

Requirements for “Report” in *Elementary Statistics*

Assumptions

Data (obtained from instructor) represent results of survey conducted in 2 primary schools located in different regions of a country, rural and urban. Main goal of the survey is to “**detect and describe social determinants of pupil’s absence in school**”.

Smaller data set (20 cases) comes from rural area, bigger (40 cases) - from urban area.

Each data set comprises of the following variables:

<i>variable name</i>	<i>survey question</i>	<i>value set</i>
ID	identification number of a pupil (in school)	(1-20 and 1-40)
GENDER	Gender of a pupil	(0 - female, 1 male)
GAMES	Do you often play computer games	(0 - No, 1 - Yes)
SPORT	In how many sport activities do you participate systematically	{0, 1, 2}
WINTERAB	How many schooldays did you omit during winter semester ?	
AGE	age of a pupil	(10 -15)
SUMMERAB	How many schooldays did you omit during summer semester ?	

Structure of the “Report”

I. Comparison of single distributions

Compare two of schools with regard to:

- social structure of pupil’s population (use information on gender and age of pupils),
- type of leisure time usage of pupils (sports and computing activities),
- extent of pupil’s school absence (winter, summer and total,)

Statistical and computational tools used in chapter:

univariate distributions and univariate statistics – central tendency, dispersion;

FREQ, COMPUTE, VAR LAB, VAL LAB

Content of the chapter:

1. 6 charts representing distributions of all variables (GENDER to SUMMERAB) in both schools,
2. chart representing distribution of new variable “TOTAL ABSENCE DURING YEAR” in both schools
3. description of differences and similarities of distributions between two schools in regard to their shape, central tendency and dispersion (see “GUIDE”).

II. Relationships between pupil’s absence and it’s social determinants in two schools

Take into account all (three) kinds of pupil’s absence and in both schools investigate their bivariate distributions with pupil’s characteristics:

- location in the demographic structure: GENDER, AGE,
- profile of the leisure time usage: GAMES, SPORT

Treating **absences as dependent variables** compare their dependencies on pupils’ characteristics (treated as independent variables) in both schools in regard to:

- shape and the strength of dependency in the regression of means,
- shape and the strength of dependency in the linear regression,
- similarity of the 1st type (means) and linear regression functions (degree of linearity).

Statistical and computational tools used in the chapter:

Regression of means, linear regression, coefficients of statistical dependency;

MEANS, REGRESSION.

Content of the chapter:

1. 12 charts (3 kinds of absence, 4 independent variables: GENDER, AGE, GAMES SPORTS) representing dependencies in both schools,
2. tables containing parameters of statistical associations for all bivariate distributions,
3. description of differences and similarities of statistical dependencies between two schools (see “GUIDE”)

III. Linear model of absence in school

Compare multivariate linear models of school absences in both schools for each dependent variable (WINTERAB, SUMMERAB and “total absence”) in regard to:

- goodness of fit of a model,
- direction of each determinant (independent variable) association with absence within a model,
- relative strength of determinants’ impact on the dependent variable prediction within a model,
- explanatory power of each determinant in linear prediction of pupil’s absence.

Statistical and computational tools used in chapter:

Multiple regression, multiple correlation coefficient, standardized regression coefficient; REGRESSION.

Content of the chapter

1. 3 tables containing parameters of each linear model for both schools,
2. 3 charts representing relative strength and direction of determinants impact on dependent variable prediction (within a model),
3. 3 charts representing relative explanatory power of each determinants in a model,
4. description of differences and similarities of models identified for both schools (see “GUIDE”)