Report on Bachelor / Master Thesis

Institute of Economic Studies, Faculty of Social Sciences, Charles University

Student:	Adam Poloček
Advisor:	PhDr. Lucie Bryndová
Title of the thesis:	Efficiency of hospital cases and structural indicators

OVERALL ASSESSMENT (provided in English, Czech, or Slovak):

Short summary
The thesis analyses the influence of hospital structural indicators on length of stay, which is used as a proxy for costs. The thesis is unique in the use of patient-level data, which allows to control for patient characteristics when estimating the effect of structural indicators. Two models are used to estimate the effect: negative binomial multilevel model with estimated dependent variable in the second stage and negative binomial cluster robust regression. The results are compared with existing foreign literature and are found to be in accordance with current research.

Contribution
With growing and aging population, healthcare spending constitutes an increasingly important part of public spending in the Czech Republic. It is therefore crucial to understand the main drivers of hospital efficiency. The thesis is the first work in Czechia which examines the hospital cost efficiency using patient-level data. These analyses are scarce (even globally), because patient-level data are rarely available. In Czechia, only analyses of hospital cost efficiency using hospital-level data have been done before, which due to the nature of data used, cannot account for variation in patient composition (e.g. more complex patients in larger hospitals).

Methods
Research questions are clearly stated and explained. The tools used in the analysis are relevant to the research questions being investigated, and adequate to the author's level of studies. The data used in the thesis are presented well, the variables chosen for the analysis are nicely described. The methods and results are thoroughly presented and interpreted. I appreciate the thorough comparison with other studies. The thesis is however missing some more specific conclusions about the magnitude of the effects. I would also appreciate checking the models' specification – this could be used in determining which of the two models is more reliable.

Literature
The author does a fine job summarizing other studies available on the effect of hospital structural indicators and patients' characteristics on length of stay. The relevant studies are well presented in the thesis and demonstrate the author's knowledge of related literature. However, the referencing is not consistent, which I find quite confusing for the reader.

Manuscript form
The manuscript form unfortunately brings the overall quality of the thesis down. Using a proof-read would immensely improve the thesis. There are many grammatic mistakes (especially in the second half of the thesis), the text is thus difficult to read. Citations are not consistent, sometimes the abbreviations are used without stating them in the list of abbreviations (e.g. NB, COO), and there are also too many direct citations from other literature. Also it seems like the same figure is used in Figure 4.1 and 4.2.

Overall evaluation and suggested questions for the discussion during the defense
Using a rarely available patient-level dataset, the thesis shows the influence of hospital structural indicators (namely hospital size, number of staff, CEO education and teaching) on cost efficiency. The research hypotheses are tested using appropriate methods and results are well interpreted and

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summarized. Unfortunately, the manuscript form of the thesis is quite poor and disturbs the fluency of reading. In my view, the thesis fulfills the requirements for a bachelor thesis at IES, Faculty of Social Sciences, Charles University, I recommend it for the defense and suggest a grade C. The results of the Urkund analysis do not indicate significant text similarity with other available sources.

For the defense, the author could discuss:
1. The thesis focuses purely on data from internal medicine. Are the foreign studies that the results are compared with also focusing on internal medicine? Are there any resources available on surgery medicine? Could a similar analysis be done on surgery medicine data in Czechia? Do you expect the results to be similar?
2. Would it be possible to interpret the magnitude of the effects of the structural indicators from one of the models?
3. Regarding the variable hospital size, is there any particular reason why the size 15-30 000 patients is kept in the intercept? Would not it make more sense to keep the smallest or the largest size in the intercept for the sake of better interpretation?
4. Is it possible to perform some robustness check of the results, besides comparing it with other existing studies? Did you check the model's specification?

SUMMARY OF POINTS AWARDED *(for details, see below):*

CATEGORY		POINTS
Contribution	*(max. 30 points)*	30
Methods	*(max. 30 points)*	26
Literature	*(max. 20 points)*	14
Manuscript Form	*(max. 20 points)*	8
TOTAL POINTS	*(max. 100 points)*	**78**
GRADE	**(A – B – C – D – E – F)**	**C**

NAME OF THE REFEREE: Mgr. Petra Landovská

DATE OF EVALUATION: August 26, 2021

Digitally signed (August 26, 2021):
Petra Landovská

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Referee Signature

EXPLANATION OF CATEGORIES AND SCALE:

CONTRIBUTION: *The author presents original ideas on the topic demonstrating critical thinking and ability to draw conclusions based on the knowledge of relevant theory and empirics. There is a distinct value added of the thesis.*

METHODS: *The tools used are relevant to the research question being investigated, and adequate to the author's level of studies. The thesis topic is comprehensively analyzed.*

LITERATURE REVIEW: *The thesis demonstrates author's full understanding and command of recent literature. The author quotes relevant literature in a proper way.*

MANUSCRIPT FORM: *The thesis is well structured. The student uses appropriate language and style, including academic format for graphs and tables. The text effectively refers to graphs and tables and disposes with a complete bibliography.*

Overall grading:

TOTAL	GRADE
91 – 100	A
81 - 90	B
71 - 80	C
61 – 70	D
51 – 60	E
0 – 50	F