

Lampiran 1 : Program Perhitungan Matriks

Program SAS

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title 'HASIL PROGRAM SAS SKRIPSI ESTIMABILITAS';

proc iml;
  /*input matriks*/
  X={1 1 0 0 1 0 0 0,
     1 1 0 0 0 1 0 0,
     1 1 0 0 0 0 0 1,
     1 0 1 0 1 0 0 0,
     1 0 1 0 0 0 1 0,
     1 0 1 0 0 0 0 1,
     1 0 0 1 1 0 0 0,
     1 0 0 1 0 1 0 0,
     1 0 0 1 0 0 1 0,
     1 0 0 1 0 0 0 1};

  L={1 0 0 1 0 0 0 1,
     0 1 0 -1 0 0 0 0,
     0 0 1 -1 0 0 0 0,
     0 0 0 0 1 0 0 -1,
     0 0 0 0 0 1 0 -1,
     0 0 0 0 0 0 1 -1};

  XL={1 1 0 0 1 0 0 0,
      1 1 0 0 0 1 0 0,
      1 1 0 0 0 0 0 1,
      1 0 1 0 1 0 0 0,
      1 0 1 0 0 0 1 0,
      1 0 1 0 0 0 0 1,
      1 0 0 1 1 0 0 0,
      1 0 0 1 0 1 0 0,
      1 0 0 1 0 0 1 0,
      1 0 0 1 0 0 0 1,
      1 0 0 1 0 0 0 1,
      0 1 0 -1 0 0 0 0,
      0 0 1 -1 0 0 0 0,
      0 0 0 0 1 0 0 -1,
      0 0 0 0 0 1 0 -1,
      0 0 0 0 0 0 1 -1};

  L1={0 1 0 -1 0 0 0 0,
      0 0 1 -1 0 0 0 0};

  L2={0 0 0 0 1 0 0 -1,
      0 0 0 0 0 1 0 -1,
      0 0 0 0 0 0 1 -1};

  Yfull={21.34, 20.73, 0, 21.09, 21.54, 0, 22.92, 21.47, 21.79,
         20.95, 23.07, 21.99};
  /* merupakan simbol adanya data hilang*/
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K      = {1 0 0 0 0 0 0 0 0 0 0 0 0,
          0 1 0 0 0 0 0 0 0 0 0 0 0,
          0 0 0 1 0 0 0 0 0 0 0 0 0,
          0 0 0 0 1 0 0 0 0 0 0 0 0,
          0 0 0 0 0 0 1 0 0 0 0 0 0,
          0 0 0 0 0 0 0 1 0 0 0 0 0,
          0 0 0 0 0 0 0 0 1 0 0 0 0,
          0 0 0 0 0 0 0 0 0 1 0 0 0,
          0 0 0 0 0 0 0 0 0 0 1 0 0,
          0 0 0 0 0 0 0 0 0 0 0 1 0,
          0 0 0 0 0 0 0 0 0 0 0 0 1};

Y = K*Yfull;
rank_X =round(trace(ginv(X)*X));      /*rank matriks X*/
rank_XL=round(trace(ginv(XL)*XL));   /*rank matriks X,L*/
rank_L =round(trace(ginv(L)*L));     /*rank matriks L*/
E=echelon(X);                        /*echelon matriks X*/
I1=i(8);                             /*matriks identitas 8x8*/
I2=i(10);                            /*matriks identitas 10x10*/

SSE=t(Y)*(I2-(X*ginv(X)))*Y;        /*mencari nilai SSE*/

a=(X*(I1-(ginv(L1)*L1)));           /*mencari nilai SSE(R)H01*/
b=ginv(X*(I1-(ginv(L1)*L1)));
SSER1=t(Y)*(a*b)*Y;

p=X*(I1-(ginv(L2)*L2));             /*mencari nilai SSE(R)H02*/
q=ginv(X*(I1-(ginv(L2)*L2)));
SSER2=t(Y)*(p*q)*Y;

betahat=ginv(X)*Y;                 /*mencari beta duga*/
sigmahat=t(Y)*(I2-(X*ginv(X)))*Y; /*mencari sigma duga*/

F= ((SSER1-SSE)/6)/(SSE/3);
G= ((SSER2-SSE)/6)/(SSE/3);
print E, Y, SSE, SSER1, SSER2;
run;

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Lampiran