

Tóth Csaba: Preference based rankings of universities

Abstract

The goal of this thesis is to rank Hungarian universities – more specifically the faculties of the universities – based on the preferences of the applicants. We used the data of applications in the Hungarian centralised higher education admission system from 2001 to 2016. Applicants reveal their preferences in the form of an ordered list of programmes. The applicant is admitted to the first programme, where he/she reached the score limit. Therefore the applicant may rank programme A over B only if he/she strictly prefers the first one.

We derive pairwise comparisons from the ordered lists. Three ranking methods and a weighting method are presented in the thesis. Using the preference matrix obtained from the pairwise comparisons, we apply the ranking methods to rank the faculties, focusing on the least squares ranking method.

The first section describes the data and the admission process. In the second section, we present the ranking methods and their axiomatic comparison. The third section consists of a graph interpretation of the ranking problem. The fourth section introduces an iterative calculation of the least squares rating. The derivation of the preference matrix from the dataset and some results are presented in the last chapter.

The applied approach is essentially free of arbitrary parameters and factors and may reflect some non-measurable characteristics of a university that are observed by the applicants.