.65	3.98	7.20	3.59	6.22	3.36	5.67	3.20	5.32
12	4.75	9.33	3.88	6.93	3.49	5.93	3.26	5.41	3.11	5.06
13	4.67	9.07	3.80	6.70	3.41	5.74	3.18	5.20	3.02	4.86
14	4.60	8.86	3.74	6.31	3.34	5.56	3.11	5.03	2.96	4.69
15	4.34	8.68	3.68	6.36	3.29	5.42	3.06	4.89	2.90	4.56
16	4.49	8.53	3.63	6.23	3.24	5.29	3.01	4.77	2.85	4.44
17	4.45	8.40	3.59	6.11	3.20	5.18	2.96	4.67	2.81	4.34
18	4.41	8.28	3.53	6.01	3.16	5.09	2.93	4.58	2.77	4.25
19	4.38	8.18	3.52	5.93	3.13	5.01	2.90	4.50	2.74	4.17
20	4.35	8.10	3.49	5.85	3.10	4.94	2.87	4.43	2.71	4.10
21	4.32	8.02	3.47	5.78	3.07	4.87	2.84	4.37	2.68	4.04
22	4.30	7.94	3.44	5.72	3.05	4.82	2.82	4.31	2.66	3.99
23	4.28	7.88	3.42	5.66	3.03	4.76	2.80	4.26	2.64	3.94
24	4.26	7.82	3.40	5.61	3.01	4.72	2.78	4.22	2.62	3.90
25	4.24	7.77	3.38	5.37	2.99	4.68	2.76	4.18	2.60	3.86
26	4.22	7.72	3.37	5.33	2.98	4.64	2.74	4.14	2.39	3.82
27	4.21	7.68	3.33	5.49	2.96	4.60	2.73	4.11	2.37	3.78
28	4.20	7.64	3.34	5.43	2.95	4.57	2.71	4.07	2.56	3.75
29	4.18	7.60	3.33	5.42	2.93	4.34	2.70	4.04	2.34	3.73
30	4.17	7.56	3.32	5.39	2.92	4.31	2.69	4.02	2.53	3.70
40	4.08	7.31	3.23	5.18	2.84	4.31	2.61	3.83	2.43	3.31
60	4.00	7.08	3.15	4.98	2.76	4.13	2.32	3.65	2.37	3.34
120	3.92	6.85	3.07	4.79	2.68	3.93	2.43	3.48	2.29	3.17
$\infty$	3.84	6.64	2.99	4.60	2.60	3.78	2.37	3.32	2.21	3.02

**قيم الحدود العليا والدنيا لاختبار دربين و آتسون بمستوى معنوية 1%**

**Critical Values for the Durbin-Watson Statistic ,Level of Significance  $\alpha = 0.01$**

n	k=1		k=2		k=3		k=4		k=5	
	$d_l$	$d_u$	$d_l$	$d_u$	$d_l$	$d_u$	$d_l$	$d_u$	$d_l$	$d_u$
15	0.81	1.07	0.70	1.25	0.59	1.46	0.49	1.70	0.39	1.96
16	0.84	1.09	0.74	1.25	0.63	1.44	0.53	1.66	0.44	1.90
17	0.87	1.10	0.77	1.25	0.67	1.43	0.57	1.30	0.48	1.85
18	0.90	1.12	0.80	1.26	0.71	1.42	0.61	1.60	0.52	1.80
19	0.93	1.13	0.83	1.26	0.74	1.41	0.65	1.58	0.56	1.77
20	0.95	1.15	0.86	1.27	0.77	1.41	0.68	1.57	0.60	1.74
21	0.97	1.16	0.89	1.27	0.80	1.41	0.72	1.55	0.63	1.71
22	1.00	1.17	0.91	1.28	0.83	1.40	0.75	1.54	0.66	1.69
23	1.02	1.19	0.94	1.29	0.86	1.40	0.77	1.53	0.70	1.67
24	1.04	1.20	0.96	1.30	0.88	1.41	0.80	1.53	0.72	1.66
25	1.05	1.21	0.98	1.30	0.90	1.41	0.83	1.52	0.75	1.65
26	1.07	1.22	1.00	1.31	0.93	1.41	0.85	1.52	0.78	1.64
27	1.09	1.23	1.02	1.32	0.95	1.41	0.88	1.51	0.81	1.63
28	1.10	1.24	1.04	1.32	0.97	1.41	0.90	1.51	0.83	1.62
29	1.12	1.25	1.05	1.33	0.99	1.42	0.92	1.51	0.85	1.61
30	1.13	1.26	1.07	1.34	1.01	1.42	0.94	1.51	0.88	1.61
31	1.15	1.27	1.08	1.34	1.02	1.42	0.96	1.51	0.90	1.60
32	1.16	1.28	1.10	1.35	1.04	1.43	0.98	1.51	0.92	1.60
33	1.17	1.29	1.11	1.36	1.05	1.43	1.00	1.51	0.94	1.59
34	1.18	1.30	1.13	1.36	1.07	1.43	1.01	1.51	0.95	1.59
35	1.19	1.31	1.14	1.27	1.08	1.44	1.03	1.51	0.97	1.59
36	1.21	1.32	1.15	1.38	1.10	1.44	1.04	1.51	0.99	1.59
37	1.22	1.32	1.16	1.38	1.11	1.45	1.06	1.51	1.00	1.59
38	1.23	1.33	1.18	1.39	1.12	1.45	1.07	1.52	1.02	1.58
50	1.32	1.40	1.28	1.45	1.24	1.49	1.20	1.54	1.16	1.59
70	1.43	1.49	1.40	1.52	1.37	1.55	1.34	1.58	1.31	1.61
100	1.52	1.56	1.50	1.58	1.48	1.60	1.46	1.63	1.44	1.65
150	1.61	1.64	1.60	1.65	1.58	1.67	1.57	1.68	1.56	1.69
200	1.66	1.68	1.65	1.69	1.64	1.70	1.63	1.72	1.62	1.73

قيم الحدود العليا والدنيا لاختبار دربين و اتسون بمستوى معنوية 5%

Critical Values for the Durbin-Watson Statistic ,Level of Significance  $\alpha = 0.05$

n	k=1		k=2		k=3		k=4		k=5	
	d <sub>l</sub>	d <sub>u</sub>	d <sub>l</sub>	d <sub>u</sub>	d <sub>l</sub>	d <sub>u</sub>	d <sub>l</sub>	d <sub>u</sub>	d <sub>l</sub>	d <sub>u</sub>
15	1.08	1.36	0.95	1.54	0.82	1.75	0.69	1.97	0.56	2.21
16	1.10	1.37	0.98	1.54	0.86	1.73	0.74	1.93	0.62	2.15
17	1.13	1.38	1.02	1.54	0.90	1.71	0.78	1.90	0.67	2.10
18	1.16	1.39	1.05	1.53	0.93	1.69	0.92	1.87	0.71	2.06
19	1.18	1.4	1.08	1.53	0.97	1.68	0.86	1.85	0.75	2.02
20	1.20	1.41	1.10	1.54	1.00	1.68	0.90	1.83	0.79	1.99
21	1.22	1.42	1.13	1.54	1.03	1.67	0.93	1.81	0.83	1.96
22	1.24	1.43	1.15	1.54	1.05	1.66	0.96	1.80	0.96	1.94
23	1.26	1.44	1.17	1.54	1.08	1.66	0.99	1.79	0.90	1.92
24	1.27	1.45	1.19	1.55	1.10	1.66	1.01	1.78	0.93	1.90
25	1.29	1.45	1.21	1.55	1.12	1.66	1.04	1.77	0.95	1.89
26	1.30	1.46	1.22	1.55	1.14	1.65	1.06	1.76	0.98	1.88
27	1.32	1.47	1.24	1.56	1.16	1.65	1.08	1.76	1.01	1.86
28	1.33	1.48	1.26	1.56	1.18	1.65	1.10	1.75	1.03	1.85
29	1.34	1.48	1.27	1.56	1.20	1.65	1.12	1.74	1.05	1.84
30	1.35	1.49	1.28	1.57	1.21	1.65	1.14	1.74	1.07	1.83
31	1.36	1.50	1.30	1.57	1.23	1.65	1.16	1.74	1.09	1.83
32	1.37	1.50	1.31	1.57	1.24	1.65	1.18	1.73	1.11	1.82
33	1.38	1.51	1.32	1.58	1.26	1.65	1.19	1.73	1.13	1.81
34	1.39	1.51	1.33	1.58	1.27	1.65	1.21	1.73	1.15	1.81
35	1.40	1.52	1.34	1.58	1.28	1.65	1.22	1.73	1.16	1.80
36	1.41	1.52	1.35	1.59	1.29	1.65	1.24	1.73	1.18	1.80
37	1.42	1.53	1.36	1.59	1.31	1.66	1.25	1.72	1.19	1.80
38	1.43	1.54	1.37	1.59	1.32	1.66	1.26	1.72	1.21	1.79
50	1.50	1.59	1.46	1.63	1.42	1.67	1.38	1.72	1.34	1.77
70	1.58	1.64	1.55	1.67	1.52	1.70	1.49	1.74	1.46	1.77
100	1.65	1.69	1.63	1.72	1.61	1.74	1.59	1.76	1.57	1.78
150	1.72	1.75	1.71	1.76	1.69	1.77	1.68	1.79	1.66	1.80
200	1.76	1.78	1.75	1.79	1.74	1.80	1.73	1.81	1.72	1.82