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THE REVIEW OF THE DOCTORAL THESIS OF JAKUB GOLIK

"MODELLING EXPECTED UTILITY FUNCTION OF CAREER CHOICE PROBLEM AMONG STUDENTS"

The subject of the review is the doctoral dissertation entitled "Modelling Expected Utility Function of Career Choice Problem among students", written by Jakub Golik at the Faculty of Management and Economics of the Gdansk University of Technology under the supervision of Prof. Krzysztof Zięba. The formal basis for its writing was a letter dated June 11th, 2023, from the Chairperson of the Scientific Field Council of Social Sciences of the Faculty of Management and Economics of the Gdansk University of Technology, prof. Tomasz Korol. The legal basis of the review is the act "Introductory provisions of the Act – The law on higher education and science of July 3rd 2018" (article 179). The evaluated doctoral thesis has been assigned to social science, the discipline of economics and finance.

In the review, I address the following six assessment criteria, leading to final evaluation:
1. The choice of the topic and adequacy of research problematisation
2. The contents and structure of the thesis
3. The acknowledgement of previous research and the level of theoretical grounding
4. The research design and methodological correctness
5. The quality of results and the contribution to the field
6. The critical attitude

These will allow a comprehensive and reliable assessment of the doctoral thesis.

(1) The choice of the topic and adequacy of research problematisation

The thesis relates to the career choice problem of students finalising their studies, which the author defines as "an unequivocal selection between becoming an entrepreneur or being an employee". The topic is both attractive and holds adequate research value. The discussion on career choices has been ongoing for a long time in the entrepreneurship field and has received considerable interest from scholars. The PhD candidate skilfully draws on previous academic developments to offer a broader (and fuller) understanding of the career choice problem. The overarching thesis of the dissertation is that becoming an entrepreneur can be seen as a career choice. A large body of literature supports this thesis.

Next to an interesting topic, the thesis offers a complex and comprehensive explanation of applying the experiential type of design and developing an Advanced type of Conjoint Analysis (Adaptive Choice-Based). Therefore, the thesis's contribution is claimed to be both theoretical and methodological, which is rare in dissertations and worth highlighting. From the research rigour stance, the thesis is complete, problem-based, theory-driven and methodologically correct.

By the adequacy of research problematisation, I understand how well a research problem is formulated and presented within a study. Taking this into consideration, I assess the chosen research problem as well-defined, clear, and relevant to the field of study. However, the argumentation used is sometimes too simplistic or "forcefully" adapted to the needs of the work. It is often due to the vast range of topics covered in the thesis and, despite the interdisciplinarity, the need to fit the thesis into the economics discourse. Most importantly, the research problem raised at the beginning of the dissertation is solved and properly described.

The research demands that scientific rigour and research problematisation is accompanied by relevance. What would be interesting to read more about in the thesis is the motivation of the study and its significance not only for research and methodological practice but also for a common understanding of a career choice. It would be refreshing to reflect more broadly on why it is essential to know what job attributes are central for students, to what extent they are compensative and how they are related to the entrepreneurial choices of young and educated individuals. Rooting the thesis in broader challenges of contemporary society would provide a better chance of justifying its relevance and meaning. This could be initiated in the Introduction of the thesis and then continued in the Conclusion part while the study results are known.

I also have doubts about the wording of the title of the thesis. I feel that the lack of the word "problem" in the title would be more logical. Also, the expression "function of career choice problem" raises my doubts.

(2) The contents and structure of the thesis

This thesis examines, describes, and analyses essential issues related to the theory of career choice models and the method based on Adaptive Choice-Based Conjoint Analysis. The Candidate identified gaps in the literature and has ambitions to develop new knowledge of career choice dilemmas (salary work versus entrepreneurship) as well as to advance the methodology of designing conjoint experiments in the entrepreneurship field. This is achieved by following the overreaching aims: to find out how students who are about to enter the labour market soon make decisions concerning their career choice, what drives them in particular, and how the expected utility of entrepreneurship differs among students of different courses.

The structure of the thesis is adequate and clear to follow. It corresponds to the aims of the thesis. The flow of the text is smooth and logical. The thesis consists of an Introduction, three chapters, an Appendix (including extensive data related to the methodological part), and a Supplement (including an example of the experimental design). Chapter 1 explores theories related to building a new model of career choice and its relevance to entrepreneurship. In particular, utility maximising models, entrepreneurial intentions models, self-efficacy concepts, and job attributes are discussed. Primarily much space has been devoted to the article by Douglas and Shepherd (2000), which formed the basis for the creation (extension) of the model and choice of methodology in the dissertation. Chapter 2 is purely methodological. It introduces conjoint analysis as a research method and the benefits of its application. It also includes a detailed explanation of the research design, containing a thick description of research questions and hypotheses. Chapter 3 presents the results of the study organised by groups of hypotheses and discusses the regional context of the study and its limitations. Surprisingly, the thesis does not have a separate part presenting the conclusions. These are placed in the last subsection of Chapter 3 and are not extensive. The placing of the conclusion in Chapter 3 also affects their nature, as they make insufficient reference to mentioned earlier theoretical considerations in entrepreneurship.

The assessed dissertation is relatively concise (185 pages long, but 87 are appendices). However, its length does not affect the content evaluation.

(3) The acknowledgement of previous research and the level of theoretical grounding

The thesis is an appropriate continuation of previous debates on career choice in entrepreneurship. It demonstrates a solid understanding of the state-of-the-art in the research area and the knowledge of the most critical and current literature. The thesis adequately refers to most seminal theories from economics, entrepreneurship and their intersection. The literature used is rich and appropriately selected. It confirms extensive knowledge of the field and a high level of research erudition.

The most influential paper, being the fundament of the thesis, is the theoretical one of Douglas and Shepherd published in the Journal of Business Venturing in 2000, where authors view entrepreneurship as a utility-maximising response. Their views are further developed in a consecutive empirical paper from 2002 published in Entrepreneurship Theory and Practice journal, referred to extensively in the thesis. Both papers are well-cited and influential for scholarship in the field. The PhD candidate describes both articles in detail and, importantly, critically analyses their theoretical assumptions and methods used.

What must be highlighted is that the study presented in the thesis is not replicative. It draws the core idea and fundaments of the career choice model from Douglas and Shepherd but develops it substantially. Jakub Golik adds new attributions to the existing model. This part of the study needs to receive a high appreciation. The PhD Candidate identified 328 job attributes descriptions originating from above 60 papers. As a result of the analysis and subsequent synthesis, he introduced four novel and adequate job attributes. These four new attributes are "Being able to a job through to completion", "Sense of responsibility", "Legal and financial responsibility", and Availability. All of them are well introduced, defined and discussed in the text, with much valuable material related to this part of the work found in the Appendix. This paved the way for a new theoretical model and then its empirical verification.

The weaker element of the theoretical part of the work is the subchapter on the development of entrepreneurial self-efficacy and entrepreneurial intention in Chapter 1, which could be more extensive and organised in a way that offers more clarity of the concepts and their relevance to the study. Some organising chart could be helpful. It is hard to understand from Chapter 1 how the presented knowledge on entrepreneurial intentions and entrepreneurial self-efficacy will be used with the career choice model. More links between entrepreneurship (understood as a career choice) and entrepreneurial intentions could be helpful. I also had an impression that an

important issue of the entrepreneurial self-efficacy scale of Linán and Chen (2009) should be presented in this part of the dissertation as it is further used in the empirical part of the study.

The subchapter reviewing selected economic career choice models of entrepreneurship is well-written. However, more argumentation on what grounds the PhD Candidate has selected the three most influential economic career choice models could be useful. In literature, there are many other approaches based on human capital theory. The subchapter on utility and career choice models in the literature is clear and comprehensive.

The multitude of theories and concepts described in all subchapters of Chapter 1 can cause the reader to get lost. It would be convenient to add an illustrative figure or graph presenting the study's rationale and the new career choice model as the subject of empirical validation.

(4) The research design and methodological correctness

Methodological issues are addressed in Chapter 2. Jakub Golik designs a conjoint experiment related to career choice and uses the advanced type of Conjoint Analysis, i.e. Adaptive Choice-Based Conjoint Analysis. At the beginning of this chapter, he develops six research questions. The first relates to the importance of each job attribute and the trade-offs between them for master's degree students in their last year. The remaining five questions help to explain the decision-making process in the context of entrepreneurship (they relate to entrepreneurial intentions, entrepreneurial self-efficacy concepts and the expected utility of entrepreneurship). They are all well-formulated but could be better justified from the theory perspective and concerning their relevance. Research questions are followed by hypotheses classified into three groups. The first group pertains to attributes included in the model and their utility (main hypothesis and seven partial hypotheses). The second group of hypotheses pertain to the relation between the attributes and entrepreneurial intention (main hypothesis and seven partial hypotheses). Finally, the third group of hypotheses pertain to the relation between the level of entrepreneurial intention, entrepreneurial self-efficacy and the courses taken by students (main hypothesis and three partial hypotheses). Again, more clarification and arguments for such a formulation of the hypotheses would be advisable as they should have a backup in theory or at least the logic of thought in constructing hypotheses could be provided.

In the next section of the chapter, the PhD Candidate explains the use of conjoint analysis as a research method and why he chooses Adaptive Conjoint Analysis. This is a very clear part of

the thesis, although sometimes too textbook-like. Nevertheless, it confirms the PhD Candidate's interest in the method *per se* and its application in economics. In the following sections, he comprehensively presents the development of the model (with definitions of attributes and their levels) and the design of the experiment. The chapter ends with the results of the pilot study.

As mentioned, the evaluated doctoral thesis claims to offer an important methodological input next to theoretical contribution. The PhD Candidate offers two significant methodological contributions:

(1) He implements modern Adaptive Choice-Based Conjoint Analysis with Hierarchical Bayesian estimation to study career choice in entrepreneurship.

(2) Since part-worth functions are not necessarily strictly monotonic, he criticises the approach with only two levels of attributions (high and low) and offers a Likert-scale type of levels (5) that better reflect the complexity of preference.

Both contributions to the discipline are justified and deserve a positive evaluation. However, a more comprehensive description of Hierarchical Bayesian estimation and its usefulness for the study would have been advisable.

My reservations towards the methodological part of the thesis relate to the following issues:

(1) I could not find a more extensive description of the sampling in the manuscript. Was it random sampling, as usually used in experiments or purposeful sampling? More information on students' demographics and backgrounds could help draw meaningful conclusions. I would also consider presenting the sample's descriptive statistics in the methodological chapter as part of the description of the research sample.

(2) I am not entirely convinced that the study is a pure example of an experiment, although it is very often stated in the thesis by the PhD Candidate. Indeed, it includes elements of experimental design, but an experiment in social science needs to follow many requirements. For example, more methodological considerations could be considered for mitigating potential confounding factors, control over the experiment, or information on a chosen intervention. In my view, the presented study design meets more the rationale of a quasi-experiment.

(3) In the thesis, the experimental group and pilot study are described, but there is no information on any control group. Was there a control group, and if so, what were its characteristics?

(5) The quality of results and the contribution to the field

The results and discussion around them are presented in Chapter 3 of the thesis. The findings are organised following three groups of hypotheses. In my view, alternatively or additionally, results could be described as answers to each research question. The verification of the hypotheses performed is appropriate and clearly reported.

However, the significance of the results and conclusions could be better articulated and referred to the general purpose of the thesis and all research questions. Building one coherent picture of results and answers to research questions would substantially increase the value of the thesis. In particular, a short and clear summary of findings on career choice is essential as a final element of the thesis. The manuscript has a thick technical description of results, but they are not always deepened enough and reflected upon. The interpretation of the results could go in many directions, but it should be rooted in the entrepreneurship theorem.

An essential part of the evaluation of the doctoral thesis is its research contribution, so answering the question: did the thesis research generate significant new knowledge in the field? In my view, the thesis fulfils this requirement on a theoretical and methodological level. The thesis extends knowledge on career choice in the context of entrepreneurship but also on the method based on Adaptive Choice-Based Conjoint Analysis (for the reasons mentioned earlier). To have a clearer view of the research contribution of the thesis, I suggest referring more to implications for theory, practice, education, and future research. Another recommendation is to present some aspects of the research's social relevance.

I appreciate a subchapter on regional context, but I would welcome more discussion on the profile of Polish students and those studying at the Gdansk University of Technology. What could also be interesting to read more about is the interpretation of the results from the perspective of the generation profile of respondents (called the Generation Z or Post-Millenials generation).

(6) Critical attitude

A doctoral candidate should be equipped to evaluate his and others' scientific output critically. Jakub Golik demonstrates a critical attitude towards previous research, theories, or methods, as well as he can formulate limitations of the study. The critical stance is visible mainly in Chapter 1 of the thesis, where the Candidate assesses other scholars' approaches to career choice.

Unfortunately, this was not pursued to the same extent in Chapter 3 when discussing and interpreting the results. A more polemic way of discussing both the others' research output and own results could add extra value to the study. In particular, the Candidate could have demonstrated the ability to interpret results in a broader context. Nevertheless, the author's ability to critical thinking, including interpreting the results and drawing conclusions, is sufficient for a doctoral thesis.

Conclusion

My summative assessment of the thesis includes a short review of its greatest strengths and weaknesses, followed by questions I would like to have answered during the public defence and a concluding statement.

The main strengths of the thesis are the original and well-stated aim of the thesis, the sound review of the literature, the clarity in writing and arguing, as well as novel findings. I particularly appreciate its actuality and comprehensiveness. Among the dissertation's strengths, I include the analytical approach to the research problem and the agility to navigate complex scientific methods. If one must indicate some weaknesses of the thesis, this would be an insufficient (however present) critical stance towards results, insufficient interpretation of findings in a broader context, superficial description of the research protocol in the empirical part of the thesis (especially concerning the research sample). Despite some critical notes, much of which is polemical, I consider Jakub Golik's doctoral thesis sound.

The issues I would like to have answered during the public defence are:
(1) Interpretation of research findings from a broader societal perspective and their relevance (why it is essential to know what has been evidenced by the findings and in what contexts this knowledge can be applied).
(2) Comparison of the evaluated study's design with a classic experiment in social research (based on the principal characteristics of the experiment).
(3) The assessment of the quality of own work and work process, including further research avenues.

In conclusion, I am of the opinion that the thesis reflects comprehensive and solid research work. It demonstrates that Jakub Golik is a skilled and independent researcher. In his thesis, he demonstrates high analytical and synthetic skills, substantial knowledge in the field, and

essential academic qualities demanded for research, like nonstandard thinking and problem-solving. The thesis does not raise any ethical concerns.

Therefore, I conclude that this dissertation satisfies the requirements for a PhD thesis. It meets the statutory requirements for doctoral dissertations and the criteria for an original solution to a scientific problem. I recommend that the Candidate should be allowed to publicly defend his thesis in the discipline of economics and finance.