>> **Y=[64.3 45.4 26.6 87.5 71.3 82.4 26.3 61.6 52.9 64.7 64.9 70.5 87.2 81.2 67.9]**

Y =

Columns 1 through 6

64.3000 45.4000 26.6000 87.5000 71.3000 82.4000

Columns 7 through 12

26.3000 61.6000 52.9000 64.7000 64.9000 70.5000

Columns 13 through 15

87.2000 81.2000 67.9000

>> **Y=Y'**

Y =

64.3000

45.4000

26.6000

87.5000

71.3000

82.4000

26.3000

61.6000

52.9000

64.7000

64.9000

70.5000

87.2000

81.2000

67.9000

>> **X=[1 1998 2.95 4.4;**

**1 1114 3.40 3.4;**

**1 1942 3.72 1.1;**

**1 1998 4.43 3.1;**

**1 2026 3.82 7.7;**

**1 1853 3.90 5.0;**

**1 1666 3.32 6.2;**

**1 1434 3.80 5.4;**

**1 1513 3.49 12.2;**

**1 2008 3.85 4.8;**

**1 1704 4.69 2.9;**

**1 1525 3.89 4.8;**

**1 1842 3.53 3.9;**

**1 1735 4.96 7.2;**

**1 1639 3.68 3.6]**

X =

1.0e+03 \*

0.0010 1.9980 0.0030 0.0044

0.0010 1.1140 0.0034 0.0034

0.0010 1.9420 0.0037 0.0011

0.0010 1.9980 0.0044 0.0031

0.0010 2.0260 0.0038 0.0077

0.0010 1.8530 0.0039 0.0050

0.0010 1.6660 0.0033 0.0062

0.0010 1.4340 0.0038 0.0054

0.0010 1.5130 0.0035 0.0122

0.0010 2.0080 0.0039 0.0048

0.0010 1.7040 0.0047 0.0029

0.0010 1.5250 0.0039 0.0048

0.0010 1.8420 0.0035 0.0039

0.0010 1.7350 0.0050 0.0072

0.0010 1.6390 0.0037 0.0036

>> **Xtran=X'**

Xtran =

1.0e+03 \*

Columns 1 through 6

0.0010 0.0010 0.0010 0.0010 0.0010 0.0010

1.9980 1.1140 1.9420 1.9980 2.0260 1.8530

0.0030 0.0034 0.0037 0.0044 0.0038 0.0039

0.0044 0.0034 0.0011 0.0031 0.0077 0.0050

Columns 7 through 12

0.0010 0.0010 0.0010 0.0010 0.0010 0.0010

1.6660 1.4340 1.5130 2.0080 1.7040 1.5250

0.0033 0.0038 0.0035 0.0039 0.0047 0.0039

0.0062 0.0054 0.0122 0.0048 0.0029 0.0048

Columns 13 through 15

0.0010 0.0010 0.0010

1.8420 1.7350 1.6390

0.0035 0.0050 0.0037

0.0039 0.0072 0.0036

>> **A=Xtran\*X**

A =

1.0e+07 \*

0.0000 0.0026 0.0000 0.0000

0.0026 4.6007 0.0100 0.0130

0.0000 0.0100 0.0000 0.0000

0.0000 0.0130 0.0000 0.0000

>> **B=Xtran\*Y**

B =

1.0e+06 \*

0.0010

1.6757

0.0037

0.0048

>> **Beta=inv(A)\*(B)**

Beta =

-33.4599

0.0194

15.5220

0.8128

>> **n=15**

n =

15

>> **k=4**

k =

4

>> **Ymean=mean(Y)**

Ymean =

63.6467

>> **e=Y-X\*(Beta)**

e =

9.6864

1.7400

-36.1986

10.9703

-0.0424

15.3618

-29.0879

3.9062

-7.0392

-4.4023

-9.8072

10.1340

27.0121

-1.7936

9.5604

>> **SigmaSq=(e'\*e)/(n-k)**

SigmaSq =

337.9070

>> **Betavar=SigmaSq\*inv(X'\*X)**

Betavar =

1.0e+03 \*

2.3798 -0.0006 -0.3107 -0.0312

-0.0006 0.0000 -0.0000 0.0000

-0.3107 -0.0000 0.0896 0.0010

-0.0312 0.0000 0.0010 0.0037

>> **TSS=Y'\*Y-n\*(Ymean^2)**

>> **Betavar=SigmaSq\*inv(X'\*X)**

TSS =

5.1301e+03

>> **ESS=Beta'\*X'\*Y-n\*Ymean^2**

ESS =

1.4132e+03

>> **Rsq=ESS/TSS**

Rsq =

0.2755

>> **Rbarsq=1-((n-1)/(n-k))\*(1-Rsq)**

Rbarsq =

0.0779

>> **F=((n-k)/(k-1))\*(Rsq/(1-Rsq))**

F =

1.3940

>> **N=diag(Betavar)**

N =

1.0e+03 \*

2.3798

0.0000

0.0896

0.0037

>> **SE=sqrt(N)**

SE =

48.7831

0.0192

9.4649

1.9108

>> **t=(N-0)/SE**

t =

48.7831 0 0 0

0.0000 0 0 0

1.8364 0 0 0

0.0748 0 0 0

>> **t=Beta/SE**

t =

-0.6859 0 0 0

0.0004 0 0 0

0.3182 0 0 0

0.0167 0 0 0

>> **t1=Beta(2,1)/SE(2,1)**

t1 =

1.0087

>> **t2=Beta(3,1)/SE(3,1)**

t2 =

1.6400

>> **t3=Beta(4,1)/SE(4,1)**

t3 =

0.4254

>>

**REDUCE LAST COLUMN 08-01-2020**

>> **Y=[64.3 45.4 26.6 87.5 71.3 82.4 26.3 61.6 52.9 64.7 64.9 70.5 87.2 81.2 67.9]**

Y =

Columns 1 through 9

64.3000 45.4000 26.6000 87.5000 71.3000 82.4000 26.3000 61.6000 52.9000

Columns 10 through 15

64.7000 64.9000 70.5000 87.2000 81.2000 67.9000

>> **Y=Y'**

Y =

64.3000

45.4000

26.6000

87.5000

71.3000

82.4000

26.3000

61.6000

52.9000

64.7000

64.9000

70.5000

87.2000

81.2000

67.9000

>> **X=[1 1998 2.95 4.4;**

**1 1114 3.40 3.4;**

**1 1942 3.72 1.1;**

**1 1998 4.43 3.1;**

**1 2026 3.82 7.7;**

**1 1853 3.90 5.0;**

**1 1666 3.32 6.2;**

**1 1434 3.80 5.4;**

**1 1513 3.49 12.2;**

**1 2008 3.85 4.8;**

**1 1704 4.69 2.9;**

**1 1525 3.89 4.8;**

**1 1842 3.53 3.9;**

**1 1735 4.96 7.2;**

**1 1639 3.68 3.6]**

X =

1.0e+03 \*

0.0010 1.9980 0.0030 0.0044

0.0010 1.1140 0.0034 0.0034

0.0010 1.9420 0.0037 0.0011

0.0010 1.9980 0.0044 0.0031

0.0010 2.0260 0.0038 0.0077

0.0010 1.8530 0.0039 0.0050

0.0010 1.6660 0.0033 0.0062

0.0010 1.4340 0.0038 0.0054

0.0010 1.5130 0.0035 0.0122

0.0010 2.0080 0.0039 0.0048

0.0010 1.7040 0.0047 0.0029

0.0010 1.5250 0.0039 0.0048

0.0010 1.8420 0.0035 0.0039

0.0010 1.7350 0.0050 0.0072

0.0010 1.6390 0.0037 0.0036

>> **X1=X(:,1:3)**

X1 =

1.0e+03 \*

0.0010 1.9980 0.0030

0.0010 1.1140 0.0034

0.0010 1.9420 0.0037

0.0010 1.9980 0.0044

0.0010 2.0260 0.0038

0.0010 1.8530 0.0039

0.0010 1.6660 0.0033

0.0010 1.4340 0.0038

0.0010 1.5130 0.0035

0.0010 2.0080 0.0039

0.0010 1.7040 0.0047

0.0010 1.5250 0.0039

0.0010 1.8420 0.0035

0.0010 1.7350 0.0050

0.0010 1.6390 0.0037

>> **A=X1'\*X1**

A =

1.0e+07 \*

0.0000 0.0026 0.0000

0.0026 4.6007 0.0100

0.0000 0.0100 0.0000

>> **B=X1'\*Y**

B =

1.0e+06 \*

0.0010

1.6757

0.0037

>> **Beta=inv(A)\*(B)**

Beta =

-26.5131

0.0182

15.3018

>> **n=15**

n =

15

>> **k=3**

k =

3

>> **Ymean=mean(Y)**

Ymean =

63.6467

>> **e=Y-X1\*(Beta)**

e =

9.2732

-0.4079

-39.1890

9.8265

2.4505

15.4781

-28.3401

3.8416

-1.5541

-4.2806

-11.3959

9.7066

26.1401

0.2079

8.2431

>> **SigmaSq=(e'\*e)/(n-k)**

SigmaSq =

314.8428

>> **Betavar=SigmaSq\*inv(X1'\*X1)**

Betavar =

1.0e+03 \*

1.9688 -0.0005 -0.2816

-0.0005 0.0000 -0.0000

-0.2816 -0.0000 0.0832

>> **TSS=Y'\*Y-n\*(Ymean)^2**

TSS =

5.1301e+03

>> **ESS=Beta'\*X1'\*Y-n\*Ymean^2**

ESS =

1.3520e+03

>> **Rsq=ESS/TSS**

Rsq =

0.2635

>> **Rbarsq=1-((n-1)/(n-k))\*(1-Rsq)**

Rbarsq =

0.1408

>> **F=((n-k)/(k-1))\*(Rsq/(1-Rsq))**

F =

2.1471

>> **N=diag(Betavar)**

N =

1.0e+03 \*

1.9688

0.0000

0.0832

>> **SE=sqrt(N)**

SE =

44.3716

0.0184

9.1225

>> **t=Beta/SE**

t =

-0.5975 0 0

0.0004 0 0

0.3449 0 0

>> **t=Beta/SE**

t =

-0.5975 0 0

0.0004 0 0

0.3449 0 0

>>

>> **t=Beta/SE**

t =

-0.5975 0 0

0.0004 0 0

0.3449 0 0

>> **t1=Beta(2,1)/SE(2,1)**

t1 =

0.9927

>> **t2=Beta(3,1)/SE(3,1)**

t2 =

1.6774