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/* Filename:   IPD.LIM                                          */
/* Date:       20 July 1998                                     */
/* Project:    Determinants of Youth Employment                 */
/* Written by: Owen Gabbitas (Trade & Economic Studies Branch) */

/* Purpose:    Conducts SURE regressions using MLE              */
/*             with aggregated youth                            */
/*             with real variables (as opposed to nominal)      */

Open; output=v:\youthemp\time\limdep\ipd.out $
Title; output file v:\..\ipd.out $

Reset $

/* ==== Read in data - variable names in first line ==== */
Read; file = v:\youthemp\time\limdep\input2.wk1
    ; format = wks
    ; names = $

/* y - youth  (aged 15 to 19) */
/* a - adults (aged 20 to 64) */
/* m - male                   */
/* f - female                 */
/* ie. afm - adult female     */

/* Variables read from the input file in the following order:
*/
/* Industry Year Q r Wy Wam Waf Edy Edam Edaf My Mam Maf Cy Cam Caf Ck
*/

/* list; Cy, Wy, Edy, My $          */
/* list; Cam, Wam, Edam, Mam $      */
/* list; Caf, Waf, Edaf, Maf $      */
/* list; Ck, r                      */
/* list  ; Wy, Wam, Waf, r ; file $ */
/* list; Year, Industry, Q $        */

Read; file = v:\youthemp\time\limdep\ipd.wk1
    ; format = wks
    ; names = $


/* ============ Create industry dummy variables ============= */
/*                                                             */
/*   A - Agriculture, forestry, fishing & hunting              */
/*   C - Manufacturing                                         */
/*   E - Construction                                          */
/*   F - Wholesale trade                                       */
/*   G - Retail trade (ommitted as biggest employer of youth)  */
/*   H - Acommodation, cafes & restuarants                     */
/*   I - Transport, storage & communication services           */
/*   P - Cultural & personal services                          */
/*   Indx respresents the industry dummy for industry X        */
/*                                                             */
/* ========================================================== */

Create; if (Industry = 1) Inda = 1; (Else) Inda = 0
 ; if (Industry = 2) Indc = 1; (Else) Indc = 0
 ; if (Industry = 3) Inde = 1; (Else) Inde = 0
 ; if (Industry = 4) Indf = 1; (Else) Indf = 0
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 ; if (Industry = 6) Indh = 1; (Else) Indh = 0
 ; if (Industry = 7) Indi = 1; (Else) Indi = 0
 ; if (Industry = 8) Indp = 1; (Else) Indp = 0 $


/* Deflate capital series 1989-90 = 50 instead of 100 */
Create ; defr = r / 2 $


/* Create relative wage terms - relative to the price of capital */
Create ; relWy   = Wy  / defr $
Create ; relWam  = Wam / defr $
Create ; relWaf  = Waf / defr $

/* list  ; relWy, Wam, Waf ; file $ */


/* Create natural logs of the relative price terms */
Create ; LrelWy  = log(relWy)  $
Create ; LrelWam = log(relWam) $
Create ; LrelWaf = log(relWaf) $

/* list  ; LrelWy, LrelWam, LrelWaf ; file $ */

/* Convert nominal to real variables */
Create ; RWy     = Wy   * ipd $
Create ; RWam    = Wam  * ipd $
Create ; RWaf    = Waf  * ipd $
Create ; RWk     = defr * ipd $

/* Create natural logs of the absolute variables */
Create ; LRWy     = log(RWy)   $
Create ; LRWam    = log(RWam)  $
Create ; LRWaf    = log(RWaf)  $
Create ; LRWk     = log(RWk)   $
Create ; LQ       = log(Q)     $

/* list  ; LWy, LWam, LWaf, LWk, LQ ; file $  */
Namelist ; Price = LRWy, LRWam, LRWaf, LRWk
    ; relPrice = LrelWy, LrelWam, LrelWaf
    ; Costshar = Cy, Cam, Caf
    ; Educate = Edy, Edam, Edaf
    ; Ind = Inda, Indc, Inde, Indf, Indh, Indi, Indp $


/* ==== Seemingly unrelated regressions (SURE) - MLE ==== */

/* (a) Unconstrained */
Sure; LHS = Costshar
    ; Labels =
     ay,  byy,  byam,  byaf,  byk,   byq,
     aam, bamy, bamam, bamaf, bamk,  bamq,
     aaf, bafy, bafam, bafaf, bafk,  bafq
    ; RHS = one, Price, LQ
    ; Pattern =
     ay,   byy,   byam,  byaf,  byk,  byq,
     aam,  bamy,  bamam, bamaf, bamk, bamq,
     aaf,  bafy,  bafam, bafaf, bafk, bafq $
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```
Dstat ; Rhs = Price, LQ ; Output = 3 $


/* (b) Imposing symmetry only */
Sure; LHS = Costshar
    ; Labels = ay, aam, aaf, byy, byam, byaf, byk, byq, bamam, bamaf,
bamk,
     bamq, bafaf, bafk, bafq
    ; RHS = one, Price, LQ
    ; Pattern =
     ay,  byy,  byam,  byaf,  byk,  byq,
     aam, byam, bamam, bamaf, bamk, bamq,
     aaf, byaf, bamaf, bafaf, bafk, bafq $


/* (c) Imposing homogeneity only */
Sure; LHS = Costshar
    ; Labels = ay,  byy,  byam,  byaf,  byq,
               aam, bamy, bamam, bamaf, bamq,
     aaf, bafy, bafam, bafaf, bafq
    ; RHS = one, relPrice, LQ
    ; Pattern =
     ay,  byy,   byam,  byaf,  byq,
     aam, bamy,  bamam, bamaf, bamq,
     aaf, bafy,  bafam, bafaf, bafq $

Dstat ; Rhs = relPrice, LQ ; Output = 3 $


/* (d) Imposing symmetry & homogeneity only */
Sure; LHS = Costshar
    ; Labels = ay, byy, byam, byaf, byq,
     aam, bamam, bamaf, bamq,
     aaf, bafaf, bafq
    ; RHS = one, relPrice, LQ
    ; Pattern =
     ay,  byy,  byam,  byaf,  byq,
     aam, byam, bamam, bamaf, bamq,
     aaf, byaf, bamaf, bafaf, bafq $



/* ==== Incorporating additional environmental variables ==== */

/* (e) Industry dummy variables */
Sure; LHS = Costshar
    ; Labels = ay, byy, byam, byaf, byq,
     aam, bamam, bamaf, bamq,
     aaf, bafaf, bafq,
     Da, Dc, De, Df, Dh, Di, Dp
    ; RHS = one, relPrice, LQ, Ind
    ; Pattern =
     ay,  byy,  byam,  byaf,  byq,  Da, Dc, De, Df, Dh, Di, Dp,
     aam, byam, bamam, bamaf, bamq, Da, Dc, De, Df, Dh, Di, Dp,
     aaf, byaf, bamaf, bafaf, bafq, Da, Dc, De, Df, Dh, Di, Dp $


/* (f) Industry dummy & environmental variables */
Sure; LHS = Costshar
    ; Labels = ay, byy, byam, byaf, byq,
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```
     aam, bamam, bamaf, bamq,
     aaf, bafaf, bafq,
     Da, Dc, De, Df, Dh, Di, Dp,
     Ey, Eam, Eaf
    ; RHS = one, relPrice, LQ, Ind, Educate
    ; Pattern =
   ay, byy, byam,  byaf,  byq,  Da, Dc, De, Df, Dh, Di, Dp, Ey, Eam,
Eaf,
   aam, byam, bamam, bamaf, bamq, Da, Dc, De, Df, Dh, Di, Dp, Ey, Eam,
Eaf,
   aaf, byaf, bamaf, bafaf, bafq, Da, Dc, De, Df, Dh, Di, Dp, Ey, Eam,
Eaf
 $
```