

Report on Master Thesis

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

Student:	Bc. Barbora Jakubová
Advisor:	PhDr. Lucie Bryndová
Title of the thesis:	Efficiency change in inpatient care provision under the DRG-based reimbursement mechanism in the Czech Republic

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

Short summary

The thesis deals with the temporal change in efficiency of resource use in Czech hospitals measured through the length of stay (LOS). Patient level information from 15 Czech hospitals over 2015 – 2019, i.e. 537,000 observations were analyzed.

Two sets of hypotheses were investigated, i.e. (1) whether the length of stay experienced a significant decrease overtime (2) whether variations in LOS decreased overtime causing standardization of care which was the primary intention of the DRG system upon its first development in 1960s in the USA.

In the LOS model, the author correctly discusses model selection based on the distribution of the dependent variable, finally choosing zero truncated negative binomial model as the test for no overdispersion was rejected. In one submodel, however, the test could not be reject, thus the author uses zero-truncated poisson model. Standard errors were clustered. For the analysis of the development of LOS variance overtime, the log-linear OLS was used.

Barbora finds out in her thesis that LOS decreases overtime and also its variance decreases pointing to standardization of care overtime, which may also be attributed to DRG, although such variable was not explicitly captured, only through a time dummy.

A number of robustness checks were carried out stratifying the sample into subgroups based on size, severity, type of disorder.

It was found out that medium sized hospitals experienced larger decrease of LOS. When disaggregating samples based on severity of cases, it was found that it is harder to influence LOS for severely ill patients – this subsample experienced no change in LOS as opposed to less severely ill patients.

The model for the development of the variance in LOS suggests standardization of LOS, however gradually, suggesting increasing homogeneity of treatment overtime

Contribution

The thesis is a standard exercise that contributes to empirical literature and may potentially be useful for policy-makers as well.

Methods

Methods used are appropriate, well-selected, justified and tested (see above).

Literature

The literature review is logical, Barbora nicely fits her research into both international and Czech empirical contexts. Also in the results and discussion sections, she nicely compares her results to empirical findings of other studies. Literature base is sufficiently rich, consistent and sufficiently supports Barbora's ideas.

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Manuscript form

The thesis was typeset in LaTeX which I highly appreciate. However, I would suggest, Barbora used sections on the left to navigate the reader easier through the text when one wants to jump back and forth when necessary. This can easily be done in LaTeX.

The thesis is well written in good English, however, there are some unnecessary fillers throughout the text which I suggest avoiding, such as:

P6 „as mentioned above“

P9 „as already mentioned“

P14 „as mentioned before“

Overall evaluation and suggested questions for the discussion during the defense

The thesis is a routine econometric exercise which proves the intention of DRG implementation. In other words, LOS and its standard deviation should decrease due to DRG by definition. I cannot imagine which provider would unnecessarily extend length of stay above that reimbursed. **I miss this discussion in the thesis. I suggest you talk about it more during the defense.**

Also, the conclusion of the paper is that having applied DRGs, the hospitals can treat more patients using the same capacity. **Again, I miss deeper discussion in the thesis.**

Specifically, the inpatient providers could have treated more patients even before DRG implementation. So what does this conclusion say? The only thing that the DRG did is pressure on efficiency as a rational decision-maker would not do anything that one does not get paid for. On the other hand, since the set up of the previous payment mechanisms allowed for inefficiency, the manager must have been extremely concerned with the excess demand to actually allow treatment of more patients as previously hospitals were paid solely based on historical prices which allowed only for a certain amount of production deviation (both increase or decrease).

Questions for the defense:

1. In 2021, 44 % of hospitals reimbursed through DRG. Was the entire amount of care analyzed reimbursed through DRG? In the thesis, the author attributes the desired change in LOS and LOS variance to DRG, however, the variable is not captured in any of the regressions. Explain whether you proxy DRG implementation and its lag through a time dummy since all care is reimbursed through DRG or if not all care is reimbursed through DRG, how otherwise is the effect of DRG implementation captured.
2. On p. 52 the author concludes that „the observed decline in LOS over time is a favorable trend towards one-day surgery“. Was one day care also captured in the data? Daycare is usually not captured in hospitalization data. Usually what you can capture in hospitalization data is shortened length of stay of inpatient care. Daycare is captured only if wrongly coded, but then it biases the sample. Explain.
3. On p. 53 the author says „Age was not a statistically significant determinant only in the model dealing with delivery“ Earlier in the text, the author explained that age groups 0-50 was a single category. In this case, there is not point including variable age into the LOS regression for delivery. Explain how age was captured in the LOS equation for delivery.

The thesis uses sufficient methodology and format to be defended at the IES FSV UK. In my view, the thesis fulfills the requirements for a master thesis at IES, Faculty of Social Sciences, Charles

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University, I recommend it for the defense and suggest a grade A. The thesis also have a potential to qualify for the DOT award if the Committee decides so.

The results of the Turnitin analysis do not indicate significant text similarity with other available sources.

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

CATEGORY	POINTS
<i>Contribution (max. 30 points)</i>	28
<i>Methods (max. 30 points)</i>	30
<i>Literature (max. 20 points)</i>	20
<i>Manuscript Form (max. 20 points)</i>	20
TOTAL POINTS (max. 100 points)	98
GRADE (A – B – C – D – E – F)	A

NAME OF THE REFEREE: PhDr. Jana Votápková, Ph.D.

DATE OF EVALUATION: June 14,2023

*Digitálně podepsáno 14.6.2023
Jana Votápková*

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