

Problem 1/3

In Table 1 there are given data about the full-time students in tertiary education in 2011 and 2013 (source: Ministry of Education, Youth and Sports of the Czech Republic).

Table 1: Students in tertiary education in the Czech Republic in 2013

year	2011		2013	
group	total	bachelor	total	bachelor
students total	291 346	179 156	283 253	173 073
women	161 438	96 599	157 465	93 864

Questions:

1. Compare (evaluate and interpret results) the number of women and men in tertiary education in the Czech Republic in 2013 (in total, bachelor level and higher levels).
2. Can you characterize the absolute and the relative difference in total number of tertiary students in the Czech Republic between years 2011 and 2013?

Problem 2/3

In Table 2 there are the group arithmetic means and standard deviations for a firm with 50 employees.

Table 2: Characteristics of income in a firm

income	number of employees	mean income (CZK)	standard deviation (CZK)
tertiary	10	35 000	4 000
others	40	22 000	7 000

Questions:

1. Evaluate the mean income of all employees in the firm.
2. Quantify the variability of income of all employees in the firm.

Problem 3/3

Econometric software GRETL was used for the estimation of single variable regression model (see defined variables and output below).

DATA: Aggregate personal income and expenditures on health care, 1993, for U.S. States and D.C.

Questions:

1. Write down the estimated regression function and interpret the values of the estimated parameters.
2. Comment the results of tests of individual parameters (significance level - 5%):
3. Comment the statistical quality of the model.

Variables used in the model:

exphlth aggregate personal expenditure on health care (\$ billions)
income aggregate personal income (\$ billions)

Estimated model:

Model 1: OLS, using observations 1-51

Dependent variable: *exphlth*

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	
const	0.325608	0.319742	1.0183	0.31352	
income	0.142099	0.00196623	72.2698	<0.00001	***
Mean dependent var	15.26494	S.D. dependent var		17.88771	
Sum squared resid	148.6985	S.E. of regression		1.742029	
R-squared	0.990705	Adjusted R-squared		0.990516	
F(1, 49)	5222.924	P-value(F)		1.90e-51	
Log-likelihood	-99.65329	Akaike criterion		203.3066	
Schwarz criterion	207.1702	Hannan-Quinn		204.7830	