Comp: Use electronic file for all-new Appendix F. — CT

APPENDIX F

DATA SETS USED IN APPLICATIONS

The following lists the data sets used in the examples and applications in the text. With the exception of the Bertschek and Lechner file, the data sets themselves can be downloaded either from the Web site for this text, pages.stern.nyu.edu/~wgreene/Text/econometricanalysis.htm, or from the URLs to the publicly accessible archives indicated below as "*Location*." The points in the text where the data are used for examples or suggested exercises are noted as "*Uses*."

TABLE F1.1 Consumption and Income, 10 Yearly Observations, 2000–2009
Source: Economic Report of the President, 1987, Council of Economic Advisors
Location: Text website
Use: Example 1.2.

TABLE F2.1 Consumption and Income, 11 Yearly Observations, 1940–1950
Source: Economic Report of the President, U.S. Government Printing Office, Washington, D.C., 1983.
Location: Text website
Uses: Examples 2.1, 3.2, 16.3

TABLE F2.2 The U.S. Gasoline Market, 52 Yearly Observations 1953–2004
Source: The data were compiled by Professor Chris Bell, Department of Economics, University of North Carolina, Asheville. *Sources:* www.bea.gov and www.bls.gov.
Location: Text website
Uses: Examples 2.3, 4.2, 4.4, 4.8, 4.9, 6.9, 15.4, 20.2, 20.6, 21.1, 21.3,
Sections 20.9.2,
Application 4.1, 5.3, 7.6, 7.7.

TABLE F3.1 Investment, 15 Yearly Observations, 1968–1982
Source: Economic Report of the President, U.S. Government Printing Office, Washington, D.C., 1983.
Location: Text website
Uses: Examples 3.1, 3.3,
Section 3.2.2,
Exercise 3.12

TABLE F3.2 Koop and Tobias Labor Market Experience, 17,919 Observations
Source: Koop and Tobias (2004).
Location: Journal of Applied Econometrics data archive,
http://www.econ.queensu.ca/jae/2004-v19.7/koop-tobias/.
Uses: Example 15.16,
Applications 3.1, 5.1, 6.1, 6.2.

TABLE F4.1 Auction Data for Monet Paintings, 430 Observations
Source: Author
Location: Text website
Uses: Examples 4.5, 4.10, 5.8, 6.2, 11.2
Section 4.7.6
Exercise 4.17

TABLE F4.2 The Longley Data, 15 Yearly Observations, 1947–1962
Source: Longley (1967).
Location: Text website
Use: Example 4.11.

TABLE F4.3 Movie Buzz Data, 62 Observations
Source: Author
Location: Text website
Uses: Examples 4.12, 6.3

TABLE F4.4 Cost Function, 158 1970 Cross-Section Firm Level Observations
Note: The file contains 158 observations. Christensen and Greene used the first 123. The extras are the holding companies. Use only the first 123 observations to replicate Christensen and Greene.
Source: Christensen and Greene (1976).
Location: Text website
Uses: Examples 7.11, 7,12.
Applications 4.2, 5.2, 7.5, 10.1, 19.4.

TABLE F5.1 Labor Supply Data from Mroz (1987), 753 Observations
Source: 1976 Panel Study of Income Dynamics, Mroz (1987)
Location: Text website
Uses: Examples 5.2, 5.5, 6.1, 17.1, 17.8, 17.10, 19.11.

TABLE F5.2 Macroeconomics Data Set, Quarterly, 1950I to 2000IV
Source: Department of Commerce, BEA website and *www.economagic.com*
Location: Text website
Uses: Examples 5.3, 5.6, 5.7, 7.4, 7.8, 8.7, 8.10, 14.7, 16.3, 20.1, 20.3, 20.4, 21.2, 21.4, 21.5, 23.1, 23.2, 23.3, 23,4, 23.5.
Applications 5.4, 10.3, 20.1, 20.3, 21.1, 23.1, 23.2, 23.3.
Section 21.5.1, 21.6.8.e, 23.2.4,.

TABLE F5.3 Production for SIC 33: Primary Metals, 27 Statewide Observations
Note: Data are per establishment, labor is a measure of labor input, and capital is the gross value of plant and equipment. A scale factor used to normalize the capital figure in the original study has been omitted. Further details on construction of the data are given in Aigner et al. (1977).
Source: Hildebrand and Liu (1957).
Location: Text website
Use: Example 5.4,
Application 7.1.

TABLE F6.1 Costs for U.S. Airlines, 90 Total Observations on 6 Firms for 1970–1984
Note: These data are a subset of a larger data set provided to the author by Professor Moshe Kim.
Source: Christensen Associates of Madison, Wisconsin.
Location: Text website
Uses: Examples 6.4, 9.4, 14.6.
Applications 9.3, 11.2.

TABLE F6.2 Cost Function, 145 U.S. Electricity Producers, Nerlove's 1955 Data
Note: The data file contains several extra observations that are aggregates of commonly owned firms. Use only the first 145 for analysis.
Source: Nerlove (1960) and Christensen and Greene (1976).
Location: Text website
Use: Example 6.6.
Section 10.5.1.

TABLE F6.3 World Health Organization Panel Data, 840 Total Observations
Note: Variables marked * were updated with more recent sources in Greene (2004a). Missing values for some of the variables in this data set are filled by using fitted values from a linear regression.
Sources: The World Health Organization [Evans et al. (2000) and www.who.int]
Location: Text website
Uses: Examples 6.10, 11.4.

TABLE F6.4 Solow's Technological Change Data, 41 Yearly Observations, 1909–1949
Source: Solow (1957, p. 314). Several variables are omitted.
Location: Text website
Uses: Application 6.3.

TABLE F7.1 German Health Care Data, Unbalanced Panel, 7,293 Individuals, 27,326 Observations
Notes: In the applications in the text, the following additional variables are used:
NUMOBS = Number of observations for this person. Repeated in each row of data.
NEWHSAT = *HSAT*; 40 observations on HSAT recorded between 6 and 7 were changed to 7.
Frequencies are: 1 = 1525, 2 = 1079, 3 = 825, 4 = 926, 5 = 1051, 6 = 1000, 7 = 887.
Source: Riphahn et al. (2003).
Location: Journal of Applied Econometrics Data Archive
http://qed.econ.queensu.ca/jae/2003-v18.4/riphahn-wambach-million/
Uses: Examples 7.6, 11.16, 11.17, 13.7, 14.5, 14.9, 14.10, 14.14, 14.17, 17.4, 17.5, 17.7, 17.11, 17.13, 17.15, 17.16, 17.17, 17.18, 17.19, 17.20,18.6, 18.7, 18.10, 18.12, 19.13
Sections 14.9.5,
Applications: 14.1, 18.2, 18.3, 18.4

TABLE F7.2 Statewide Data on Transportation Equipment Manufacturing, 25 Observations
Note: "Value added," "Capital," and "Labor" in millions of 1957 dollars. Data used in regression examples are per establishment. Totals are used for the stochastic frontier application in Chapter 16.
Source: A. Zellner and N. Revankar (1970, p. 249).
Location: Text website
Uses: Examples 7.9,
Application 7.2., 7.3

TABLE F7.3 Expenditure and Default Data, 13,999 Observations
Source: Greene (1992).
Location: Text website
Use: Examples 7.10, 9.1, 17.9, 17.22, 18.8, 18.11

TABLE F8.1 Cornwell and Rupert, Labor Market Data, 595 Individuals, 7 years
Source: See Cornwell and Rupert (1988).
Location: Website for Baltagi (2005) http://www.wiley.com/legacy/wileychi/baltagi/supp/WAGES.xls
Location (ASCII form): Text website
Uses: Examples 8.5, 8.6, 8.8, 11.1, 11.3, 11.5, 11.6, 11.7, 11.8, 11.9, 11.11, 11.15, 14.11, 15.6, 15.12

TABLE F9.1 Income and Expenditure Data. 100 Cross-Section Observations
Source: Greene (1992)
Location: Text website
Uses: Examples 9.1, 9.2, 9.3.

TABLE F9.2 Baltagi and Griffin Gasoline Data, 18 OECD Countries, 19 Years
Source: See Baltagi and Griffin (1983) and Baltagi (2005).
Location: Website for Baltagi (2005) http://www.wiley.com/legacy/wileychi/baltagi/supp/Gasoline.dat
Uses: Example 9.5,
Application 9.2.

TABLE F10.1 Munnell Productivity Data, 48 Continental U.S. States, 17 years,1970–1986
Source: Munnell (1990), Baltagi (2005).
Location: Website for Baltagi (2005) http://www.wiley.com/legacy/wileychi/baltagi/supp/PRODUC.prn
Uses: Examples 10.1, 11.9, 14.12, 15.13, 15.15, 20.5.

TABLE F10.2 Manufacturing Costs, U.S. Economy, 25 Yearly Observations, 1947–1971
Source: Berndt andWood (1975).
Location: Text website
Use: Example 10.3,

TABLE F10.3 Klein's Model I, 22 Yearly Observations, 1920–1941
Source: Klein (1950).
Location: Text website
Uses: Examples 10.6.

TABLE F10.4 Grunfeld Investment Data, 200 Yearly Observations on 10 Firms for 1935–1954
Source: Grunfeld (1958), Boot and deWitt (1960).
Location: Text website
Uses: Example 14.8.
Applications 10.2., 11.1

TABLE F13.1 Dahlberg and Johanssen Expenditure Data, 265 Municipalities, 9 Years
Location: *Journal of Applied Econometrics* data archive.
http://qed.econ.queensu.ca/jae/2000-v15.4/dahlberg-johansson/dj-data.zip
Uses: Examples 13.10, 21.7.

TABLE F14.1 Program Effectiveness, 32 Cross-Section Observations
Source: Spector and Mazzeo (1980).
Location: Text website
Uses: Examples 14.15, 14.16, 17.3.

TABLE F15.1 Bertschek and Lechner Binary Choice Data, Balanced Panel, 5 years, 1,270 firms
Source: Bertcshek and Lechner (1998).
Location: These data are proprietary and may not be redistributed.
Uses: Examples 15.17, 17.23.
Section 12.4.1.

TABLE F17.1 Burnett Analysis of Liberal Arts College Gender Economics Courses, 132 Observations
Source: Burnett (1997). Data provided by the author.
Location: Text website
Use: Example 17.21.

TABLE F17.2 Fair, *Redbook* Survey on Extramarital Affairs, 6,366 Observations
Source: Fair (1978), data provided by the author.
Location: Text website
Uses: Example 19.6
Applications 17.1, 18.1, 18.2, 19.2, 19.3.

TABLE F18.1 Fair's (1977) Extramarital Affairs Data, 601 Cross-Section Observations
Note: Several variables not used are denoted *X1*, . . . , *X5*.)
Source: Fair (1977).
Location: http://fairmodel.econ.yale.edu/rayfair/pdf/1978ADAT.ZIP
Location: Text website
Uses: Examples 18.1, 18.9
Application 19.1.

TABLE F18.2 Data Used to Study Travel Mode Choice, 840 Observations, on 4 Modes for 210 Individuals
Source: Greene and Hensher (1997).
Location: Text website
Uses: Section 18.2.9, 18.2.10.

TABLE F18.3 Ship Accidents, 40 Observations, 5 Types, 4 Vintages, and 2 Service Periods
Source: McCullagh and Nelder (1983).
Location: Text website
Use: Application 18.5.

TABLE F19.1 Filippini, Farsi, Greene, Swiss Railroads Data, Unalanced Panel 50 Firms, 605 Observations
Source: Authors
Location: Text website
Uses: Example 19.3

TABLE F19.2 Strike Duration Data, 63 Observations in 9 Years, 1968–1976
Source: Kennan (1985).
Location: Text website
Uses: Example 19.8

TABLE F19.3 LaLonde (1986) Earnings Data, 2,490 Control Observations and 185 Treatment Observations
Note: We also scaled all earnings variables by 10,000 before beginning the analysis.
Source: LaLonde (1986).
Location: http://www.nber.org/%7Erdehejia/nswdata.htm. The two specific subsamples are in http://www.nber.org/%7Erdehejia//psid controls.txt and http://www.nber.org/%7Erdehejia/nswre74 treated.txt
Use: Example 19.15.

TABLE F20.1 Bollerslev and Ghysels Exchange Rate Data, 1974 Daily Observations
Source: Bollerslev (1986).
Location: Text website
Uses: Examples 20.7, 20.8.

TABLE F22.1 Bond Yield, Moody's Aaa Rated, Monthly, 60 Observations, 1990–1994
Source: National Income and Product Accounts, U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business: Business Statistics.*
Location: Text website
Use: Example 22.1.

TABLE F23.1 Money, Output, Price Deflator Data, 136 Quarterly Observations, 1950–1983
Source: National Income and Product Accounts, U.S. Department of Commerce, Bureau of Economic *Analysis, Survey of Current Business: Business Statistics.*
Location: Text website
Uses: Examples 23.1, 23.5.

TABLE FC.1 Observations on Income and Education, 20 Observations
Source: Data are artificial.
Location: Text website
Uses: Examples 13.5, 15.17, C.1, C.2.

APPENDIX G

STATISTICAL TABLES

TABLE G.1 Cumulative Normal Distribution. Table Entry Is $\Phi(z) = \text{Prob}[Z \leq z]$

z	*.00*	*.01*	*.02*	*.03*	*.04*	*.05*	*.06*	*.07*	*.08*	*.09*
.0	.5000	.5040	.5080	.5120	.5160	.5199	.5239	.5279	.5319	.5359
.1	.5398	.5438	.5478	.5517	.5557	.5596	.5636	.5675	.5714	.5753
.2	.5793	.5832	.5871	.5910	.5948	.5987	.6026	.6064	.6103	.6141
.3	.6179	.6217	.6255	.6293	.6331	.6368	.6406	.6443	.6480	.6517
.4	.6554	.6591	.6628	.6664	.6700	.6736	.6772	.6808	.6844	.6879
.5	.6915	.6950	.6985	.7019	.7054	.7088	.7123	.7157	.7190	.7224
.6	.7257	.7291	.7324	.7357	.7389	.7422	.7454	.7486	.7517	.7549
.7	.7580	.7611	.7642	.7673	.7704	.7734	.7764	.7794	.7823	.7852
.8	.7881	.7910	.7939	.7967	.7995	.8023	.8051	.8078	.8106	.8133
.9	.8159	.8186	.8212	.8238	.8264	.8289	.8315	.8340	.8365	.8389
1.0	.8413	.8438	.8461	.8485	.8508	.8531	.8554	.8577	.8599	.8621
1.1	.8643	.8665	.8686	.8708	.8729	.8749	.8770	.8790	.8810	.8830
1.2	.8849	.8869	.8888	.8907	.8925	.8944	.8962	.8980	.8997	.9015
1.3	.9032	.9049	.9066	.9082	.9099	.9115	.9131	.9147	.9162	.9177
1.4	.9192	.9207	.9222	.9236	.9251	.9265	.9279	.9292	.9306	.9319
1.5	.9332	.9345	.9357	.9370	.9382	.9394	.9406	.9418	.9429	.9441
1.6	.9452	.9463	.9474	.9484	.9495	.9505	.9515	.9525	.9535	.9545
1.7	.9554	.9564	.9573	.9582	.9591	.9599	.9608	.9616	.9625	.9633
1.8	.9641	.9649	.9656	.9664	.9671	.9678	.9686	.9693	.9699	.9706
1.9	.9713	.9719	.9726	.9732	.9738	.9744	.9750	.9756	.9761	.9767
2.0	.9772	.9778	.9783	.9788	.9793	.9798	.9803	.9808	.9812	.9817
2.1	.9821	.9826	.9830	.9834	.9838	.9842	.9846	.9850	.9854	.9857
2.2	.9861	.9864	.9868	.9871	.9875	.9878	.9881	.9884	.9887	.9890
2.3	.9893	.9896	.9898	.9901	.9904	.9906	.9909	.9911	.9913	.9916
2.4	.9918	.9920	.9922	.9925	.9927	.9929	.9931	.9932	.9934	.9936
2.5	.9938	.9940	.9941	.9943	.9945	.9946	.9948	.9949	.9951	.9952
2.6	.9953	.9955	.9956	.9957	.9959	.9960	.9961	.9962	.9963	.9964
2.7	.9965	.9966	.9967	.9968	.9969	.9970	.9971	.9972	.9973	.9974
2.8	.9974	.9975	.9976	.9977	.9977	.9978	.9979	.9979	.9980	.9981
2.9	.9981	.9982	.9982	.9983	.9984	.9984	.9985	.9985	.9986	.9986
3.0	.9987	.9987	.9987	.9988	.9988	.9989	.9989	.9989	.9990	.9990
3.1	.9990	.9991	.9991	.9991	.9992	.9992	.9992	.9992	.9993	.9993
3.2	.9993	.9993	.9994	.9994	.9994	.9994	.9994	.9995	.9995	.9995
3.3	.9995	.9995	.9995	.9996	.9996	.9996	.9996	.9996	.9996	.9997
3.4	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9998

TABLE G.2 Percentiles of the Student's t Distribution. Table Entry Is x Such that Prob$[t_n \leq x] = P$

n	.750	.900	.950	.975	.990	.995
1	1.000	3.078	6.314	12.706	31.821	63.657
2	.816	1.886	2.920	4.303	6.965	9.925
3	.765	1.638	2.353	3.182	4.541	5.841
4	.741	1.533	2.132	2.776	3.747	4.604
5	.727	1.476	2.015	2.571	3.365	4.032
6	.718	1.440	1.943	2.447	3.143	3.707
7	.711	1.415	1.895	2.365	2.998	3.499
8	.706	1.397	1.860	2.306	2.896	3.355
9	.703	1.383	1.833	2.262	2.821	3.250
10	.700	1.372	1.812	2.228	2.764	3.169
11	.697	1.363	1.796	2.201	2.718	3.106
12	.695	1.356	1.782	2.179	2.681	3.055
13	.694	1.350	1.771	2.160	2.650	3.012
14	.692	1.345	1.761	2.145	2.624	2.977
15	.691	1.341	1.753	2.131	2.602	2.947
16	.690	1.337	1.746	2.120	2.583	2.921
17	.689	1.333	1.740	2.110	2.567	2.898
18	.688	1.330	1.734	2.101	2.552	2.878
19	.688	1.328	1.729	2.093	2.539	2.861
20	.687	1.325	1.725	2.086	2.528	2.845
21	.686	1.323	1.721	2.080	2.518	2.831
22	.686	1.321	1.717	2.074	2.508	2.819
23	.685	1.319	1.714	2.069	2.500	2.807
24	.685	1.318	1.711	2.064	2.492	2.797
25	.684	1.316	1.708	2.060	2.485	2.787
26	.684	1.315	1.706	2.056	2.479	2.779
27	.684	1.314	1.703	2.052	2.473	2.771
28	.683	1.313	1.701	2.048	2.467	2.763
29	.683	1.311	1.699	2.045	2.462	2.756
30	.683	1.310	1.697	2.042	2.457	2.750
35	.682	1.306	1.690	2.030	2.438	2.724
40	.681	1.303	1.684	2.021	2.423	2.704
45	.680	1.301	1.679	2.014	2.412	2.690
50	.679	1.299	1.676	2.009	2.403	2.678
60	.679	1.296	1.671	2.000	2.390	2.660
70	.678	1.294	1.667	1.994	2.381	2.648
80	.678	1.292	1.664	1.990	2.374	2.639
90	.677	1.291	1.662	1.987	2.368	2.632
100	.677	1.290	1.660	1.984	2.364	2.626
∞	.674	1.282	1.645	1.960	2.326	2.576

TABLE G.3 Percentiles of the Chi-Squared Distribution. Table Entry Is c such that $\text{Prob}[\chi^2_n \leq c] = P$

n	.005	.010	.025	.050	.100	.250	.500	.750	.900	.950	.975	.990	.995
1	.00004	.0002	.001	.004	.02	.10	.45	1.32	2.71	3.84	5.02	6.63	7.88
2	.01	.02	.05	.10	.21	.58	1.39	2.77	4.61	5.99	7.38	9.21	10.60
3	.07	.11	.22	.35	.58	1.21	2.37	4.11	6.25	7.81	9.35	11.34	12.84
4	.21	.30	.48	.71	1.06	1.92	3.36	5.39	7.78	9.49	11.14	13.28	14.86
5	.41	.55	.83	1.15	1.61	2.67	4.35	6.63	9.24	11.07	12.83	15.09	16.75
6	.68	.87	1.24	1.64	2.20	3.45	5.35	7.84	10.64	12.59	14.45	16.81	18.55
7	.99	1.24	1.69	2.17	2.83	4.25	6.35	9.04	12.02	14.07	16.01	18.48	20.28
8	1.34	1.65	2.18	2.73	3.49	5.07	7.34	10.22	13.36	15.51	17.53	20.09	21.95
9	1.73	2.09	2.70	3.33	4.17	5.90	8.34	11.39	14.68	16.92	19.02	21.67	23.59
10	2.16	2.56	3.25	3.94	4.87	6.74	9.34	12.55	15.99	18.31	20.48	23.21	25.19
11	2.60	3.05	3.82	4.57	5.58	7.58	10.34	13.70	17.28	19.68	21.92	24.72	26.76
12	3.07	3.57	4.40	5.23	6.30	8.44	11.34	14.85	18.55	21.03	23.34	26.22	28.30
13	3.57	4.11	5.01	5.89	7.04	9.30	12.34	15.98	19.81	22.36	24.74	27.69	29.82
14	4.07	4.66	5.63	6.57	7.79	10.17	13.34	17.12	21.06	23.68	26.12	29.14	31.32
15	4.60	5.23	6.26	7.26	8.55	11.04	14.34	18.25	22.31	25.00	27.49	30.58	32.80
16	5.14	5.81	6.91	7.96	9.31	11.91	15.34	19.37	23.54	26.30	28.85	32.00	34.27
17	5.70	6.41	7.56	8.67	10.09	12.79	16.34	20.49	24.77	27.59	30.19	33.41	35.72
18	6.26	7.01	8.23	9.39	10.86	13.68	17.34	21.60	25.99	28.87	31.53	34.81	37.16
19	6.84	7.63	8.91	10.12	11.65	14.56	18.34	22.72	27.20	30.14	32.85	36.19	38.58
20	7.43	8.26	9.59	10.85	12.44	15.45	19.34	23.83	28.41	31.41	34.17	37.57	40.00
21	8.03	8.90	10.28	11.59	13.24	16.34	20.34	24.93	29.62	32.67	35.48	38.93	41.40
22	8.64	9.54	10.98	12.34	14.04	17.24	21.34	26.04	30.81	33.92	36.78	40.29	42.80
23	9.26	10.20	11.69	13.09	14.85	18.14	22.34	27.14	32.01	35.17	38.08	41.64	44.18
24	9.89	10.86	12.40	13.85	15.66	19.04	23.34	28.24	33.20	36.42	39.36	42.98	45.56
25	10.52	11.52	13.12	14.61	16.47	19.94	24.34	29.34	34.38	37.65	40.65	44.31	46.93
30	13.79	14.95	16.79	18.49	20.60	24.48	29.34	34.80	40.26	43.77	46.98	50.89	53.67
35	17.19	18.51	20.57	22.47	24.80	29.05	34.34	40.22	46.06	49.80	53.20	57.34	60.27
40	20.71	22.16	24.43	26.51	29.05	33.66	39.34	45.62	51.81	55.76	59.34	63.69	66.77
45	24.31	25.90	28.37	30.61	33.35	38.29	44.34	50.98	57.51	61.66	65.41	69.96	73.17
50	27.99	29.71	32.36	34.76	37.69	42.94	49.33	56.33	63.17	67.50	71.42	76.15	79.49

TABLE G.4 95th Percentiles of the F Distribution. Table Entry Is f Such that Prob$[F_{n1,n2} \leq f] = .95$

	n_1 = Degrees of Freedom for the Numerator								
n_2	1	2	3	4	5	6	7	8	9
1	161.45	199.50	215.71	224.58	230.16	233.99	236.77	238.88	240.54
2	18.51	19.00	19.16	19.25	19.30	19.33	19.35	19.37	19.38
3	10.13	9.55	9.28	9.12	9.01	8.94	8.89	8.85	8.81
4	7.71	6.94	6.59	6.39	6.26	6.16	6.09	6.04	6.00
5	6.61	5.79	5.41	5.19	5.05	4.95	4.88	4.82	4.77
6	5.99	5.14	4.76	4.53	4.39	4.28	4.21	4.15	4.10
7	5.59	4.74	4.35	4.12	3.97	3.87	3.79	3.73	3.68
8	5.32	4.46	4.07	3.84	3.69	3.58	3.50	3.44	3.39
9	5.12	4.26	3.86	3.63	3.48	3.37	3.29	3.23	3.18
10	4.96	4.10	3.71	3.48	3.33	3.22	3.14	3.07	3.02
15	4.54	3.68	3.29	3.06	2.90	2.79	2.71	2.64	2.59
20	4.35	3.49	3.10	2.87	2.71	2.60	2.51	2.45	2.39
25	4.24	3.39	2.99	2.76	2.60	2.49	2.40	2.34	2.28
30	4.17	3.32	2.92	2.69	2.53	2.42	2.33	2.27	2.21
40	4.08	3.23	2.84	2.61	2.45	2.34	2.25	2.18	2.12
50	4.03	3.18	2.79	2.56	2.40	2.29	2.20	2.13	2.07
70	3.98	3.13	2.74	2.50	2.35	2.23	2.14	2.07	2.02
100	3.94	3.09	2.70	2.46	2.31	2.19	2.10	2.03	1.97
∞	3.84	3.00	2.60	2.37	2.21	2.10	2.01	1.94	1.88

n_2	10	12	15	20	30	40	50	60	∞
1	241.88	243.91	245.95	248.01	250.10	251.14	252.20	252.20	254.19
2	19.40	19.41	19.43	19.45	19.46	19.47	19.48	19.48	19.49
3	8.79	8.74	8.70	8.66	8.62	8.59	8.57	8.57	8.53
4	5.96	5.91	5.86	5.80	5.75	5.72	5.69	5.69	5.63
5	4.74	4.68	4.62	4.56	4.50	4.46	4.43	4.43	4.37
6	4.06	4.00	3.94	3.87	3.81	3.77	3.74	3.74	3.67
7	3.64	3.57	3.51	3.44	3.38	3.34	3.30	3.30	3.23
8	3.35	3.28	3.22	3.15	3.08	3.04	3.01	3.01	2.93
9	3.14	3.07	3.01	2.94	2.86	2.83	2.79	2.79	2.71
10	2.98	2.91	2.85	2.77	2.70	2.66	2.62	2.62	2.54
15	2.54	2.48	2.40	2.33	2.25	2.20	2.16	2.16	2.07
20	2.35	2.28	2.20	2.12	2.04	1.99	1.95	1.95	1.85
25	2.24	2.16	2.09	2.01	1.92	1.87	1.82	1.82	1.72
30	2.16	2.09	2.01	1.93	1.84	1.79	1.74	1.74	1.63
40	2.08	2.00	1.92	1.84	1.74	1.69	1.64	1.64	1.52
50	2.03	1.95	1.87	1.78	1.69	1.63	1.58	1.58	1.45
70	1.97	1.89	1.81	1.72	1.62	1.57	1.50	1.50	1.36
100	1.93	1.85	1.77	1.68	1.57	1.52	1.45	1.45	1.30
∞	1.83	1.75	1.67	1.57	1.46	1.39	1.34	1.31	1.30

TABLE G.5 99th Percentiles of the F Distribution. Table Entry Is f Such that Prob$[F_{n1,n2} \leq f] = .99$

	n_1 = Degrees of Freedom for the Numerator								
n_2	1	2	3	4	5	6	7	8	9
1	4052.18	4999.50	5403.35	5624.58	5763.65	5858.99	5928.36	5981.07	6022.47
2	98.50	99.00	99.17	99.25	99.30	99.33	99.36	99.37	99.39
3	34.12	30.82	29.46	28.71	28.24	27.91	27.67	27.49	27.35
4	21.20	18.00	16.69	15.98	15.52	15.21	14.98	14.80	14.66
5	16.26	13.27	12.06	11.39	10.97	10.67	10.46	10.29	10.16
6	13.75	10.92	9.78	9.15	8.75	8.47	8.26	8.10	7.98
7	12.25	9.55	8.45	7.85	7.46	7.19	6.99	6.84	6.72
8	11.26	8.65	7.59	7.01	6.63	6.37	6.18	6.03	5.91
9	10.56	8.02	6.99	6.42	6.06	5.80	5.61	5.47	5.35
10	10.04	7.56	6.55	5.99	5.64	5.39	5.20	5.06	4.94
15	8.68	6.36	5.42	4.89	4.56	4.32	4.14	4.00	3.89
20	8.10	5.85	4.94	4.43	4.10	3.87	3.70	3.56	3.46
25	7.77	5.57	4.68	4.18	3.85	3.63	3.46	3.32	3.22
30	7.56	5.39	4.51	4.02	3.70	3.47	3.30	3.17	3.07
40	7.31	5.18	4.31	3.83	3.51	3.29	3.12	2.99	2.89
50	7.17	5.06	4.20	3.72	3.41	3.19	3.02	2.89	2.78
70	7.01	4.92	4.07	3.60	3.29	3.07	2.91	2.78	2.67
100	6.90	4.82	3.98	3.51	3.21	2.99	2.82	2.69	2.59
∞	6.66	4.63	3.80	3.34	3.04	2.82	2.66	2.53	2.43

n_2	10	12	15	20	30	40	50	60	∞
1	6055.85	6106.32	6157.28	6208.73	6260.65	6286.78	6313.03	6313.03	6362.68
2	99.40	99.42	99.43	99.45	99.47	99.47	99.48	99.48	99.50
3	27.23	27.05	26.87	26.69	26.50	26.41	26.32	26.32	26.14
4	14.55	14.37	14.20	14.02	13.84	13.75	13.65	13.65	13.47
5	10.05	9.89	9.72	9.55	9.38	9.29	9.20	9.20	9.03
6	7.87	7.72	7.56	7.40	7.23	7.14	7.06	7.06	6.89
7	6.62	6.47	6.31	6.16	5.99	5.91	5.82	5.82	5.66
8	5.81	5.67	5.52	5.36	5.20	5.12	5.03	5.03	4.87
9	5.26	5.11	4.96	4.81	4.65	4.57	4.48	4.48	4.32
10	4.85	4.71	4.56	4.41	4.25	4.17	4.08	4.08	3.92
15	3.80	3.67	3.52	3.37	3.21	3.13	3.05	3.05	2.88
20	3.37	3.23	3.09	2.94	2.78	2.69	2.61	2.61	2.43
25	3.13	2.99	2.85	2.70	2.54	2.45	2.36	2.36	2.18
30	2.98	2.84	2.70	2.55	2.39	2.30	2.21	2.21	2.02
40	2.80	2.66	2.52	2.37	2.20	2.11	2.02	2.02	1.82
50	2.70	2.56	2.42	2.27	2.10	2.01	1.91	1.91	1.70
70	2.59	2.45	2.31	2.15	1.98	1.89	1.78	1.78	1.56
100	2.50	2.37	2.22	2.07	1.89	1.80	1.69	1.69	1.45
∞	2.34	2.20	2.06	1.90	1.72	1.61	1.50	1.50	1.16

TABLE G.6 Durbin–Watson Statistic: 5 Percent Significance Points of *dL* and *dU*

	$k=1$		$k=2$		$k=3$		$k=4$		$k=5$		$k=10$		$k=15$	
n	*dL*	*dU*	*dL*	*dU*	*dL*	*dU*	*dL*	*dU*	*dL*	*dU*	*dL*	*dU*	*dL*	*dU*
15	1.08	1.36	.95	1.54	.82	1.75	.69	1.97	.56	2.21				
16	1.10	1.37	.98	1.54	.86	1.73	.74	1.93	.62	2.15	.16	3.30		
17	1.13	1.38	1.02	1.54	.90	1.71	.78	1.90	.67	2.10	.20	3.18		
18	1.16	1.39	1.05	1.53	.93	1.69	.82	1.87	.71	2.06	.24	3.07		
19	1.18	1.40	1.08	1.53	.97	1.68	.86	1.85	.75	2.02	.29	2.97		
20	1.20	1.41	1.10	1.54	1.00	1.68	.90	1.83	.79	1.99	.34	2.89	.06	3.68
21	1.22	1.42	1.13	1.54	1.03	1.67	.93	1.81	.83	1.96	.38	2.81	.09	3.58
22	1.24	1.43	1.15	1.54	1.05	1.66	.96	1.80	.86	1.94	.42	2.73	.12	3.55
23	1.26	1.44	1.17	1.54	1.08	1.66	.99	1.79	.90	1.92	.47	2.67	.15	3.41
24	1.27	1.45	1.19	1.55	1.10	1.66	1.01	1.78	.93	1.90	.51	2.61	.19	3.33
25	1.29	1.45	1.21	1.55	1.12	1.66	1.04	1.77	.95	1.89	.54	2.57	.22	3.25
26	1.30	1.46	1.22	1.55	1.14	1.65	1.06	1.76	.98	1.88	.58	2.51	.26	3.18
27	1.32	1.47	1.24	1.56	1.16	1.65	1.08	1.76	1.01	1.86	.62	2.47	.29	3.11
28	1.33	1.48	1.26	1.56	1.18	1.65	1.10	1.75	1.03	1.85	.65	2.43	.33	3.05
29	1.34	1.48	1.27	1.56	1.20	1.65	1.12	1.74	1.05	1.84	.68	2.40	.36	2.99
30	1.35	1.49	1.28	1.57	1.21	1.65	1.14	1.74	1.07	1.83	.71	2.36	.39	2.94
31	1.36	1.50	1.30	1.57	1.23	1.65	1.16	1.74	1.09	1.83	.74	2.33	.43	2.99
32	1.37	1.50	1.31	1.57	1.24	1.65	1.18	1.73	1.11	1.82	.77	2.31	.46	2.84
33	1.38	1.51	1.32	1.58	1.26	1.65	1.19	1.73	1.13	1.81	.80	2.28	.49	2.80
34	1.39	1.51	1.33	1.58	1.27	1.65	1.21	1.73	1.15	1.81	.82	2.26	.52	2.75
35	1.40	1.52	1.34	1.53	1.28	1.65	1.22	1.73	1.16	1.80	.85	2.24	.55	2.72
36	1.41	1.52	1.35	1.59	1.29	1.65	1.24	1.73	1.18	1.80	.87	2.22	.58	2.68
37	1.42	1.53	1.36	1.59	1.31	1.66	1.25	1.72	1.19	1.80	.89	2.20	.60	2.65
38	1.43	1.54	1.37	1.59	1.32	1.66	1.26	1.72	1.21	1.79	.91	2.18	.63	2.61
39	1.43	1.54	1.38	1.60	1.33	1.66	1.27	1.72	1.22	1.79	.93	2.16	.65	2.59
40	1.44	1.54	1.39	1.60	1.34	1.66	1.29	1.72	1.23	1.79	.95	2.15	.68	2.56
45	1.48	1.57	1.43	1.62	1.38	1.67	1.34	1.72	1.29	1.78	1.04	2.09	.79	2.44
50	1.50	1.59	1.46	1.63	1.42	1.67	1.38	1.72	1.34	1.77	1.11	2.04	.88	2.35
55	1.53	1.60	1.49	1.64	1.45	1.68	1.41	1.72	1.38	1.77	1.17	2.01	.96	2.28
60	1.55	1.62	1.51	1.65	1.48	1.69	1.44	1.73	1.41	1.77	1.22	1.98	1.03	2.23
65	1.57	1.63	1.54	1.66	1.50	1.70	1.47	1.73	1.44	1.77	1.27	1.96	1.09	2.18
70	1.58	1.64	1.55	1.67	1.52	1.70	1.49	1.74	1.46	1.77	1.30	1.95	1.14	2.15
75	1.60	1.65	1.57	1.68	1.54	1.71	1.51	1.74	1.49	1.77	1.34	1.94	1.18	2.12
80	1.61	1.66	1.59	1.69	1.56	1.72	1.53	1.74	1.51	1.77	1.37	1.93	1.22	2.09
85	1.62	1.67	1.60	1.70	1.57	1.72	1.55	1.75	1.52	1.77	1.40	1.92	1.26	2.07
90	1.63	1.68	1.61	1.70	1.59	1.73	1.57	1.75	1.54	1.78	1.42	1.91	1.29	2.06
95	1.64	1.69	1.62	1.71	1.60	1.73	1.58	1.75	1.56	1.78	1.44	1.90	1.32	2.04
100	1.65	1.69	1.63	1.72	1.61	1.74	1.59	1.76	1.57	1.78	1.46	1.90	1.35	2.03

Source: Extracted from N.E. Savin and K.J. White, "The Dubin–Watson Test for Serial Correlation with Extreme Sample Sizes and Many Regressors," *Econometrica*, 45 (8), Nov. 1977, pp. 1992–1995.
Note: *k* is the number of regressors excluding the intercept.