**“quality\_order.sas” Output Description**

**Datasets:**

The output that will be produced are two CSV files: quality.csv and order.csv

quality.csv (If an observation is missing for the firm-year grouping then that cell had no observations):

* payer\_tin\_w2\_max
  + The EIN of the firm associated with the observation.
* tax\_yr
  + The year of the associated observation.
* mean\_baseline\_quality
  + The average fitted values from regression #1 described below for the firm-year pairing associated with this observation. NOTE THAT THESE FITTED VALUES EXCLUDE THE YEAR EFFECTS FROM THE REGRESSION.
* mean\_log\_baseline\_quality
  + The average fitted values from regression #2 described below for the firm-year pairing associated with this observation. NOTE THAT THESE FITTED VALUES EXCLUDE THE YEAR EFFECTS FROM THE REGRESSION.
* mean\_expanded\_quality
  + The average fitted values from regression #3 described below for the firm-year pairing associated with this observation. NOTE THAT THESE FITTED VALUES EXCLUDE THE YEAR EFFECTS FROM THE REGRESSION.
* mean\_log\_expanded\_quality
  + The average fitted values from regression #4 described below for the firm-year pairing associated with this observation. NOTE THAT THESE FITTED VALUES EXCLUDE THE YEAR EFFECTS FROM THE REGRESSION.

order.csv (If an observation is missing for the firm-year-order grouping then that cell had no observations):

* payer\_tin\_w2\_max
  + The EIN of the firm associated with the observation.
* tax\_yr
  + The year of the associated observation.
* order\_cat
  + order category associated with this observation. The values are:
    - A value of 1 stands for order==1 (i.e., worker hired in founding year of firm)
    - A value of 2 stands for order==2 (i.e., worker hired in 2nd year of firm)
    - A value of 3 stands for order==3 or order==4 (i.e., worker hired in 3rd/4th year of firm)
    - A value of 4 stands for order>4 (i.e., worker hired after 4th year of firm)
* num\_workers\_by\_order
  + The number of workers within the firm-tax year-order category.
* mean\_wages\_by\_order
  + The average wages for the firm-year-order grouping associated with the observation.

**Regressions:**

The regression output will be in the accompanying "quality\_order.lst" file produced by running the program. It will have 8 regression models in the following order:

*Quality regressions:*

#1) proc reg: baseline quality model, level wages

equation:

wages = const. + age +age^2 + age^3 + age^4 + male + female + inventor + male\*age + male\*age^2 + male\*age^3 + male\*age^4 + female\*age + female\*age^2 + female\*age^3 + female\*age^4 + inventor\*age + inventor\*age^2 + inventor\*age^3 + inventor\*age^4 + male\*inventor + female\*inventor + tax year fixed effects

#2) proc reg: baseline quality model, logged wages

equation:

log(wages) = const. + age +age^2 + age^3 + age^4 + male + female + inventor + male\*age + male\*age^2 + male\*age^3 + male\*age^4 + female\*age + female\*age^2 + female\*age^3 + female\*age^4 + inventor\*age + inventor\*age^2 + inventor\*age^3 + inventor\*age^4 + male\*inventor + female\*inventor + tax year fixed effects

#3) proc reg: expanded quality model (i.e., with wage history), level wages

equation:

wages = const. + age +age^2 + age^3 + age^4 + male + female + inventor + male\*age + male\*age^2 + male\*age^3 + male\*age^4 + female\*age + female\*age^2 + female\*age^3 + female\*age^4 + inventor\*age + inventor\*age^2 + inventor\*age^3 + inventor\*age^4 + male\*inventor + female\*inventor + previous\_wages + previous\_wages^2 + first\_job + tax year fixed effects

#4) proc reg: expanded quality model (i.e., with wage history), logged wages

equation:

log(wages) = const. + age +age^2 + age^3 + age^4 + male + female + inventor + male\*age + male\*age^2 + male\*age^3 + male\*age^4 + female\*age + female\*age^2 + female\*age^3 + female\*age^4 + inventor\*age + inventor\*age^2 + inventor\*age^3 + inventor\*age^4 + male\*inventor + female\*inventor + previous\_wages + previous\_wages^2 + first\_job + tax year fixed effects

*Order regressions:*

#5) proc reg: order model without EIN FEs, level wages

equation:

wages = const. + order + order^2

#6) proc reg: order model without EIN FEs, logged wages

equation:

log(wages) = const. + order + order^2

#7) proc glm: order model with EIN FEs, level wages

equation:

wages = const. + order + order^2 + \Sum (EIN==i)

#8) proc glm: order model with EIN FEs, logged wages

equation:

log(wages) = const. + order + order^2 + \Sum (EIN==i)