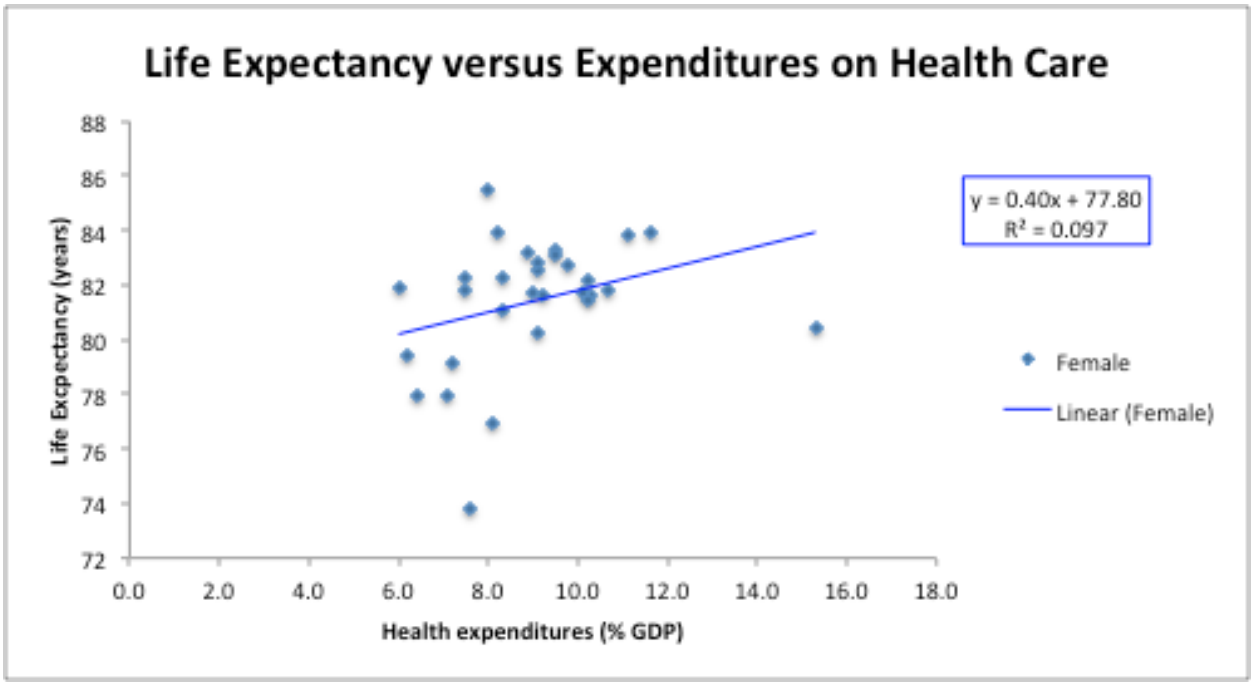
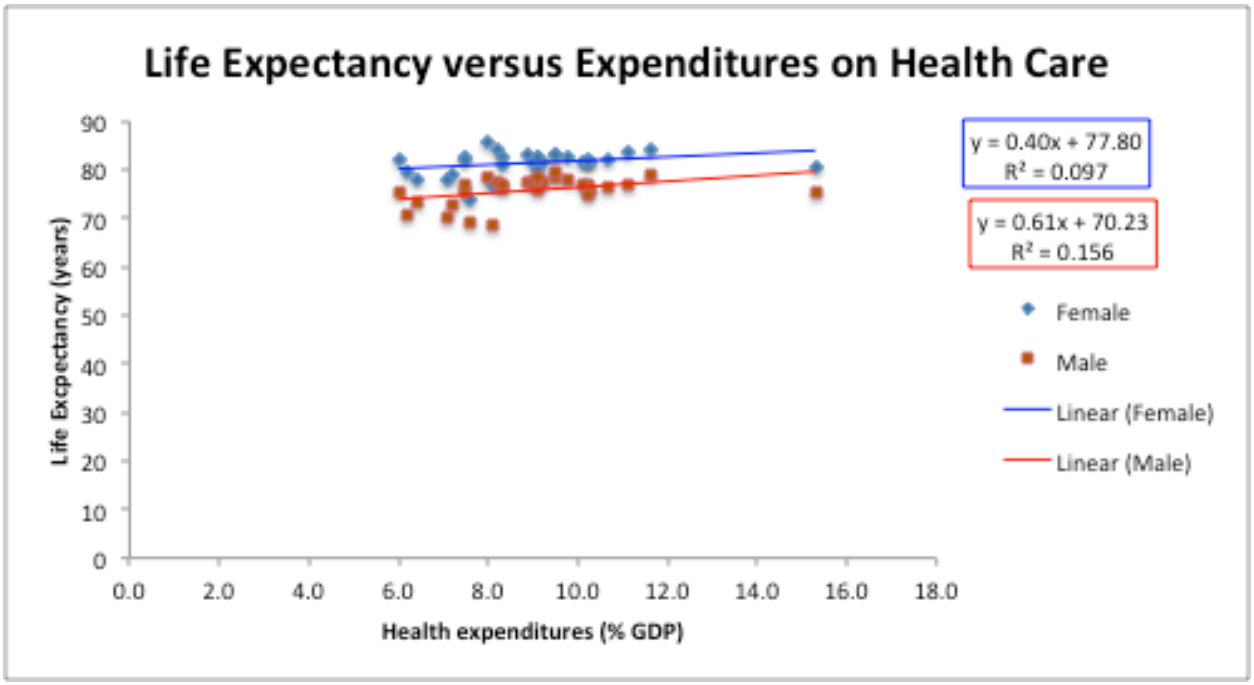
Excel Assignment 2 Solutions

1. For health care expenditures and female life expectancy:
   (a) Female life expectancy is the response variable; health care expenditures as percentage of GDP is the explanatory variable.
   (b) See below
   (c) See below
   (d) Scatter plot:



   (e) Yes; Turkey and the US.
   (f) For both countries, life expectancy is the lower than predicted.
   (g) Looking at the scatterplot:
      (i) Positive correlation $r = \sqrt{0.097} = 0.31$.
      (ii) The constant, 77.80, is the life expectancy predicted for women if health care spending were zero.
      (iii) The slope, 0.40, tells us that if an additional 1% of GDP is spent on health care, female life expectancy is predicted to rise by 0.4 of a year.

2. For health care expenditures and male life expectancy:
   (a) See the following graph:



   (b) Since R^2 =0.156, we know that 15.6% of the variation from the mean in male life expectancy is explained by health care expenditures.

3. For the two equations:

   (a) Since the male slope is larger than the female, the men appear to be more affected by health care expenditures.
   (b) Yes, when

$$0.40x + 77.80 = 0.61x + 70.23$$
$$0.21x = 7.57$$
$$x = \frac{7.57}{0.21} = 36.05.$$

   Thus they are predicted to be equal in a country spending 36.05% of its GDP on health care. This result is not likely to be reliable, as we have extrapolated well outside the data given. There is no reason that the dependence of life expectancy on health care spending, and the differences between males and females, should continue for much larger values of spending.