Empirical Exercise 2.1

Calculations for this exercise are carried out in **Age_HourlyEarnings_EE2_1.xlsx**.

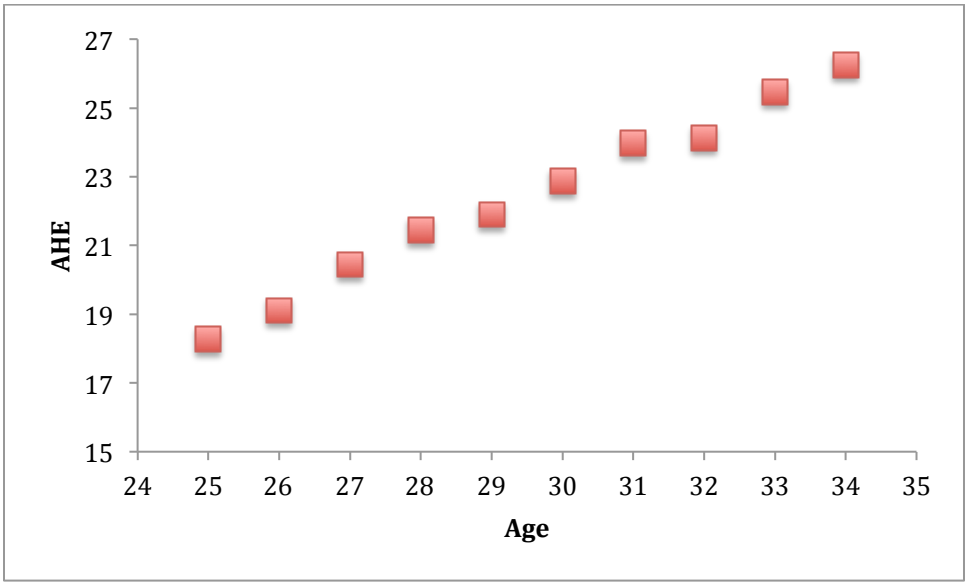
a.

Age	Probability (*Age*)
25	0.075350169
26	0.079746447
27	0.094673346
28	0.09528678
29	0.098251713
30	0.110520397
31	0.110929353
32	0.11338309
33	0.11338309
34	0.108475616

b.

Age	E(*AHE*|*Age*)
25	18.27679783
26	19.1025641
27	20.44168467
28	21.45171674
29	21.89490114
30	22.87789084
31	23.98525346
32	24.128945
33	25.46889089
34	26.25164939

c. Scatter plot of E(*AHE*|*Age*)



(d) E(*AHE*) = $22.69

(e) – (g) Some moments:

E(*AHE*) = 22.69 (Dollars)
E(AHE^2) = 669.00 (Dollars squared)
E(*Age*) = 29.84 (Years)
E(Age^2) = 898.40 (Years squared)
E(*AHE*×*Age*) = 683.91 (Dollars × Years)

var(*AHE*) = E(AHE^2) – [E(*AHE*)]^2 = 154.10 (Dollars squared)
Std.Dev (*AHE*) = $\sqrt{154.10}$ = 12.41(Dollars)

var(*Age*) = E(Age^2) – [E(*Age*)]^2 = 7.79 (Years squared)
Std.Dev(*Age*) = $\sqrt{7.79}$ = 2.79 (Years)

cov(*AHE*,*Age*) = E(*AHE*×*Age*) – [E(*AHE*)×E(*Age*)] = 6.72 (Dollars × Years)

cor(*AHE*,*Age*) = cov(*AHE*,*Age*)/[Std.Dev (*AHE*)× Std.Dev(*Age*)] = 0.19

(h) The covariance and correlation are positive: when *Age* is higher than its average value, *AHE* tends to be higher than its average value, and similarly if *Age* is lower than its average value. In this sense *Age* and *AHE* are positively related, which is also evident in the plot.