**Transcript: Interpreting Regression Output**

In this video, we will go over how to interpret the output from R Commander and SPSS for our linear regression model.

The first thing we're going to look at is our model summary statistics. We can see our *R2* value in R Commander here—.7716—and also in SPSS, here. R Commander will produce two types of *R2*, multiple and adjusted. The difference between these is beyond the scope of this course. But you can see that the multiple *R2*, which is what we will use in this course, is the same between R Commander and SPSS. This value reflects the proportion of variance that is shared between our two variables. Another way we can say this is that it is the proportion of variance in the outcome variable (in this case, women's labour force participation) that is accounted for by our predictor variable (in this case, total fertility rate). *R2* values can range from 0 (reflecting no variance shared) to 1 (reflecting 100% of variance shared).

Next, we can see our *F* statistic with its corresponding degrees of freedom and *p* value. In R Commander, this is displayed at the very bottom of the output, and in SPSS it is displayed here. From these values we can see that the model as a whole is significant, or to say it another way, total fertility rate accounts for a significant proportion of the variance in women's labour force participation.

Lastly, we can see our coefficients for our line of best fit. The first coefficient is the intercept, which is displayed here in R Commander under “Estimate”. This value is called the “Constant” in SPSS. The value of 54.8 reflects the predicted level of women's labour force participation at a fertility rate of 0. So, if there are no children being born, our model would predict that 54.8% of adult women would be employed in paid labour force.

Next, we can see our slope, which is reported as the “Estimate” for “tfr” in R Commander and as “b1” in SPSS. This value of -.007 reflects the predicted change in our outcome variable, which is women's labour force participation, that is associated with a 1-unit increase in our predictor, which is total fertility rate. For every one additional child born per thousand women, our model would predict that the percentage of women who are employed in the paid labour force will decrease by .007%. We can see that reflected in our graph here, where we have a negative slope. As fertility rate goes up, women's participation in the paid labour force goes down. You can see the same graph here—same values and line of best fit.

The last thing that we can see from this graph is that most of the points are very closely clustered along this line, especially at the lower ranges of fertility rate. This reflects the high value of *R2* that we saw in our model summary. It indicates that there is a strong relationship between these two variables.