



Topics of the dissertation thesis for the academic year 2024/2025

Supervisor: doc. RNDr. David Bartl, Ph.D. (e-mail: bartl@opf.slu.cz)

Topic of dissertation: Applications of non-standard analysis in economics and business management

Goal: The aim of the dissertation thesis is to study the possibilities of applications of non-standard analysis (hyperreal numbers or other sets of numbers including infinitesimal elements) in modelling and solving some decision-making situations in economics or business management. An example is the application of a linearly ordered ring with infinitesimal elements in risk management. The purpose, however, is to explore and study further areas of applications, such as in multi-criteria decision making, namely, in pairwise comparison methods. It is presumed that the methods of the work will include analysis, synthesis, induction, deduction, and modelling.

Supervisor: doc. RNDr. David Bartl, Ph.D. (e-mail: bartl@opf.slu.cz)

Topic of dissertation: Applications of statistical methods in multi-criteria decision making

Goal: The aim of the dissertation thesis is to explore the possibilities of applications of mathematical statistics methods (the theory of multiple regression analysis) in multi-criteria decision making, namely, in the pairwise comparison method and in the subsequent calculation of the priority vector. The goal is also to investigate the consequences of the choice of the priority vector by using the method of the linear regression (hypothesis testing and related questions), and to synthesize the results in the case of the entire Analytic Hierarchy Process (AHP). It is presumed that the methods of the work will include analysis, synthesis, induction, deduction, and modelling.

Supervisor: doc. Ing. Jarmila Duháček Šebestová, Ph.D. (e-mail: sebestova@opf.slu.cz)

Topic of dissertation: Social entrepreneurship in the digital age

Goal: The aim of the dissertation thesis is to identify, through case studies, the extent of the impact of digitalisation on social enterprises and to suggest how this opportunity or threat can be integrated into the social impact of social enterprises. Social entrepreneurship is a challenge for both the entrepreneur and the community whose problem they are solving. The research question is how the push for digitalisation will be reflected not only in legislation, but also in organisations that focus on developing the capabilities of people disadvantaged in the labour market, in line with the SDGs or the triple bottom line. The thesis will use literature review, market analysis, qualitative and quantitative research as well as analysing secondary sources.

Supervisor: doc. Ing. Jarmila Duháček Šebestová, Ph.D. (e-mail: sebestova@opf.slu.cz)

Topic of dissertation: The role of contracted/applied research in business strategy

Goal: The aim of the dissertation thesis is to identify barriers to mutual (non-)cooperation based on previous literature analysis and examples of good practice, and to suggest in which areas or in which model of cooperation it is possible under local conditions (designing a win-win strategy). The research question is whether collaboration or outsourcing of this activity to a specialised institution (HEI) would not be a way to support the submission of projects or advance innovation activities. What could such cooperation look like? How to design a win-win strategy for collaboration in the use of research methods? The thesis will use market analysis, qualitative and quantitative research as well as analysing secondary sources.

Supervisor: doc. Ing. Jana Janoušková, Ph.D. (e-mail: janouskova@opf.slu.cz)

Topic of dissertation: Tax burden on labor

Goal: The aim of the dissertation thesis is to evaluate the facts that affect the price of labor in the Czech Republic, which subsequently affects the efficiency and flexibility of the labor market and the cost of companies. The work can also be focused on a comparison of specifics when each country has a



distinctive tax and social system, and differences between the Scandinavian, Anglo-Saxon, and continental European models can be seen. Data from the database of the Ministry of Finance of the Czech Republic, Ministry of Labor and Social Affairs of the Czech Republic, OECD, Eurostat, or other publicly available databases can be used as part of the research. The application of advanced methods of econometric analysis is assumed.

Supervisor: doc. Ing. Jana Janoušková, Ph.D. (e-mail: janouskova@opf.slu.cz)

Topic of dissertation: Tax policy incentives and corporate philanthropy

Goal: The aim of the dissertation thesis is to evaluate the support of philanthropy by means of tax instruments on the part of states, illuminating the way in which these possibilities are used by tax subjects in comparison with EU countries (or OECD) and proposing recommendations for Czech legislation. Data from the database of the Ministry of Finance of the Czech Republic, OECD, Eurostat, or other publicly available databases can be used as part of research. The application of advanced methods of econometric analysis is assumed.

Supervisor: doc. Ing. Jana Janoušková, Ph.D. (e-mail: janouskova@opf.slu.cz)

Topic of dissertation: Tax reliefs and their effectiveness in the context of public finances

Goal: The aim of the dissertation thesis is to evaluate the effectiveness of tax instruments in the form of tax reliefs, which the state uses to support selected public policies (pension, pro-family policy, housing policy). The work will evaluate how these options are used by tax subjects. The work can compare the use of tax reliefs with EU (or OECD) countries and propose recommendations for Czech legislation. Data from the database of the Ministry of Finance of the Czech Republic, OECD, Eurostat, or other publicly available databases can be used as part of research. The application of advanced methods of econometric analysis is assumed.

Supervisor: doc. Ing. Jana Janoušková, Ph.D. (e-mail: janouskova@opf.slu.cz)

Topic of dissertation: Real Estate Taxation in the Czech Republic

Goal: The aim of the dissertation thesis is to evaluate the taxation of immovable property in the Czech Republic, the position of the tax on immovable property in municipal budgets, and the use of the possibilities of legislative instruments leading to an increase in the income of this tax. The Czech Republic is among the countries with the lowest share of real estate tax in total tax revenues within the EU countries, and the approach to real estate taxation is currently often discussed. Data from the database of the Ministry of Finance of the Czech Republic, OECD, Eurostat, or other publicly available databases can be used as part of research. The application of advanced methods of econometric analysis is assumed.

Supervisor: doc. Ing. Martin Klepek, Ph.D. (e-mail: klepek@opf.slu.cz)

Topic of dissertation: Customer base modelling using negative binomial distribution

Goal: The aim of the dissertation thesis is to model the evolution of the customer base in direct relation to brand growth. The NBD model describes the structure of the customer base of most companies very accurately. It shows the majority of customers in the period under study are those who have purchased from the firm only once. However, its use has so far been static despite the model's potential to visualise brand growth dynamics. Secondary data of the firms will be used in the research. By selecting less traditional markets such as subscription, B2B, sports or culture, it will be possible to observe boundary conditions of the NBD model that would demonstrate its limited validity in certain product categories.

Supervisor: doc. Ing. Martin Klepek, Ph.D. (e-mail: klepek@opf.slu.cz)

Topic of dissertation: Determinants of the dynamics of online food shopping development

Goal: The aim of the dissertation thesis is to identify the key drivers of the development of online grocery shopping and to highlight their differential impact. The research is set within a broader marketing framework and seeks to understand both consumer behaviour and the implementation



challenges of retailers. The methodological approach to the solution starts with qualitative research to gain in-depth insights from consumers and experts, followed by quantitative data collection to validate and generalise the findings from the qualitative research. The mixed methods will contribute to understanding the relatively low willingness of the market to adopt online grocery shopping.

Supervisor: doc. Ing. Martin Klepek, Ph.D. (e-mail: klepek@opf.slu.cz)

Topic of dissertation: The use of influencers in the marketing communication of brands on social networks

Goal: The aim of the dissertation thesis is to determine the factors of successful social media campaigns in which brands use influencers. Social networks have become a battleground for customer attention and brand awareness, with influencers being a popular sales promotion tool. The results of this thesis will help marketers to effectively reach influencers, plan collaborations and evaluate campaign impact. Methods used will include campaign performance analysis as well as a method of interviewing key research subjects which are the influencers themselves as well as marketing managers.

Supervisor: doc. Ing. Iveta Palečková, Ph.D. (e-mail: paleckova@opf.slu.cz)

Topic of dissertation: Changes in the behaviour and performance of the financial institutions in the context of recent developments

Goal: The aim of the dissertation thesis is to identify changes in the behaviour and performance of financial institutions in the context of current developments. Using statistical methods (e.g. Difference in differences), the thesis will estimate the impact of current developments such as the COVID-19 pandemic, the Russia-Ukraine conflict, the currently changing macroeconomic environment, and changes in regulation on financial institutions. The differential impact of these factors across countries will be explored. Moreover, thesis will focus on the digitalization in banking, the use of artificial intelligence as one of the trends affecting the behavior and performance of financial institutions.

Supervisor: doc. Ing. Petra Růčková, Ph.D. (e-mail: ruckova@opf.slu.cz)

Topic of dissertation: The influence of selected factors on the economic value added (EVA) of enterprises of different sizes

Goal: The aim of the dissertation thesis is to find out how different size of enterprises contributes to the creation of economic value added. The subject of interest will be profitability ratios, cost of capital and factors that may influence them, such as availability of financing sources or solvency. The analysis is performed by dynamic panel regression emphasizing the GMM method due to the relatively short time series of company data. The size of enterprises will be a crucial factor in this respect, with the primary focus on very large, large and medium-sized enterprises, considering the availability of data. The data can also be manipulated on the basis of ownership structure.

Supervisor: doc. Ing. Petra Růčková, Ph.D. (e-mail: ruckova@opf.slu.cz)

Topic of dissertation: The impact of the Covid-19 pandemic on the economic performance of manufacturing companies in selected European countries

Goal: The aim of the dissertation thesis is to define the differences in the impact of Covid-19 disease on the economic performance of manufacturing enterprises in selected European countries between NUTS-3 regions, based on a difference-in-differences (DiD) analysis. Manufacturing enterprises in Europe will be used for the analysis, and their performance and impacts on performance will be measured using indicators derived from enterprise performance studies.

Supervisor: prof. Ing. Daniel Stavárek, Ph.D. (e-mail: stavarek@opf.slu.cz)

Topic of dissertation: Quality of management and ownership structure as determinants of economic performance, productivity and efficiency of companies

Goal: The aim of the dissertation is to find out what effect the quality of management and ownership structure has on the economic performance, productivity and efficiency of companies. The traditional concept of X-efficiency provides a fundamental basis for incorporating management quality



and ownership structure into the modelling of technical efficiency, performance and productivity. Using stochastic and non-parametric approaches, company data, management characteristics and parameters of the institutional environment, the analysis will be carried out in selected sectors with an international comparison.

Supervisor: doc. Mgr. Petr Suchánek, Ph.D. (e-mail: suchanek@opf.slu.cz)

Topic of dissertation: Artificial Intelligence in Business Management System

Goal: The aim of the dissertation thesis (DT) is to research the possibilities and applications of artificial intelligence (AI) in the control system to enhance its efficiency and achieve better results. The starting point will be an analysis (literature review of sources and qualitative and quantitative research) of current trends in AI utilization, followed by the identification of selected areas and methods for implementing AI for specific purposes. The output of the DT will be the design of a model and implementation of selected AI tools for specific scenarios and problem areas, simulation and experimental evaluation of their effectiveness, and the definition of generally applicable patterns.

Supervisor: doc. Mgr. Petr Suchánek, Ph.D. (e-mail: suchanek@opf.slu.cz)

Topic of dissertation: Real-Time Decision-Making Using Artificial Intelligence in E-commerce

Goal: The aim of the dissertation thesis (DT) is to research the possibilities and applications of artificial intelligence (AI) within e-commerce systems to support real-time automated decision-making. The starting point will be an analysis (literature review of sources and qualitative and quantitative research) of current trends in AI utilization in the given field. The output of the DT will be the design of a model and implementation of AI for selected functionalities such as product information retrieval, offer personalization, product recommendations, dynamic pricing adjustments, etc., simulation and experimental evaluation of the proposed models, and the generalization of their applicability.

Supervisor: doc. Mgr. Petr Suchánek, Ph.D. (e-mail: suchanek@opf.slu.cz)

Topic of dissertation: The Application of Business Intelligence in an Enterprise

Goal: The aim of the dissertation thesis (DT) is to research the possibilities and applications of Business Intelligence (BI) tools and approaches within an enterprise to achieve better economic results. The starting point will be an analysis (literature review of sources and qualitative and quantitative research) of current trends in BI utilization in businesses. The output of the DT will be the design of an architecture model and the implementation of BI within the enterprise to achieve better results by implementing decisions based on the outputs of modern advanced data analytics methods.

Supervisor: doc. RNDr. Ing. Roman Šperka, Ph.D. (e-mail: sperka@opf.slu.cz)

Topic of dissertation: Simulation models and their use for decision support in business practice

Goal: The aim of the dissertation thesis is to define and design simulation models of business environment and ongoing business processes for decision support with emphasis given on marketing. Selected business processes will be analysed with respect to the market conditions and then implemented in the form of simulation design models. Simulation models will incorporate multiagent systems. Simulation results will be verified by means of changing different parameters of simulation experiments.

Supervisor: doc. RNDr. Ing. Roman Šperka, Ph.D. (e-mail: sperka@opf.slu.cz)

Topic of dissertation: Process mining and its implementation in business processes

Goal: The aim of the dissertation thesis is to design a process mining visualisation method. Real data of a specific enterprise or company in the form of log files of chosen business processes will be analysed with different types of visualisation methods and process perspectives. Most promising approaches will be used to design a novel visualising method for the presentation of process mining outputs with emphasis given on time drivers. Obtained results will be synthesised for a better performance of running business processes.