A MULTILEVEL ANALYSIS OF THE STUDENTS’ SUCCESS IN THE 1ST YEAR OF AN ENGINEERING PROGRAMME: A CASE STUDY

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Summary

- Framework
- Goals
- Secondary Schools *Clustering*
- From high school to higher education
- Conclusions and Next Step
Framework

Access to the public higher education in Portugal:

- National contest
- selection of applicants based on the grade of secondary education and exams
Data

Methodology

Literature

Framework

Can academic achievement in higher education be partially explained by previous academic path, particularly by the secondary school where the student did his/her studies?

Can academic achievement in higher education be exclusively explained by the student’s intrinsic characteristics?

Is it possible to model the student's school performance based on a set of preset dimensions, so as to develop early support programmes for potential failure?
Goals

First Lisbon Research Workshop on Economics and Econometrics of Education program (7-8 January 2011)
Secondary Schools Clustering

Dimensions under analysis

Methodology: finite mixture models
## Secondary Schools Clustering

### Results

<table>
<thead>
<tr>
<th>Profiles</th>
<th>Nature</th>
<th>Geographic Context</th>
<th>Goal-driven Approach (Math Results)</th>
<th>Faculty (% Teachers under 40 years old)</th>
<th>Educational Offer (% Students in general programmes)</th>
<th>Size (number of students)</th>
<th>Cluster Name</th>
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</thead>
<tbody>
<tr>
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<td>Pub.</td>
<td>Urb.</td>
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<td>Urban Public School</td>
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<td>Large Urban Public School</td>
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<td>Public School in Hinterland Area</td>
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<td>Proficient Urban Public School</td>
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<td>Proficient Urban Private School</td>
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<td>Technical-Vocational School</td>
</tr>
</tbody>
</table>
From high school to higher education

Measuring Student Success

Dimensions under analysis (Student Level)

- Number of approvals in
  Number of enrolments

Academic background
- Socioeconomic status and family capital
- Contextual Factors
- Motivations expectations

Methodology: Binomial Multilevel Models
From high school to higher education

Secondary Schools of sample students

- Proficient Urban Public School: 26%
- Large Urban Public School: 44%
- Proficient Private Urban School: 10%
- Technical-Vocational School: 1%
- Urban Public School: 15%
- Public School in Hinterland Area: 3%
- Proficient Urban Public School: 26%
From high school to higher education

Results

No heterogeneity observed between schools

Academic Background
- Secondary education grade: + 40%
- Physics in Secondary education: + 72%

Socioeconomic status and family capital
- Girls: + 10%
- Level of household incomes < national average: + 8%

Motivations and expectations
- Place of entrance ≠ 1st: -16%
- Student commitment: -9%
- Early choices of degree: + 22%

Contextually
- Away from residence: -17%
- +1h in each travel: -10%

Parent education level and admission stage did not reveal significance
Conclusions

The sample studied does not reveal differences in the effects of school

All dimensions studied were relevant to explain academic success

The previous academic path is the strongest factor contributing to the student’s academic success

Next Step

To analyze the academic context in higher education
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