EXERCISE: Analysis of the Pearson Height Data using GRETL

The Pearson data on the height of fathers $v1$ and the height of sons $v2$ is in a plain text (ASCII) file labelled `Pearson.txt`. These can be brought in **gretl** using using the ⟨*File*⟩ ⟨*Open Data*⟩ ⟨*Import ASCII*⟩ menu sequence accessed via the menu bar at the top of the **gretl** window.

For a statistical summary of the imported data, select the variables $v1$ and $v2$ within the data window by holding down the shift key and clicking on each in succession to highlight them. Then, follow the menu sequence ⟨*View*⟩ ⟨*Summary Statistics*⟩ and the ⟨⟨*gretl: summary statistics*⟩⟩ window will appear.

For a graphical representation of the data, use the menu sequence ⟨*View*⟩ ⟨*Graph specified vars*⟩ ⟨*X-Y scatter*⟩. This will lead to the ⟨⟨*gretl: define graph*⟩⟩ window. To create the X-Y scatterplot, select $v1$ from the list box on the left and click on the [*Choose*→] button. Then, $v1$ will become the X-axis variable. To identify $v2$ as the Y-axis variable, select it and click on the [*Add*→] bottom. Then click on the [*OK*] button and a graph will be revealed. (The graph also shows an interpolated regression line.)

To perform a full regression analysis, access the ⟨*Model*⟩⟨*Ordinary Least Squares*⟩ (OLS) menu items via the menu bar at the top of the Gretl window. The ⟨⟨*gretl; select model* ⟩⟩ window will appear. Choose $v2$ as the dependent variable using the [*Choose* →] button; and use the [*Add* →] button to add $v1$ to the list of independent variables, which already contains the constant.

Click the [*OK*] button to create the output window ⟨⟨*gretl: models 1*⟩⟩. This may be hidden behind the⟨⟨*gretl; select model*⟩⟩ window, which can be dragged aside.

Repeat the exercise with $v1$ as the dependent variable and $v2$ as an explanatory variable and record the values of the intercept and slope parameters, which can be compared with those obtained previously. Comment on your findings.

To save command script of the current session access the ⟨*Tools*⟩ ⟨*Command log*⟩ menu items. The ⟨⟨*gretl; command log*⟩⟩ window will appear. The script in this log contains the simple commands for opening the data file and for running the regressions. To save the script, click on the *Save as* icon, which is the first icon at the top of the window. (The identity of the icon is confirmed by a small tab that appears when the cursor is placed on top of it.) Save the file in a convenient place with a name such a `PeaTrial.inp`. The suffix `.inp` will serve to identify the file to **gretl** as a script file.

To rerun the session, start the **gretl** program and recover the command script file via a ⟨*File*⟩ ⟨*Script Files*⟩ menus sequence. If you have named the command script as suggested, then a window titled ⟨⟨*gretl; PeaTrial.inp*⟩⟩ will be created. Click on the run icon, which is the third icon at the top of the window that takes the form of a cogwheel. This will regenerate the results of the regression analysis.