R output	Regression line formula	β-coefficient significance and the model significance	Model evaluation criteria
Call: lm(formula = employ$Employment ~ employ$Inflation) Residuals: Min 1Q Median 3Q Max -0.0122495 -0.0048528 -0.0006298 0.0037858 0.0212068 Coefficients: Estimate Std. Error t value Pr(>|t|) (Intercept) 0.030001 0.003462 8.666 9.41e-14 *** employ$Inflation -1.652691 0.011735 -140.837 < 2e-16 *** --- Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1 Residual standard error: 0.006433 on 98 degrees of freedom Multiple R-squared: 0.9951, Adjusted R-squared: 0.995 F-statistic: 1.984e+04 on 1 and 98 DF, p-value: < 2.2e-16 > confint(model) 2.5 % 97.5 % (Intercept) 0.02313093 0.0368701 employ$Inflation -1.67597857 -1.6294040 > AIC(model) [1] -721.4954	**Y(employment)=**	**β-coefficient** **p-value=** **the model** **p-value=**	**$R^2_{adjusted}$=** **RSE=** **95% CI=** **AIC=**
Call: lm(formula = bpa$BPA_Concentration ~ bpa$Age) Residuals: Min 1Q Median 3Q Max -11.1899 -3.0661 -0.0987 2.9817 11.0861 Coefficients: Estimate Std. Error t value Pr(>|t|) (Intercept) 5.10492 1.50212 3.398 0.000981 *** bpa$Age 0.19251 0.02849 6.758 1.01e-09 *** --- Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1 Residual standard error: 4.846 on 98 degrees of freedom Multiple R-squared: 0.3179, Adjusted R-squared: 0.311 F-statistic: 45.68 on 1 and 98 DF, p-value: 1.008e-09 > confint(model) 2.5 % 97.5 % (Intercept) 2.1240049 8.0858345 bpa$Age 0.1359863 0.2490418 > AIC(model) [1] 603.417	**Y(** **)=**	**β-coefficient** **p-value=** **the model** **p-value=**	**$R^2_{adjusted}$=** **RSE=** **95% CI=** **AIC=**
Call: lm(formula = women$Weight ~ women$Height) Residuals: Min 1Q Median 3Q Max -19.768 -3.485 0.295 4.151 14.454 Coefficients: Estimate Std. Error t value Pr(>|t|) (Intercept) -50.53292 9.31695 -5.424 4.21e-07 *** women$Height 0.77345 0.06454 11.984 < 2e-16 *** --- Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1 Residual standard error: 5.843 on 98 degrees of freedom Multiple R-squared: 0.5944, Adjusted R-squared: 0.5903 F-statistic: 143.6 on 1 and 98 DF, p-value: < 2.2e-16 > confint(model) 2.5 % 97.5 % (Intercept) -69.0220975 -32.0437420 women$Height 0.6453742 0.9015241 > AIC(model) [1] 640.8145	**Y(** **)=**	**β-coefficient** **p-value=** **the model** **p-value=**	**$R^2_{adjusted}$=** **RSE=** **95% CI=** **AIC=**

Call: lm(formula = age$Employment ~ age$Age) Residuals: Min 1Q Median 3Q Max -0.19073 -0.06835 -0.00875 0.05806 0.32904 Coefficients: Estimate Std. Error t value Pr(>|t|) (Intercept) 0.5107083 0.0447824 11.404 <2e-16 *** age$Age -0.0005247 0.0010688 -0.491 0.625 --- Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1 Residual standard error: 0.09707 on 98 degrees of freedom Multiple R-squared: 0.002453, Adjusted R-squared: 0.007726 F-statistic: 0.241 on 1 and 98 DF, p-value: 0.6246 > confint(model) 2.5 % 97.5 % (Intercept) 0.421839081 0.599577600 age$Age -0.002645688 0.001596255 > AIC(model) [1] -178.6941	**Y( )=**	**β-coefficient p-value= the model p-value=**	**$R^2_{adjusted}$= RSE= 95% CI= AIC=**

Conclusions:

1. The assumptions are met; the model and the independent variable (inflation) are significant (p<0.001). The inflation variable explains 99.5% of the employment variability, RSE equals 0.006.
The estimate of the β-coefficient equals -1.65 (95% CI [-1.68;-1.63]), the intercept α equals 0.03.
Y(employment)=0.03-1.65*X(inflation) (for each one-unit shift of the inflation the employment decreases by 1.65).
2. The assumptions are met; the model and the independent variable (age) are significant (p<0.001). The age variable explains 31% of the BPA concentration variability, RSE equals 4.85.
The estimate of the β-coefficient equals 0.19 (95% CI [0.14;0.25]), the intercept α equals 5.10.

Y(BPA conc.)=5.10+0.19*X(age) (for each one-unit shift of the age (one year) the BPA concentration increases by 0.19 ug/L).

3. The assumptions are met; the model and the independent variable (height) are significant ($p<0.001$). The height variable explains 59% of the weight variability, RSE equals 5.84.

The estimate of the β-coefficient equals 0.77 (95% CI [0.65;0.90]), the intercept α equals -50.53.

Y(weight)=-50.53+0.77*X(height) (for each one-unit shift of the height (cm) the weight increases by 0.77 kg).

4. The assumptions are not met; the model and the independent variable (age) are not significant. We can't use linear regression for the relationship quantification between the variables and should use other methods.