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## External Part of School Leaving Examination and its Statistical Analysis in Selected Region

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### Abstract

School leaving exam represents one of possibilities how to finish upbringing and education at high schools. School leaving exam (including its external part) is a form of graduation at high school and presents the basis for further studies at universities. Quality of education determines the competitiveness of graduates from primary, secondary school and universities on domestic as well as foreign labor market. Paper focuses on statistical evaluation of External part of school leaving exam on the set of 112 high schools of Presov Region in 2015. We evaluate an average percentage of school in External part of school leaving examination, an average grade of Slovak language and a number of tested students. To identify a district's correlations and differences Moran's Index, Kruskal-Wallis test or Kendal coefficient were used. The differences between the individual results in districts and its comparison are described by a few statistical methods (box plot, maps, moment characteristics) too.

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### 1. Introduction

National Institute for Certified Educational Measurements (NUCEM) as one of organizations is engaged in improving the quality of education in primary and secondary schools. The organization is implementing a project aimed at the introduction of electronic testing (including creating tasks and tests). This is mainly funded by the European Social Fund.

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Several authors deal with the partial areas of education. Some point to the level of financial literacy in education (Vravec, 2013), some deal with an environmental aspects of education (Adamisin, 2010; Adamisin, Chovancova, 2013) and another authors deal with an aspect of education in the field of tourism in relation to the practical needs (Senkova, 2013). Another group of authors puts emphasis on lifelong learning (Coculova, 2010).

The Act no. 245/2008 Coll. characterizes leaving examination as a form, how education and training in secondary schools can be finished. This act is supplemented by Decree no. 318/2008 Coll., which specifies the study finished by leaving exam. The aim of leaving exam is to verify knowledge and skills of pupils in the range of subject matter specified in Catalog of target requirements and verification of the ability to use acquired competence in further study or professional and specialist activities for which they are prepared. (Act no. 245/2008 Coll., § 74)

The content of the external part of school leaving examination is defined by law. According to NUCEM (2015) three basic objectives are defined in the academic year 2014/2015:

- provide schools and students nationwide comparison of their education (percentage),
- objectively assess skills, knowledge and competencies of pupils (ISCED 3), for example reading and listening comprehension, linking knowledge from different thematic units, etc.
- contribute to improving the quality of education process, to the development of higher cognitive functions and competencies of pupils.

According to NUCEM (2015) is the average percentage of the testis 52,3 %. Grammar school pupils achieved a higher percentage (66,1 %) compared to pupils of secondary vocational schools and conservatories (44,8 %). Analysis of selected groups of schools are discussed in the next part of this contribution.

## 2. Methodology

School leaving examination in secondary schools was held on 17<sup>th</sup>-20<sup>th</sup> March 2015. The total number of secondary schools was 726. At these schools 46 489 pupils underwent external part of school leaving (NUCEM, 2015). This paper focuses on 112 secondary schools in Presov Region ("PSK") in 13 districts:

- district Bardejov,
- district Humenne,
- district Kezmarok,
- district Levoca,
- district Medzilaborce,
- district Poprad,
- district Presov,
- district Sabinov,
- district Snina,
- district Stara Lubovna,
- district Stropkov,
- district Svidnik,
- district Vranov.

The subject of evaluation is average percentage of schools in external part of the school leaving examination in subject Slovak language (%), average grade of this subject and number of students tested in each school. Obtained results are summarized at district level and we monitor their spatial autocorrelation (mutual influence of results in space), relationship between monitored variables and differences among PSK districts.

In estimating of spatial autocorrelation we firstly define spatial weights which are fundamental element of spatial statistics to measure spatial connections. After identification of spatial scales (type Rook) is a spatial autocorrelation tested by local coefficients MORAN. This coefficient assesses whether there is spatial autocorrelation for a given set of territorial units.

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