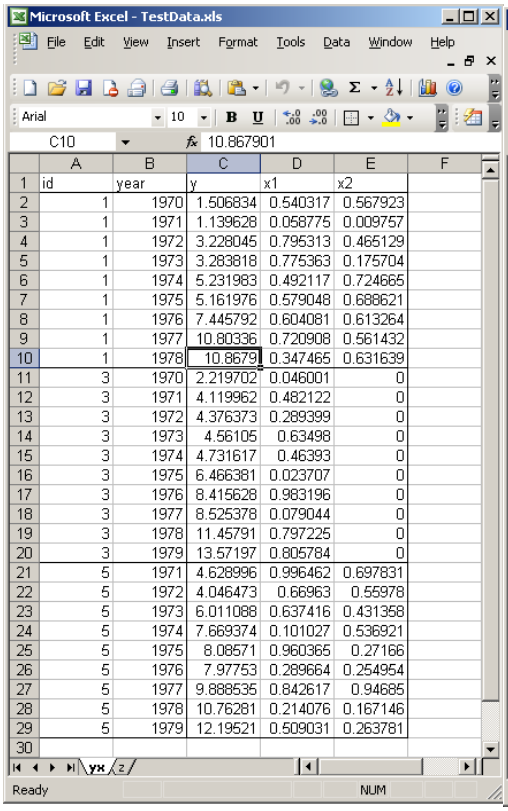
Using CCEgauss6

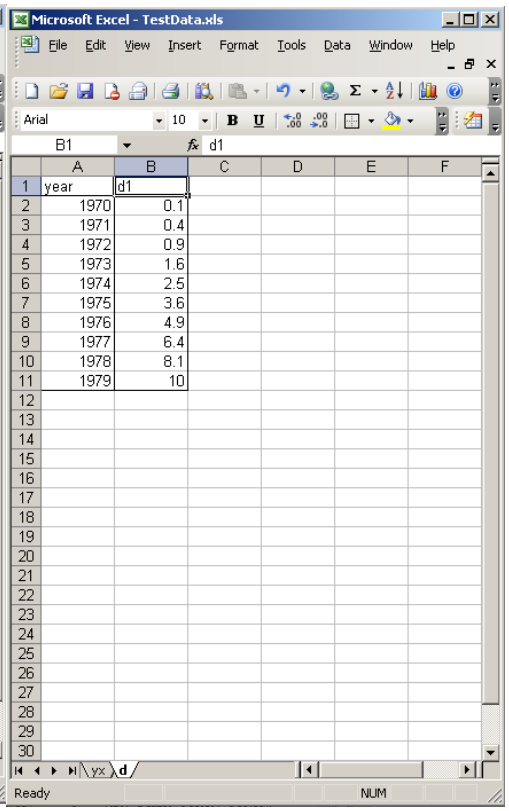
This programme computes the estimator and the standard errors which are consistent under cross section dependence, called Common Correlated Effects (CCE) estimator, proposed by Pesaran (2006). How to set up the excel data file and CCEgauss6 programme below.

1. Load data set of excel file. The data set in excel should be formatted as below (see the figures below)

   - The first row provides the name of variables
   - The first column provides cross section ID (numbers) in ascending order (not necessarily sequence of natural numbers)
   - The second column provides years (necessarily continuous natural numbers). This means quarterly data should be indexed by 1,2,... etc. Annual data are fine.
   - The third column is the dependent variables, the fourth column onwards should contain regressor variables, without constant. All variables should be transformed (eg. taking natural log etc).
   - Cross section units consisting of T_i time series observations are stacked vertically. If data are unbalanced, no missing data are allowed.
   - The second sheet contains cross sectionally invariant variables (eg. time trend, oil price). Intercept is automatically added. The starting year should be the earliest year in the first sheet, and the final year should be the most recent year in the first sheet.



Excel Sheet 1, ID, Year, y_{it} and $\mathbf{x}'_{it}$



Excel Sheet 2, $\mathbf{d}'_t$

2. Inputs: set up the first part of the gauss programme correctly (modify the **boldface** part)

   (a) Specify the directory and name of the output file
   eg. output file = **i:\\F_drive\\Gauss6.0\\0myproc\\CCE_out.txt** RESET;

   (b) Load the data in the First Sheet of Excel file (see Gauss6.0 language references for the command "xlsreadm")

      i. Specify the rage of first raw, variables names
      vname=xlsreadm("**i:\\F_drive\\Gauss6.0\\0myproc\\CCE\\TestData.xls**","**a1:e1**",1,"");

      ii. Specify the range of the cross section varying variables $(y_{it}, \mathbf{x}'_{it})$, second raw onwards
      data=xlsreadm("**i:\\F_drive\\Gauss6.0\\0myproc\\CCE\\TestData.xls","a2:e29**",1,"");

   (c) Load the data in the Second Sheet of Excel file (observed common factors)

      i. First of all, specify the number of "d_t" (except intercept)
      nb_d=**1**;

      ii. Specify the rage of first raw, variables names
      dname=xlsreadm("**i:\\F_drive\\Gauss6.0\\0myproc\\CCE\\TestData.xls","b1:b1**",2,"");

      iii. Specify the rage of observed common factors $\mathbf{d}'_t$
      data_d=xlsreadm("**i:\\F_drive\\Gauss6.0\\0myproc\\CCE\\TestData.xls","b2:b11**",2,"");

   (d) Specify the x_{it} which would not go for cross section averages
   If one believes that some time and cross section varying regressor vary to little, to avoid multicollinearity problem, s/he can drop cross section average of this regressor.

      i. To drop variables of the 5th and the 6th columns in the excel file from the cross section augmentation, you assign
      no_xbar = {**4 5**};

      ii. If you include all cross section averages of x_{it}, assign
      no_xbar = {**0**};

   (e) Specify the x_{it} and ID, which are zeros due to normalisation

      i. For example, if natural logarithm of exchange rate against US dollar is one of the variable, the value of this is zero for all US. If the cross section ID of US is 3 and the column number of such a variable in the excel file is 5, assign
      zero_x = **5**; zero_id = **3**;

      ii. If there is no such a variable, please assign
      zero_x = **0**; zero_id = **0**;

   (f) One might be interested in CCE estimation results for each cross section unit. One can obtain this by assigning
   report=**1**;
   To suppress such a report, please assign
   report=**0**;

   NB: Please do not change other part of code, unless you are familiar with gauss code.

3. OUTPUT

   Please refer to Pesaran (2006) for details. Here the equal cross sectional weights, $w_i = N^{-1}$, are used. The CD test statistic of Pesaran (2004) is reported for Mean Group estimator.

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Reference

Pesaran, M.H. (2006), Estimation and Inference in Large Heterogeneous Panels with a Multifactor Error Structure, *Econometrica*, 74, 967-1012.

Pesaran, M.H., (2004). General Diagnostic Tests for Cross Section Dependence in Panels", *CESifo Working Papers* No.1233.