

PGDM & PGDM (IB), 2019-21
Financial Econometrics
DM-313 / IB-314
Trimester – III, End-Term Examination: June 2020

Financial Econometrics

Trimester-III, PGDM/IB(19-21)

Both the questions given below are compulsory. Use R and submit your html or pdf file after analysis. Put all your analysis in # in the file itself.

1. The demand for roses. Table 1 gives quarterly data on these variables:

Y = quantity of roses sold, dozens

X2 = average wholesale price of roses, \$/dozen

X3 = average wholesale price of carnations, \$/dozen

X4 = average weekly family disposable income, \$/week

1971–III to 1975–II in the Detroit metropolitan area

You are asked to consider the following demand functions:

$$Y_t = \alpha_1 + \alpha_2 X_{2t} + \alpha_3 X_{3t} + \alpha_4 X_{4t} + u_t$$

$$\ln Y_t = \beta_1 + \beta_2 \ln X_{2t} + \beta_3 \ln X_{3t} + \beta_4 \ln X_{4t} + u_t$$

Now state the hypothesis and build both the model and do all the necessary model testing and explain the results. Remember your grade is dependent on extent of explanation.

2. Table 2 gives the detail of the USA GDP quarterly data from 1947-2007. You are requested to make ARIMA model of the same. Follow the four steps of the model and explain each of them. The steps are identification, estimation, diagnostic checking and forecasting.

YEAR	Y	X2	X3	X4	X5
1971.3	11484	2.26	3.49	158.11	1
1971.4	9348	2.54	2.85	173.36	2
1972.1	8429	3.07	4.06	165.26	3
1972.2	10079	2.91	3.64	172.92	4
1972.3	9240	2.73	3.21	178.46	5
1972.4	8862	2.77	3.66	198.62	6
1973.1	6216	3.59	3.76	186.28	7
1973.2	8253	3.23	3.49	188.98	8
1973.3	8038	2.6	3.13	180.49	9
1973.4	7476	2.89	3.2	183.33	10
1974.1	5911	3.77	3.65	181.87	11
1974.2	7950	3.64	3.6	185	12
1974.3	6134	2.82	2.94	184	13
1974.4	5868	2.96	3.12	188.2	14
1975.1	3160	4.24	3.58	175.67	15
1975.2	5872	3.69	3.53	188	16

Year	Quarter	GDP	Year	Quarter	GDP	Year	Quarter	GDP
1947	1	1570.519	1957	2	2294.618	1967	3	3491.798
1947	2	1568.653	1957	3	2317.001	1967	4	3518.205
1947	3	1567.966	1957	4	2292.459	1968	1	3590.655
1947	4	1590.938	1958	1	2230.219	1968	2	3651.618
1948	1	1616.069	1958	2	2243.374	1968	3	3676.455
1948	2	1644.637	1958	3	2295.207	1968	4	3691.966
1948	3	1654.061	1958	4	2348.023	1969	1	3750.18
1948	4	1657.988	1959	1	2392.886	1969	2	3760.881
1949	1	1633.249	1959	2	2455.813	1969	3	3784.245
1949	2	1628.439	1959	3	2453.948	1969	4	3766.28
1949	3	1646.698	1959	4	2462.587	1970	1	3759.997
1949	4	1629.911	1960	1	2517.365	1970	2	3767.066
1950	1	1696.765	1960	2	2504.8	1970	3	3800.541
1950	2	1747.322	1960	3	2508.726	1970	4	3759.801
1950	3	1815.845	1960	4	2476.232	1971	1	3864.057
1950	4	1848.928	1961	1	2491.154	1971	2	3885.851
1951	1	1871.311	1961	2	2537.981	1971	3	3916.676
1951	2	1903.118	1961	3	2579.114	1971	4	3927.867
1951	3	1941.109	1961	4	2631.831	1972	1	3997.666
1951	4	1944.447	1962	1	2679.149	1972	2	4092.105
1952	1	1964.67	1962	2	2708.404	1972	3	4131.079
1952	2	1966.044	1962	3	2733.339	1972	4	4198.718
1952	3	1978.806	1962	4	2740.014	1973	1	4305.33
1952	4	2043.795	1963	1	2775.944	1973	2	4355.102
1953	1	2082.277	1963	2	2810.598	1973	3	4331.934
1953	2	2098.083	1963	3	2863.512	1973	4	4373.263
1953	3	2085.419	1963	4	2885.796	1974	1	4335.37
1953	4	2052.532	1964	1	2950.49	1974	2	4347.936
1954	1	2042.42	1964	2	2984.751	1974	3	4305.821
1954	2	2044.286	1964	3	3025.492	1974	4	4288.936
1954	3	2066.865	1964	4	3033.64	1975	1	4237.593
1954	4	2107.801	1965	1	3108.151	1975	2	4268.614
1955	1	2168.47	1965	2	3150.167	1975	3	4340.867
1955	2	2204.008	1965	3	3214.076	1975	4	4397.806
1955	3	2233.36	1965	4	3291.826	1976	1	4496.761
1955	4	2245.337	1966	1	3372.325	1976	2	4530.335
1956	1	2234.833	1966	2	3384.007	1976	3	4552.03
1956	2	2252.504	1966	3	3406.292	1976	4	4584.623
1956	3	2249.755	1966	4	3433.681	1977	1	4639.99
1956	4	2286.47	1967	1	3464.114	1977	2	4731.092
1957	1	2300.312	1967	2	3464.31	1977	3	4815.812

Year	Quarter	GDP	Year	Quarter	GDP	Year	Quarter	GDP
1977	4	4815.321	1988	2	6723.544	1998	4	9237.081
1978	1	4830.832	1988	3	6759.376	1999	1	9315.518
1978	2	5021.183	1988	4	6848.612	1999	2	9392.581
1978	3	5070.661	1989	1	6918.116	1999	3	9502.237
1978	4	5137.416	1989	2	6963.471	1999	4	9671.089
1979	1	5147.43	1989	3	7013.144	2000	1	9695.631
1979	2	5152.338	1989	4	7030.913	2000	2	9847.892
1979	3	5189.446	1990	1	7112.1	2000	3	9836.603
1979	4	5204.662	1990	2	7130.261	2000	4	9887.749
1980	1	5221.253	1990	3	7130.752	2001	1	9875.576
1980	2	5115.917	1990	4	7076.857	2001	2	9905.911
1980	3	5107.376	1991	1	7040.828	2001	3	9871.06
1980	4	5202.11	1991	2	7086.477	2001	4	9910.034
1981	1	5307.544	1991	3	7120.738	2002	1	9977.28
1981	2	5266.117	1991	4	7154.116	2002	2	10031.57
1981	3	5329.829	1992	1	7228.234	2002	3	10090.67
1981	4	5263.368	1992	2	7297.935	2002	4	10095.77
1982	1	5177.077	1992	3	7369.5	2003	1	10126.01
1982	2	5204.859	1992	4	7450.687	2003	2	10212.69
1982	3	5185.225	1993	1	7459.718	2003	3	10398.72
1982	4	5189.839	1993	2	7497.514	2003	4	10466.95
1983	1	5253.845	1993	3	7535.996	2004	1	10543.62
1983	2	5372.336	1993	4	7637.406	2004	2	10634.23
1983	3	5478.36	1994	1	7715.058	2004	3	10728.67
1983	4	5590.469	1994	2	7815.682	2004	4	10796.41
1984	1	5699.83	1994	3	7859.465	2005	1	10878.38
1984	2	5797.902	1994	4	7951.647	2005	2	10954.07
1984	3	5854.251	1995	1	7973.735	2005	3	11074.33
1984	4	5902.354	1995	2	7987.97	2005	4	11107.21
1985	1	5956.937	1995	3	8053.056	2006	1	11238.66
1985	2	6007.789	1995	4	8111.958	2006	2	11306.69
1985	3	6101.737	1996	1	8169.191	2006	3	11336.73
1985	4	6148.564	1996	2	8303.094	2006	4	11395.54
1986	1	6207.368	1996	3	8372.697	2007	1	11412.62
1986	2	6232.008	1996	4	8470.572	2007	2	11520.12
1986	3	6291.695	1997	1	8536.051	2007	3	11658.93
1986	4	6323.404	1997	2	8665.831	2007	4	11675.71
1987	1	6365.028	1997	3	8773.72			
1987	2	6435.023	1997	4	8838.414			
1987	3	6493.434	1998	1	8936.191			
1987	4	6606.82	1998	2	8995.289			
1988	1	6639.118	1998	3	9098.858			