

Report on Bachelor / Master Thesis

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

Student:	Bc. Lenka Šlegerová
Advisor:	PhDr. Lucie Bryndová
Title of the thesis:	Health technology assessment: case study on breast carcinoma treatment in the Czech Republic

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

Please provide your assessment of each of the following four categories, summary and suggested questions for the discussion. The minimum length of the report is 300 words.

The declared aim of the thesis is to assess the cost-effectiveness of adding medication pertuzumab to the combination of trastuzumab+docetaxel within first-line therapy and to examine whether using individual data on Czech patients and the local economic conditions leads to different results from foreign studies. The analysis is applied to individuals' treatment data drawn from the Czech clinical practice provided from the national breast cancer registry.

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:

- 1) in an original method for assessing total costs of medical treatment. The author uses a semi-Markov model for survival analysis and defines four states that are associated with specific treatment phases, and hence costs, rather than with patient's health status (which is the common approach). The original approach contribution is depicted in transition diagrams on page 44, showing transitions of patients across states in the 2 treatment arms.
- 2) in broadening the limited number of English-written materials focusing on Czech regulation of prices and reimbursement of pharmaceuticals (chapters 2.3.1. and chapter 3 and related appendixes).

Methods

The tools used are relevant to the research question being investigated, and adequate to the author's level of studies.

While the original focus of the thesis was intended to be the process of the health technology assessment itself, the author mastered extensively in clinical data analysis. What seemed as a shortcoming of the thesis topic, turned out to be the very positive skill and knowledge demonstration of the author, which I value greatly: modelling of censored data (when the date of final, or persistent, state is unknown in the study data), modelling of progression of a disease in line with a health technology assessment requirements, i.e. in association with costs, and dealing with two clinical data samples that cannot be treated as random. In this respect, the author proves full ability of a high-level econometric analysis.

The thesis topic is comprehensively analyzed, since a health technology assessment requires also a cost analysis. In this, the author showed an original approach when proposing an innovative way to define differently the corresponding "costs states".

Literature

The thesis demonstrates author's full understanding and command of recent literature.

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The author shows high ability to perform relevant literature search and to use well the outcome of this search in the thesis itself. Very extensive and exhausted literature review focusing on all aspects of the whole health technology process, also in the Czech Republic, and the available and commonly used methods to model censored data, as presented in chapters 2 through 5.

The author quotes relevant literature in a proper way.

Manuscript form

The thesis is well structured, written in a very good English. The student uses appropriate language and style, including academic format for graphs and tables. The text effectively refers to graphs and tables as well as to several appendixes and disposes with a complete bibliography.

Material contained in the appendixes is in most cases highly relevant for the thesis outcome itself, but, nicely, the too many details do not disturb a reader while reading the main body of the thesis. As a reader, I appreciate the thesis can be easily read also by a non-medical-professional. The author explains well the necessary consequences and most commonly used concepts. The same applies to the econometric analyses, where common concepts of survival analyses and sojourn time modelling are presented.

Summary and suggested questions for the discussion during the defense

The author shows good knowledge of the economic as well as medical part of the issue, including the nature of the disease. She demonstrates understanding of the common treatment process, treatment procedures and is thus able to associate costs with it. In this light, the author proves to be competent to perform the adequate HTA exercise.

It needs to be mentioned that the author profited greatly from the expert consultations with physicians from the 3rd Medical School, without whom this thesis could not be carried out. Data from the national breast cancer registry were provided thanks to the active approach of MUDr. Kopečková who provided the author with valuable medical expert consultations. The established cooperation among IES and 3LF, as part of the CZEM project, turned up having positive impact in this thesis.

Moreover, in chapters 5 and 7 (survival models analysis description and application), the author proves her econometric skills well above the level satisfying the requirements for a Master thesis. The analysis was complicated by the fact that obtained data samples could not be viewed as random due to its clinical practice origin. The author took this fact into account and used other models (as described in chapter 5 - a semi-parametric method and a parametric method, next to the non-parametric method) to deal with it. Also, in Discussion chapter she focuses well on the shortcomings of her analysis and describes thoroughly its limitations.

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Suggestions for the discussion during the defense:

1) to present during the defense description of indicators that are commonly used to measure quality of life and explain which ones are used for the health technology assessment analyses.

2) to elaborate on the tests and econometric methods that are used in the thesis, as described in chapter 5, to deal with the potentially non-random data samples of the two treatment arms, given its clinical practice origin and the same time spam, as described in chapter 6.1

3) to discuss the limitations of the thesis analysis and the comparisons with other existing HTA studies on the studied medication, as presented in chapter 9.

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

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

NAME OF THE REFEREE: PhDr. Lucie Bryndová

DATE OF EVALUATION: January 13, 2019



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.*

<i>Strong</i>	<i>Average</i>	<i>Weak</i>
30	15	0

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.*

<i>Strong</i>	<i>Average</i>	<i>Weak</i>
30	15	0

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

<i>Strong</i>	<i>Average</i>	<i>Weak</i>
20	10	0

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.*

<i>Strong</i>	<i>Average</i>	<i>Weak</i>
20	10	0

Overall grading:

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