SETS:

DMU/D1 D2 D3/: !D4 D5/: !D6 D7 D8 D9 D10 /: ! Six schools;

SCORE; ! Each decision making unit has a;

! score to be computed;

FACTOR1/I1 I2 /;

FACTOR2/O1 O2 O3/;

! There is a set of factors, input & output;

DXF1(DMU, FACTOR1): X; ! F(I, J) = Jth factor

of DMU I;

DXF2(DMU, FACTOR2): Y;

DXFXD1(DMU,FACTOR1) :V;

DXFXD2(DMU,FACTOR2) :U;

SNARIO/P1 P2 P3/:P;

SLACK(DMU,SNARIO):DELTA;

ENDSETS

DATA:

! Inputs are spending/pupil, % not low income;

! Outputs are Writing score and Science score;

!NINPUTS = 2; ! The first NINPUTS factors are inputs;

! The inputs, the outputs;

P=0.57 0.42 0.01;

X = 606 293

      797   569

      247   614;

     ! 376   126

      876   553;

     ! 2766 365

      245   715

     145 147

      136 14054

      141 1559 ;

Y= 3054 2974 2455

        897   948   862

        777   836   760;

      ! 987   829   860

       644   670 3852;

      ! 2814 2999 2360

      2305 2009 2196

      128   109   127

      5070 5370 5828

      3000   2900 2756;

ENDDATA

! Try to make everyone's score as high as possible;

MAX = @SUM(DMU: SCORE);

! The LP for each DMU to get its score;

@FOR(DMU(I):

SCORE(I) = @SUM(FACTOR2(J):

P(J)*Y(I, J)* U(I, J));

! Sum of inputs(denominator) = 1;

@SUM(FACTOR1(J):

X(I, J)* V(I, J))= 1;

! Using DMU I's weights, no DMU can score

better than 1;

@FOR(DMU(K):

@FOR(FACTOR2(J):

 P(J)*Y(K, J) * U(I, J) -@SUM(FACTOR1(J): X(K, J) * V(I, J))<=0;

)

);

@FOR(DMU(K):

@FOR(FACTOR1(J):

@SUM(FACTOR1(J) : X(K, J) * V(I, J)) - @SUM(FACTOR1(J) : P(J)*X(K, J) * V(I, J)) <= DELTA(K , J) ;

DELTA(K , J) <=@SUM(FACTOR1(J) : X(K, J) * V(I, J))

)

);

);

! The weights must be greater than zero;

@FOR(DXFXD1(I, J): @BND(.00001, V, 100000));

@FOR(DXFXD2(I, J): @BND(.00001, U, 100000));

END