Partial and Semipartial Correlation Example

This SPSS output was obtained by checking the “Part and Partial Correlations” box on the regression Statistics option for the simultaneous regression of SALARY regressed on TIME and PUBS.

Note that “Part” refers to the semipartial correlation coefficient ($sr = .161$). The squared semi-partial coefficient for PUBS ($sr^2$) equals the R-square change value from the hierarchical regression when PUBS is added to the model already including TIME:

$$sr^2 = R^2_{\text{change}} = (.161)^2 = .026$$

Also note that the partial correlation coefficient ($pr$) has no relationship to the R-square change value ($pr^2 \neq R^2_{\text{change}}$).

The other semi-partial coefficient, .430 for TIME, bears the same relationship to R-square change. Looking at the hierarchical regression in which TIME is added to the model already including PUBS, you see that:

$$sr^2 = R^2_{\text{change}} = (.430)^2 = .185.$$ 

**R code**

```R
#The ppcor package can be used to obtain the partial and semi-partial correlation coefficients
#install package before first use
#install.packages("ppcor")

library(ppcor)
#semi-partial (same as R-square change)
spcor(mydata[,c("SALARY","PUBS","TIME")])

#partial correlation
pcor(mydata[,c("SALARY","PUBS","TIME")])
```