CORVINUS UNIVERSITY of BUDAPEST

Quarterly Corvinus Research Highlights

January – March 2022

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Foreword

Dear Colleagues,

It is a great honour to present the May 2022 issue of the Quarterly Corvinus Research Highlights, a series launched in March 2022. The current, second issue is a splendid selection of 37 quality journal articles and eleven book chapters written by Corvinus Faculty members. It can be also called a ‘finest selection’ as the journal articles were chosen out of 88 Q1 and Q2 publications.

In case of journal articles, the selection criteria were set up of the following conditions: the selected journal articles 1) have been published in international Q1 journals 2) were uploaded to the Hungarian Scientific Bibliography Database (MTMT) between January and March 2022 3) are written by authors with Corvinus affiliation and 4) have a Corvinus authorship rate of at least 20%.

As indicated above, it is crucial – and thus I encourage all of you – to upload your works to MTMT so that they can be included in the next issues of the Annual and the Quarterly Corvinus Research Highlights.

The Quarterly Corvinus Research Highlights also include eleven book chapters the publishers of which are also enlisted in the evaluation criteria of the Corvinus Research Excellence Award (CKK) and which have a Corvinus authorship rate of at least 20%.

The final list of the Highlights was compiled by a Committee chaired by Tamara Keszey Vice-Rector for Research. The Committee members, Réka Benczes, Valentin Brodszky and Tamás Kocsis, were the delegates of the Institutes and joined by Zsuzsanna Nagy, Director General of the University Library.

The journal articles are listed in the order of the journal rankings, while the book chapters are listed in the alphabetical order of the authors.

Reading through the Quarterly Corvinus Research Highlights of January – March 2022, it fills me both with pride and certainty that the number of high-quality Corvinus journal publications and book chapters will continue to increase in the future as well.

I congratulate all the authors of the Highlights on their excellent achievements and wish all of you continued research successes.

Sincerely,

Dr Tamara Keszey

Vice-Rector for Research

Journal articles

Zrubka, Zsombor; Csabai, István; Hermann, Zoltán; Golicki, Dominik; Prevolnik-Rupel, Valentina; Ogorevc, Marko; Gulácsi, László; Péntek, Márta

Predicting Patient-Level 3-Level Version of EQ-5D Index Scores From a Large International Database Using Machine Learning and Regression Methods

VALUE IN HEALTH 1098-3015 1524-4733

Objectives

This study aimed to evaluate the performance of machine learning and regression methods in the prediction of 3-level version of EQ-5D (EQ-5D-3L) index scores from a large diverse data set.

Methods

A total of 30 studies from 3 countries were combined. Predictions were performed via eXtreme Gradient Boosting classification (XGBC), eXtreme Gradient Boosting regression (XGBR) and ordinary least squares (OLS) regression using 10-fold cross-validation and 80%/20% partition for training and testing. We evaluated 6 prediction scenarios using 3 samples (general population, patients, total) and 2 predictor sets: demographic and disease-related variables with/without patient-reported outcomes. Model performance was evaluated by mean absolute error and percent of predictions within clinically irrelevant error range and within correct health severity group (EQ-5D-3L index <0.45, 0.45-0.926, >0.926).

Results

The data set involved 26 318 individuals (clinical settings n = 6214, general population n = 20 104) and 26 predictor variables plus diagnoses. Using all predictors and the total sample, mean absolute error values were 0.153, 0.126, and 0.131, percent of predictions within clinically irrelevant error range were 47.6%, 39.5%, and 37.4%, and within the correct health severity group were 56.3%, 64.9%, and 63.3% by XGBC, XGBR, and OLS, respectively. The performance of models depended on the applied evaluation criteria, the target population, the included predictors, and the EQ-5D-3L index score range.

Conclusions

Regression models (XGBR and OLS) outperformed XGBC, yet prediction errors were outside the clinically irrelevant error range for most respondents. Our results highlight the importance of systematic patient-reported outcome (EQ-5D) data collection. Dialogs between artificial intelligence and outcomes research experts are encouraged to enhance the value of accumulating data in health systems.

https://doi.org/10.1016/j.jval.2022.01.024

Högberg, Björn; Horn, Dániel

National high-stakes testing, gender, and school stress in Europe: a difference-in-differences analysis

EUROPEAN SOCIOLOGICAL REVIEW 0266-7215 1468-2672

In this study, we ask if high-stakes testing affects school-related stress among students and if there are gender differences in these effects. Students' results on high-stakes tests can have long-term consequences for their future educational trajectories and life chances. For girls, who tend to have higher educational aspirations and tend to gain more from higher education, the stakes involved may be even higher. The use of high-stakes testing has increased across Europe, but little is known about their consequences for stress or wellbeing. We combine macro-level data on high-stakes testing with survey data on more than 300,000 students aged 11–15 years in 31 European countries from three waves (2002, 2006, and 2010) of the Health Behaviour in School-aged Children study. With variation in high-stakes testing across countries, years, and grade levels, we use a quasi-experimental difference-in-differences design for the identification of causal effects. We find that high-stakes testing increases the risk of moving from low to high levels of self-reported school stress by 4 percentage points, or by 12 per cent relative to baseline values. This effect is somewhat larger for girls, though not significantly so. The results are robust to a range of sensitivity analyses.

https://doi.org/10.1093/esr/jcac009

Gligorić, Dragan; Preradović Kulovac, Dragana; Mićić, Ljubiša; Pepić, Anđela

Price and income elasticity of cigarette demand in Bosnia and Herzegovina by different socioeconomic groups

TOBACCO CONTROL 0964-4563

Background Tobacco tax policy in Bosnia and Herzegovina (B&H) assumes a gradual annual increase in specific excise taxes on cigarettes. However, it is insufficient to reduce significantly consumption. This paper examines effects of the increase in cigarette prices and disposable income on cigarette demand in B&H by different income consumer groups.

Methods Based on the Household Budget Surveys and microdata from 2007, 2011 and 2015, we employed logit model to estimate prevalence and Deaton's model to estimate intensity elasticity of cigarette demand for the sample of 21 424 households (9953 are smoking households) by different income groups. We used obtained elasticities and estimated the impact of tax increase on cigarette consumption and government revenue in three tax increase scenarios.

Results Ten per cent price increase would reduce the consumption of low-income households by 14%, as opposed to 9.9% for middle-income and 7% for high-income households. Low-income households would significantly increase the demand for cigarettes compared with high-income households if income increased. Increase in the specific excise tax by 25% would reduce cigarette consumption and increase government revenue, while the low-income group would experience a reduction in tax burden.

Conclusions Changes in prices have different impacts on tobacco prevalence and consumption of low-income compared with middle-income and high-income socioeconomic groups. Low-income households are most responsive to changes in prices and income. Thus, the poor in B&H would benefit from an increase in tobacco excise taxes and price.

https://doi.org/10.1136/tobaccocontrol-2021-056881

Brown, Eric; Piroska, Dóra

Governing Fintech and Fintech as Governance: The Regulatory Sandbox, Riskwashing, and Disruptive Social Classification

NEW POLITICAL ECONOMY 1356-3467 1469-9923

This article evaluates the sandbox approach as a regulatory answer to the challenges financial technology brings to finance and social relations. Taking fintech as a sociotechnological phenomenon embedded in discourses of solutionism and innovation, we show that the regulatory sandbox accepts these discourses. Instead of containing fintech, the sandbox is designed in a way that advances riskwashing of fintech even if it is disguised as risktaming. Next, we demonstrate fintech's problematic nature that regulation should control. First, we propose that through its information processing capacity, fintech accelerates the transition from bank-based to market-based finance. Second, we demonstrate that fintech as part of a fintech-financialization apparatus has catallactic and value-extracting governance effects. Third, inserting the fintech-financialization apparatus into Fourcade and Healy's argument on the social stratification effect of the data-driven economy, we argue that it also has a socially disruptive potential. We critique the regulatory sandbox for being a facilitator to this process and recommend increasing the number and power of veto players and veto points in complex regulatory regimes.

https://doi.org/10.1080/13563467.2021.1910645

Szádoczki, Zsombor; Bozóki, Sándor; Tekile, Hailemariam Abebe

Filling in pattern designs for incomplete pairwise comparison matrices: (quasi-)regular graphs with minimal diameter

OMEGA-INTERNATIONAL JOURNAL OF MANAGEMENT SCIENCE 0305-0483 1873-5274

Pairwise comparisons have become popular in the theory and practice of preference modelling and quantification. In case of incomplete data, the arrangements of known comparisons are crucial for the quality of results. We focus on decision problems where the set of pairwise comparisons can be chosen and it is designed completely before the decision making process, without any further prior information. The objective of this paper is to provide recommendations for filling patterns of incomplete pairwise comparison matrices based on their graph representation. The proposed graphs are regular and quasi-regular ones with minimal diameter (longest shortest path). Regularity means that each item is compared to others for the same number of times, resulting in a kind of symmetry. A graph on an odd number of vertices is called quasi-regular, if the degree of every vertex is the same odd number, except for one vertex whose degree is larger by one. We draw attention to the diameter, which is missing from the relevant literature, in order to remain the closest to direct comparisons. If the diameter of the graph of comparisons is as low as possible (among the graphs of the same number of edges), we can decrease the cumulated errors that are caused by the intermediate comparisons of a long path between two items. Contributions of this paper include a list containing (quasi-)regular graphs with diameter 2 and 3 up until 24 vertices. Extensive numerical tests show that the recommended graphs indeed lead to better weight vectors compared to various other graphs with the same number of edges. It is also revealed by examples that neither regularity nor small diameter is sufficient on its own, both properties are needed. Both theorists and practitioners can utilize the results, given in several formats in the appendix: plotted graph, adjacency matrix, list of edges, 'Graph6' code.

https://doi.org/10.1016/j.omega.2021.102557

Ágoston, Kolos Csaba; Csató, László

Inconsistency thresholds for incomplete pairwise comparison matrices

OMEGA-INTERNATIONAL JOURNAL OF MANAGEMENT SCIENCE 0305-0483 1873-5274

Pairwise comparison matrices are increasingly used in settings where some pairs are missing. However, there exist few inconsistency indices for similar incomplete data sets and no reasonable measure has an associated threshold. This paper generalises the famous rule of thumb for the acceptable level of inconsistency, proposed by Saaty, to incomplete pairwise comparison matrices. The extension is based on choosing the missing elements such that the maximal eigenvalue of the incomplete matrix is minimised. Consequently, the well-established values of the random index cannot be adopted: the inconsistency of random matrices is found to be the function of matrix size and the number of missing elements, with a nearly linear dependence in the case of the latter variable. Our results can be directly built into decision-making software and used by practitioners as a statistical criterion for accepting or rejecting an incomplete pairwise comparison matrix.

https://doi.org/10.1016/j.omega.2021.102576

Körösényi, András; Patkós, Veronika; Plesz, Bendegúz; Susánszky, Pál

The potentials of heresthetic and rhetoric in an open framing situation

EUROPEAN POLITICAL SCIENCE REVIEW 1755-7739 1755-7747

To win a policy debate, political actors may apply two analytically distinct counterframing strategies, rhetoric and heresthetic. Rhetoric is when counterarguments are formulated in the original dimension of the debate, while heresthetic is using arguments in a different dimension compared to the original frame. Although both rhetoric and heresthetic are ubiquitous phenomena in the process of public opinion formation, there are no general rules to specify their efficacy. Drawing on a survey experiment carried out in Hungary in 2020 (N = 2000), this paper uncovers the factors determining the effect of the two strategies. Introducing a conceptual distinction between open and trade-off framing situations, the paper demonstrates that the structure of the situation matters. While heresthetic has a robust effect in trade-off framing situations, rhetoric may have a strong impact in open framing situations. Moreover, the effectiveness of counterframing depends on the party affiliation of respondents and the strength of their related attitudes

https://doi.org/10.1017/S1755773921000321

Bíró, Anikó; Branyiczki, Réka; Elek, Péter

The effect of involuntary retirement on healthcare use

HEALTH ECONOMICS 1057-9230 1099-1050

We analyze the causal effect of involuntary retirement on detailed indicators of healthcare use and mortality. We leverage a pension reform in Hungary which forced public sector workers above the statutory retirement age to full time retirement. Using rich administrative data, we find that on the 3-year horizon, involuntary retirement decreases the number of primary care doctor visits, the use of systemic antiinfectives and respiratory drugs, and the non-zero spending on antiinfectives, the drugs of the alimentary tract and metabolism and of the cardiovascular system. The impact on the latter two drug categories is driven by the drop in income due to involuntary retirement. We conclude that there is little evidence for health deteriorating effects of involuntary retirement and discuss the possible mechanisms behind our results.

https://doi.org/10.1002/hec.4493

Chikán, Attila; Czakó, Erzsébet; Kiss-Dobronyi, Bence; Losonci, Dávid

Firm Competitiveness: a General Model and a Manufacturing Application

INTERNATIONAL JOURNAL OF PRODUCTION ECONOMICS 0925-5273

Competitiveness of firms is studied mostly from a strategic management perspective. It is only rarely a subject of analysis from the viewpoint of operations. In this paper, we aim to connect these two approaches using the resource-based view of the firm, popularly called RBV theories.

First, we provide a comprehensive definition of firm competitiveness and propose a conceptual index (Firm Competitiveness Index or FCI) to measure it, based on the theory of dynamic capabilities.

Further, we demonstrate the use of the FCI concept, with an application to the Hungarian manufacturing sector, utilizing survey responses from a sample of 113 firms collected as part of an ongoing research project focusing on competitiveness of the Hungarian industry. We employ exploratory- and confirmatory factor analysis to construct a context-specific FCI indicator on this sample.

Finally, we explore the relationship between the constructed FCI, and thus a concept of competitiveness, and capabilities of the production area. Hierarchical regression analysis is employed to investigate this relationship. We posit this as a means to empirically test the perceived contribution of functional areas to the overall firm-level competitiveness.

We find a positive impact of the dynamic production capabilities on the firm's perceived competitiveness but find no significant relationship between ordinary production capabilities and firm-level competitiveness.

https://doi.org/10.1016/j.ijpe.2021.108

Pató, Zsuzsanna; Mezősi, András; Szabó, László

Is border carbon adjustment the right tool for the power sector?

CLIMATE POLICY 1469-3062 1752-7457

Carbon leakage occurs in any carbon pricing regime that is not global, which means all of them so far. That is inherently unfair to sectors that are subject to a carbon price but compete with those that are not. The European Green Deal aims to rectify the problem in the EU Emissions Trading System (ETS) by moving beyond the current second (or third) best option, which allocates emissions quotas for free for industrial sectors, and by putting a price on carbon at the EU border for selected but not yet named sectors. Our recent model-based analysis compares the impact of a future border carbon adjustment (BCA) mechanism for the power sector with the option of extending the EU ETS to countries exporting power to the EU. We demonstrate how differences in the two policy tools translate into markedly different impacts. We conclude that expanding the geographical scope of the EU ETS is a more effective climate policy tool than a BCA. First, it would reduce emissions, while a BCA would not. Second, emission trading brings real competition: Regions neighbouring the EU will be better integrated into the EU single market with a level playing field and lower greenhouse gas emissions. On the other hand, the BCA would fence off the EU power sector and increase greenhouse gas emissions. Third, compared to a border carbon tax, expanding the ETS also yields more revenue to exporting neighbouring countries facing higher-than-average challenges to change their fossil-heavy power systems.

https://doi.org/10.1080/14693062.2022.2043819

Aquaro, Michele; Damioli, Giacomo; Lengyel, Balázs

Innovative mergers and acquisitions and the broker regions of European integration

REGIONAL STUDIES 0034-3404 1360-0591

Cross-regional mergers and acquisitions (M&A) transfer control and diffuse knowledge across space, which facilitates the integration of business systems. We analyse about 40,000 cross-regional acquisitions in Europe completed between 2003 and 2017 and distinguish innovative and non-innovative M&A. Both types of deals cluster into communities constituted by countries or groups of neighbouring countries. However, an increasing proportion of deals connect different communities, especially for innovative M&A. More populous and richer regions host more acquiring and target companies and thus broker communities. Research and development expenditure and skilled human capital are additional factors favouring brokerage of regions by attracting acquirers.

https://doi.org/10.1080/00343404.2021.1998418

Fuduric, Morana; Varga, Akos; Horvat, Sandra; Skare, Vatroslav

The ways we perceive

JOURNAL OF BUSINESS RESEARCH 0148-2963 1873-7978

Private label market shares are continuously increasing all around the world challenging manufacturer brands in different product categories. While investments in quality, design, and marketing communication of private labels have positively influenced consumer perceptions, manufacturer brands still hold the dominant position when it comes to brand preference.

However, there are only a few studies on consumers' explicit and implicit brand attitudes that produced inconsistent results. We conducted four studies in three product categories and five countries using implicit association test (IAT) to explore implicit and explicit attitudes towards private labels and manufacturer brands and their ability to predict purchase intention. Our findings indicate that the IAT can be used to measure implicit brand preferences and that consumers both implicitly and explicitly perceive manufacturer brands more positively. However, implicit measurers, compared to explicit, do not have a statistically significant predictive power when it comes to purchase intention of private labels.

https://doi.org/10.1016/j.jbusres.2021.12.033

Horn, Dániel; Kiss, Hubert János; Lénárd, Tünde

Gender differences in preferences of adolescents

JOURNAL OF ECONOMIC BEHAVIOR & ORGANIZATION 0167-2681

In this study, we estimate unadjusted and adjusted gender gaps in time preference, risk attitudes, altruism, trust, trustworthiness, cooperation, and competitiveness using data on 1088 high school students from 53 classes. These data, collected by running incentivized experiments in Hungarian classrooms, are linked to an administrative data source on the students' standardized test scores, grades and family background. After taking into account class fixed effects, we find that females are significantly more altruistic, but are less present biased, less risk tolerant, less trusting, less trustworthy, and less competitive than males. At the same time we do not observe significant gender differences in patience, time inconsistency and cooperation at the 5% significance level. We also show that most of these initial gender differences do not change even if we control for age, family background, cognitive skills and school grades in a regression framework. We risk over-control when we include the time spent on each task as well as the other preference domains in our regressions, but the gender gap remains significant in social preferences (altruism, trust and trustworthiness), present bias and competition.

https://doi.org/10.1016/j.jebo.2021.12.015

Lehoczki, Bernadett

Semi-periphery regionalisms in a changing world order: the case of Mercosur and Visegrad Group

THIRD WORLD QUARTERLY 0143-6597 1360-2241

After the 'unipolar moment' of the 1990s, the emerging multipolar world order has brought a new environment for regional organisations, which they are adjusting to. Mercosur and Visegrad Group, with semi-peripheral member states, are both categorised as intermediate regions with close institutionalised and cultural links to the Western world, while structural political and economic features distinguish them from the core regions. Carrying out a comparative analysis, the article's research question is: How have leadership, objectives and actorness changed in the case of Mercosur and Visegrad Group since 2000 as a response to the changing world order? A case study analysis explains the similarities and differences between Mercosur's and Visegrad Group's responses to and performance in the changing world order. Criticisms towards the traditional partners, shifting agendas, a search for alternatives beyond the Western model of market democracy and building links with emerging partners are the most essential similarities of Mercosur's and Visegrad Group's responses.

https://doi.org/10.1080/01436597.2021.2024757

Ágoston, Kolos Csaba; Biró, Péter; Kováts, Endre; Jankó, Zsuzsanna

College admissions with ties and common quotas

EUROPEAN JOURNAL OF OPERATIONAL RESEARCH 0377-2217 1872-6860

Admission to universities is organised in a centralised scheme in Hungary. In this paper we investigate two major specialities of this application: ties and common quotas. A tie occur when some students have the same score at a programme. If not enough seats are available for the last tied group of applicants at a programme then there are three reasonable policies used in practice: 1) all must be rejected, as in Hungary 2) all can be accepted, as in Chile 3) a lottery decides which students are accepted from this group, as in Ireland. Even though student-optimal stable matchings can be computed efficiently for each of the above three cases, we developed (mixed) integer programming (IP) formulations for solving these problems, and compared the solutions obtained by the three policies for a real instance of the Hungarian application from 2008. In the case of Hungary common quotas arise from the faculty quotas imposed on their programmes and from the national quotas set for state-financed students in each subject. The overlapping structure of common quotas makes the computational problem of finding a stable solution NP-hard, even for strict rankings. In the case of ties and common quotas we propose two reasonable stable solution concepts for the Hungarian and Chilean policies. We developed (mixed) IP formulations for solving these stable matching problems and tested their performance on the large scale real instance from 2008 and also for one from 2009 under two different assumptions. We demonstrate that the most general case is also solvable in practice by IP technique.

https://doi.org/10.1016/j.ejor.2021.08.033

Darvay, Zsolt; Illés, Tibor; Rigó, Petra Renáta

Predictor-corrector interior-point algorithm for $P * (\kappa)$ -linear complementarity problems based on a new type of algebraic equivalent transformation technique

EUROPEAN JOURNAL OF OPERATIONAL RESEARCH 0377-2217 1872-6860

We propose a new predictor-corrector (PC) interior-point algorithm (IPA) for solving linear complementarity problem (LCP) with $P_*(\kappa)$-matrices. The introduced IPA uses a new type of algebraic equivalent transformation (AET) on the centering equations of the system defining the central path. The new technique was introduced by Darvay and Takács (2018) for linear optimization. The search direction discussed in this paper can be derived from positive-asymptotic kernel function using the function $\varphi(t)=t^2$ in the new type of AET. We prove that the IPA has $O((1+4\kappa)\sqrt{n}\log \frac{3n\mu^0}{4\varepsilon})$ iteration complexity, where κ is an upper bound of the handicap of the input matrix. To the best of our knowledge, this is the first PC IPA for $P_*(\kappa)$-LCPs which is based on this search direction.

https://doi.org/10.1016/j.ejor.2021.08.039

Csóka, Péter; Illés, Ferenc; Solymosi, Tamás

On the Shapley value of liability games

EUROPEAN JOURNAL OF OPERATIONAL RESEARCH 0377-2217 1872-6860

In a liability problem, the asset value of an insolvent firm must be distributed among the creditors and the firm itself, when the firm has some freedom in negotiating with the creditors. We model the negotiations using cooperative game theory and analyze the Shapley value to resolve such liability problems. We establish three main monotonicity properties of the Shapley value. First, creditors can only benefit from the increase in their claims or of the asset value. Second, the firm can only benefit from the increase of a claim but can end up with more or with less if the asset value increases, depending on the configuration of small and large liabilities. Third, creditors with larger claims benefit more from the increase of the asset value. Even though liability games are constant-sum games and we show that the Shapley value can be calculated directly from a liability problem, we prove that calculating the Shapley payoff to the firm is NP-hard.

https://doi.org/10.1016/j.ejor.2021.10.012

Burka, Dávid; Puppe, Clemens; Szepesváry, László; Tasnádi, Attila

Voting

EUROPEAN JOURNAL OF OPERATIONAL RESEARCH 0377-2217 1872-6860

Voting rules can be assessed from quite different perspectives: the axiomatic, the pragmatic, in terms of computational or conceptual simplicity, susceptibility to manipulation, and many others aspects. In this paper, we take the machine learning perspective and ask how prominent voting rules compare in terms of their learnability by a neural network. To address this question, we train the neural network to choosing Condorcet, Borda, and plurality winners, respectively. Remarkably, our statistical results show that, when trained on a limited (but still reasonably large) sample, the neural network mimics most closely the Borda rule, no matter on which rule it was previously trained. The main overall conclusion is that the necessary training sample size for a neural network varies significantly with the voting rule, and we rank a number of popular voting rules in terms of the sample size required.

https://doi.org/10.1016/j.ejor.2021.10.005

Győrffy, Dóra; Martin, József Péter

Legitimacy and Authoritarian Decline: The Internal Dynamics of Hybrid Regimes

PROBLEMS OF POST-COMMUNISM 1075-8216 1557-783X

While the literature on the definition, features, and establishment of hybrid regimes has been extensive, a gap exists about their internal dynamics. The article develops a four-stage model of the political cycle to trace changes in input and output legitimacy. Using Hungary as a case study, it shows a downward spiral of corruption and ideological degeneration due to the inherent contradictions between the initial promises and the real objectives of governance. These developments have undermined output and input legitimacy as shown by the changing composition of government supporters toward poorer, less educated, rural, older people and the increasing manipulation of the electoral process. Such dynamics imply significant vulnerabilities for the regime.

https://doi.org/10.1080/10758216.2021.2023579

Csató, László

Quantifying incentive (in)compatibility: A case study from sports

EUROPEAN JOURNAL OF OPERATIONAL RESEARCH 0377-2217 1872-6860

For every sports tournament, it is an important requirement to provide contestants with the appropriate incentives to perform. However, incentive compatibility is usually considered an all or nothing (binary) concept in the academic literature, that is, the rules are proved to be either strategy-proof or vulnerable to manipulation. Our paper aims to present a method for quantifying the violation of this theoretical property through the example of the European Qualifiers for the 2022 FIFA World Cup. Even though that competition is known to be incentive incompatible since lower-ranked Nations League group winners are interested in the success of their higher-ranked peers, the extent of the problem has remained unexplored until now. Computer simulations reveal that the threat of tanking can be substantially mitigated by adding a carefully chosen set of draw restrictions, which offers a justifiable and transparent solution to improve fairness. Sports governing bodies are encouraged to take our findings into account.

https://doi.org/10.1016/j.ejor.2022.01.042

Balazs, Zoltan

The Sovereign's Beatitude

POLITICAL THEORY 0090-5917 1552-7476

Though it may sound awkward to ask whether the political sovereign is happy or unhappy, the question is relevant to political theory, especially within a political theological perspective. Because man was created in the image of God, human happiness needs to be a reflection of divine beatitude, and as divine sovereignty is, at least analogically, related to political sovereignty, the conceptual coherence is secured. The main argument is, however, that the analogy does not hold. I shall show how St Thomas Aquinas's short treatment of God's beatitude may mislead us about power, fame, riches, and dignity being essential to happiness, based on an analysis of Franz Kafka's major novel, The Castle, and a few other writings by him. I shall argue that our tradition of political thinking and behavior remains ambivalent on this issue. The political sovereign is born out of our unhappy condition, yet its power, fame, riches, and glory suggests to us that it has appropriated our happiness. But for this very reason it cannot be happy, and it therefore suggests a false analogy between the divine and the political sovereign. It is fundamentally at variance with our happiness, which incites us to abandon, reject, and eventually, kill it.

https://doi.org/10.1177/00905917211042047

Metz, Rudolf

The missing link

POLITICS 0263-3957 1467-9256

Recent political developments suggest that political followership has played increasingly vital roles in modern democratic politics. However, scholarship seemingly lacks proper conceptual and methodological tools for analysing why and how citizens follow their leaders, and what the role of this relationship is in personalised politics and political leadership. Addressing the research gap, this article turns to generic leadership studies for help and introduces its follower-centric models into the field of political science. This venture opens with a review and comparison of some of the different perspectives about political followers in the scholarship on political leadership and personalisation, taking account of their limitations. It then moves on to assess follower-centric models and their empirical results, focusing on observers' perceptions about the characteristics and behaviours of leaders in the attribution of leadership. Based on these models, the article offers a balanced perspective about leader–follower relations. Recommendations for future research directions are presented in the concluding sections.

Recent political developments suggest that political followership has played increasingly vital roles in modern democratic politics. However, scholarship seemingly lacks proper conceptual and methodological tools for analysing why and how citizens follow their leaders, and what the role of this relationship is in personalised politics and political leadership. Addressing the research gap, this article turns to generic leadership studies for help and introduces its follower-centric models into the field of political science. This venture opens with a review and comparison of some of the different perspectives about political followers in the scholarship on political leadership and personalisation, taking account of their limitations. It then moves on to assess follower-centric models and their empirical results, focusing on observers' perceptions about the characteristics and behaviours of leaders in the attribution of leadership. Based on these models, the article offers a balanced perspective about leader–follower relations. Recommendations for future research directions are presented in the concluding sections.

https://doi.org/10.1177/02633957211056227

Czaller, László; Tóth, Gergő; Lengyel, Balázs

Allocating vaccines to remote and on-site workers in the tradable sector

SCIENTIFIC REPORTS 2045-2322

Vaccination may be the solution to the pandemic-induced health crisis, but the allocation of vaccines is a complex task in which ethical, economic and social considerations are important. The biggest challenge is to use the limited number of vaccines available in a way that protects vulnerable groups, prevents further spread of infection, and reduces economic uncertainty. We argue that once the vaccination of healthcare workers and the most vulnerable groups has been completed, prioritizing the vaccination of on-site workers is important not only to slow the spread of the infection, but also to ensure the smooth running of economic production. We propose a simple economic model where remote and on-site workers are complementary to each other in the short run, thus a negative shock to the supply of either one may decrease the demand for the other, leading to unemployment. By illustrating the model using pre-Covid employment data from Sweden and Hungary, we show that the optimal vaccine allocation between remote and on-site workers in the tradable sector should be based on different proportions depending on the relative infection risk of on-site workers and the degree of vaccine availability. As long as the number of vaccines is limited and on-site workers are at higher risk of infection, they should be preferred in general. However, as more vaccines become available, countries like Sweden, where the share of occupations that can be done remotely is higher shall start immunize remote workers. In Hungary, where on-site work is dominant in the tradable sector, continued vaccination of on-site workers is more beneficial.

https://doi.org/10.1038/s41598-022-08043-0

Koltai, Júlia; Vásárhelyi, Orsolya; Röst, Gergely; Karsai, Márton

Reconstructing social mixing patterns via weighted contact matrices from online and representative surveys

SCIENTIFIC REPORTS 2045-2322

The unprecedented behavioural responses of societies have been evidently shaping the COVID-19 pandemic, yet it is a significant challenge to accurately monitor the continuously changing social mixing patterns in real-time. Contact matrices, usually stratified by age, summarise interaction motifs efficiently, but their collection relies on conventional representative survey techniques, which are expensive and slow to obtain. Here we report a data collection effort involving over 2.3% of the Hungarian population to simultaneously record contact matrices through a longitudinal online and sequence of representative phone surveys. To correct non-representative biases characterising the online data, by using census data and the representative samples we develop a reconstruction method to provide a scalable, cheap, and flexible way to dynamically obtain closer-to-representative contact matrices. Our results demonstrate that although some conventional socio-demographic characters correlate significantly with the change of contact numbers, the strongest predictors can be collected only via surveys techniques and combined with census data for the best reconstruction performance. We demonstrate the potential of combined online-offline data collections to understand the changing behavioural responses determining the future evolution of the outbreak, and to inform epidemic models with crucial data.

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Sebők, Miklós; M. Balázs, Ágnes; Molnár, Csaba

Punctuated Equilibrium and Progressive Friction in Socialist Autocracy, Democracy and Hybrid Regimes

JOURNAL OF PUBLIC POLICY 0143-814X 1469-7815

The analysis of public policy agendas in comparative politics has been somewhat limited in terms of geography, time frame and political system, with studies on full-blown autocracies and hybrid regimes few and far between. This article addresses this gap by comparing policy dynamics in three Hungarian regimes over 73 years. Besides our theoretical contribution related to policy-making in Socialist autocracy and illiberal democracy, we also test hypotheses related to non-democratic regimes. We find that – similarly to developed democracies – policy agendas in autocracies are mostly stable with occasional but large-scale “punctuations”. Our data also confirms that these punctuations are more pronounced in non-democratic polities. However, based on our results, illiberal political systems, such as the hybrid regime of Viktor Orbán, are difficult to pin down on such a clear-cut continuum between democracy and autocracy as the level of punctuation differs by policy agendas from parliamentary debates to budgets.

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Szabó, Dávid Zoltán

The impact of differing audience sizes on referees and team performance from a North American perspective

PSYCHOLOGY OF SPORT AND EXERCISE 1469-0292

The COVID-19 pandemic provides a natural experimental framework to comprehensively test the effect of crowds on both referees and players. We examine this from a North American perspective, using data from three major leagues: the National Basketball Association (NBA), National Football League (NFL) and National Hockey League (NHL). In all three leagues in the 2020–2021 season, matches were played either in empty stadiums or before diverse audience sizes. We find that the lockdown affects NBA and NFL results, by lowering the prospects of winning and the expected scoring points of the home team, when games are played without an audience. Conversely, the lockdown does not substantially influence the outcomes of NHL games. We also examine the effect of audience size on game outcomes using historical observations from the past decade, when no lockdown measures were in force. Interestingly, a larger audience size increases the chance of winning and the expected scoring points of the visiting team for NFL games. No significant effect of the audience size on match outcomes is observed for NBA or NHL games. Regarding referee decisions, spectators do not significantly influence referee calls of NHL matches. As for NBA and NFL, the lockdown significantly increases the total number of referee calls but does not prompt more biased decisions towards either of the teams. Finally, a larger audience leads to referee calls more favourable to the visiting team for NFL games. These results extend the literature regarding crowd pressure on the behaviour of players and officials, with an indication that the specific sports activity has a pivotal role in the response to a cheering audience.

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Rencz, Fanni; Mitev, Ariel Z.; Jenei, Balázs; Brodszky, Valentin

Measurement properties of the ICECAP-A capability well-being instrument among dermatological patients

QUALITY OF LIFE RESEARCH 0962-9343 1573-2649

Background

Capability well-being captures well-being based on people's ability to do the things they value in life. So far, no capability well-being measures have been validated in dermatological patients.

Objectives

To validate the adult version of the ICEpop CAPability measure (ICECAP-A) in patients with dermatological conditions. We aimed to test floor and ceiling effects, structural, convergent and known-group validity, and measurement invariance.

Methods

In 2020, an online, cross-sectional survey was carried out in Hungary. Respondents with self-reported physician-diagnosed dermatological conditions completed the ICECAP-A, Satisfaction with Life Scale (SWLS), WHO-5 Well-Being Index and two dermatology-specific measures, Dermatology Life Quality Index (DLQI) and Skindex-16.

Results

618 respondents (mean age 51 years) self-reported a physician-diagnosed dermatological condition, with warts, eczema, onychomycosis, acne and psoriasis being the most common. ICECAP-A performed well with no floor and mild ceiling effects. The violation of local independence assumption was found between the attributes of 'attachment' and 'enjoyment'. ICECAP-A index scores correlated strongly with SWLS and WHO-5 (rs = 0.597–0.644) and weakly with DLQI and Skindex-16 (rs = − 0.233 to − 0.292). ICECAP-A was able to distinguish between subsets of patients defined by education and income level, marital, employment and health status. Multigroup confirmatory factor analysis indicated measurement invariance across most of these subgroups.

Conclusions

This is the first study to validate a capability well-being measure in patients with dermatological conditions. The ICECAP-A was found to be a valid tool to assess capability well-being in dermatological patients. Future work is recommended to test measurement properties of ICECAP-A in chronic inflammatory skin conditions.

https://doi.org/10.1007/s11136-021-02967-2

Kökény, László; Kenesei, Zsófia; Neszveda, Gábor

Impact of COVID-19 on different business models of European airlines

CURRENT ISSUES IN TOURISM 1368-3500 1747-7603

In addition to social damage, the first wave of the COVID-19 pandemic also caused huge economic losses in the beginning of 2020, especially for companies in the tourism sector. The airline market was no exception. This study examines the significance of the business model of European listed airlines – low cost carriers (LCCs), full service carriers (FSCs) – for stock market performance. We use event study on the 11 airlines included in the sample. In terms of cumulative average abnormal returns, i.e. the most significant deviations from expected returns, negative phases can be detected in the entire and third stage of the pandemic. FSCs performed significantly better than LCCs at the time of the pandemic on 24 February, when European stock markets suffered the most damage; the business model overwrote financial indicators during the toughest period of the crisis. Although most LCCs had higher cash/assets ratios, they still produced worse results than the average performance of companies with lower cash/assets ratios. This analysis helps to ensure that, in addition to examining financial indicators, the enumeration of the business model in this industry can also be decisive. The future possibilities of the research are discussed at the end of the study.

https://doi.org/10.1080/13683500.2021.1960284

Duleba, Szabolcs; Szádoczki, Zsombor

Comparing aggregation methods in large-scale group AHP: time for the shift to distance-based aggregation

EXPERT SYSTEMS WITH APPLICATIONS 0957-4174

This paper aims to compare the efficiency of the conventional aggregation methods and the new, distance-based aggregation techniques in simulated and real-world group AHP cases. For the comparison, we not only applied rank correlation methods, but also examined the compatibility among the individual priority vectors of the group and the created common priority vector in the different consensus creation approaches. Results have shown that in small dimensions, both Euclidean Distance-Based Aggregation Method (EDBAM) and Aitchison Distance-Based Aggregation Method (ADBAM) outperform significantly the conventional techniques. In large dimensions, the dominance of EDBAM remains. Since the computational time of the proposed methods (especially EDBAM) is low and EDBAM maintains its efficiency in large-scale group AHP (proven by 96.000 simulation cases) in every possible dimension within the AHP domain, we can state in case of high number of evaluators, distance-based aggregation is a better approach than the conventional methods.

https://doi.org/10.1016/j.eswa.2022.116667

Hermann, Zoltán; Péntek, Márta; Gulácsi, László; Kopcsóné Németh, Irén Anna; Zrubka, Zsombor

Measuring the acceptability of EQ-5D-3L health states for different ages

EUROPEAN JOURNAL OF HEALTH ECONOMICS 1618-7598 1618-7601

Background

Acceptable health and sufficientarianism are emerging concepts in health resource allocation. We defined acceptability as the proportion of the general population who consider a health state acceptable for a given age. Previous studies surveyed the acceptability of health problems separately per EQ-5D-3L domain, while the acceptability of health states with co-occurring problems was barely explored.

Objective

To quantify the acceptability of 243 EQ-5D-3L health states for six ages from 30 to 80 years: 1458 health state–age combinations (HAcs), denoted as the acceptability set of EQ-5D-3L.

Methods

In 2019, an online representative survey was conducted in the Hungarian general population. We developed a novel adaptive survey algorithm and a matching statistical measurement model. The acceptability of problems was evaluated separately per EQ-5D-3L domain, followed by joint evaluation of up to 15 HAcs. The selection of HAcs depended on respondents' previous responses. We used an empirical Bayes measurement model to estimate the full acceptability set.

Results

1375 respondents (female: 50.7%) were included with mean (SD) age of 46.7 (14.6) years. We demonstrated that single problems that were acceptable separately for a given age were less acceptable when co-occurring jointly ($p < 0.001$). For 30 years of age, EQ-5D-3L health states of '11112' (11.9%) and '33333' (1%), while for 80 years of age '21111' (93.3%) and '33333' (7.4%) had highest and lowest acceptability (% of population), respectively.

Conclusion

The acceptability set of EQ-5D-3L quantifies societal preferences concerning age and disease severity. Its measurement profiles and potential role in health resource allocation needs further exploration.

https://doi.org/10.1007/s10198-021-01424-8

Zrubka, Zsombor; Vékás, Péter; Németh, Péter; Dobos, Ágota; Hajdu, Ottó; Kovács, Levente; Gulácsi, László; Hibbard, Judith; Péntek, Márta

Validation of the PAM-13 instrument in the Hungarian general population 40 years old and above

EUROPEAN JOURNAL OF HEALTH ECONOMICS 1618-7598 1618-7601

Background

Patient activation comprises the skills, knowledge and motivation necessary for patients' effective contribution to their care. We adapted and validated the 13-item Patient Activation Measure (PAM-13) in the ≥ 40 years old Hungarian general population.

Methods

A cross-sectional web survey was conducted among 900 respondents selected from an online panel via quota sampling. After 10 days, the survey was repeated on 100 respondents. The distribution, internal consistency, test–retest reliability, factor structure, convergent, discriminant and known-groups validity of PAM-13 were assessed according to the COSMIN guidelines.

Results

The sample comprised 779 respondents. Mean (± SD) age was 60.4 ± 10.6 years, 54% were female and 67% had chronic illness. Mean (± SD) PAM-13 score was 60.6 ± 10.0. We found good internal consistency (Cronbach alpha: 0.77), moderate test–retest reliability (ICC: 0.62; n = 75), a single-factor structure and good content validity: PAM-13 showed moderate correlation with the eHealth Literacy Scale ($r = 0.40$), and no correlation with age ($r = 0.02$), education ($r = 0.04$) or income ($\rho = 0.04$). Higher PAM-13 scores were associated with fewer lifestyle risks ($p < 0.001$), more frequent health information seeking ($p < 0.001$), participation in patient education ($p = 0.018$) and various online health-related behaviours. When controlling for health literacy, sociodemographic factors and health status, the association of higher PAM-13 scores with overall fewer lifestyle risks, normal body mass index, physical activity and adequate diet remained significant. Similar properties were observed in the subgroup of participants with chronic morbidity, but not in the age group 65+.

Conclusion

PAM-13 demonstrated good validity in the general population. Its properties in clinical populations and the elderly as well as responsiveness to interventions warrant further research.

https://doi.org/10.1007/s10198-022-01434-0

Adeleh, Asemi; Asefeh, Asemi

A judgment-based model for usability evaluating of interactive systems using fuzzy Multi Factors Evaluation (MFE)

APPLIED SOFT COMPUTING 1568-4946 1872-9681

The study aimed to propose a judgment-based evaluation model for usability evaluating of interactive systems. Human judgment is associated with uncertainty and gray information. We used the fuzzy technique for integration, summarization, and distance calculation of quality value judgment. The proposed model is an integrated fuzzy Multi Factors Evaluation (MFE) model based on experts' judgments in HCI, ISPD, and AMLMs. We provided a Fuzzy Inference System (FIS) for scoring usability evaluation metrics in different interactive systems. A multi-model interactive system is implemented for experimental testing of the model. The achieved results from the proposed model and experimental tests are compared using statistical correlation tests. The results show the ability of the proposed model for usability evaluation of interactive systems without the need for conducting empirical tests. It is concluded that applying a dataset in a neuro-FIS and training system cause to produce more than a hundred effective rules. The findings indicate that the proposed model can be applied for interactive system evaluation, informative evaluation, and complex empirical tests. Future studies may improve the FIS with the integration of artificial neural networks.

https://doi.org/10.1016/j.asoc.2022.108411

Ferenci, Tamás; Sarkadi Balázs

RBD-specific antibody responses after two doses of BBIBP-CorV (Sinopharm, Beijing CNBG) vaccine

BMC INFECTIOUS DISEASES 1471-2334

Background

Limited information is available on the effectiveness of the BBIBP-CorV (Sinopharm, Beijing CNBG) vaccine, especially in the elderly, despite the fact that it is approved in more than 50 countries.

Methods

RBD-specific antibody titres, as a rapidly available and highly predictive surrogate marker, were measured after two doses of the BBIBP-CorV vaccine in 450 subjects. Results were analyzed in a multivariable model accounting for age, sex and time since the administration of the second dose of the vaccine.

Results

Sex and time since the second dose had little association with the antibody titres. Age, however, was highly relevant: measurable antibody levels were present in about 90% of individuals below the age of 50, but antibody production after BBIBP-CorV vaccination was strongly reduced with increasing age. A large number of elderly subjects, reaching 25% at 60 years, and up to 50% at ages over 80, were found not to produce any protective antibody.

Conclusions

RBD-specific antibody titre, as a correlate of protection for COVID-19 disease susceptibility, should help to evaluate the effectiveness of the BBIBP-CorV vaccine. Results suggest that proper measures should be undertaken to prevent a potential outbreak of COVID-19 in BBIBP-CorV vaccinated but eventually unprotected elderly individuals.

https://doi.org/10.1186/s12879-022-07069-z

Bíró, Anikó; Branyiczki, Réka; Elek, Péter

Time patterns of precautionary health behaviours during an easing phase of the COVID-19 pandemic in Europe

EUROPEAN JOURNAL OF AGEING 1613-9372 1613-9380

Using data from the COVID-19 questionnaire of the Survey of Health, Ageing and Retirement in Europe (SHARE), we investigate the time patterns of precautionary health behaviours of individuals aged 50 years and above during the summer of 2020, an easing phase of the COVID-19 pandemic in Europe. We also examine how these health behaviours differ by the presence of chronic conditions such as hypertension, high cholesterol level, heart disease, diabetes or chronic bronchitis, which can be considered as risk factors for COVID-19. Our results suggest that while on average, people became less precautious during the analysed time period, this is less so for those who are at higher risk. We also document large regional differences in precautionary health behaviours and show that higher-risk individuals are on average more cautious in all regions. We conclude that people adjusted their health behaviours in line with the generally understood risk of the COVID-19 disease. At the same time, our results also point out divergences in the level of willingness to take different precautionary steps.

https://doi.org/10.1007/s10433-021-00636-4

Zrubka, Zsombor; Kincses, Áron; Ferenci, Tamás; Kovács, Levente; Gulácsi, László; Péntek, Márta

Comparing actuarial and subjective healthy life expectancy estimates: A cross-sectional survey among the general population in Hungary

PLOS ONE 1932-6203

Background

Healthy life expectancy (HLE) is becoming an important indicator of population health. While actuarial estimates of HLE are frequently studied, there is scarcity of research on the subjective expectations of people about their HLE. The objective of this study is to compare actuarial and subjective HLE (sHLE) estimates in the ≥50-year-old Hungarian general population. Furthermore, we assessed subjective life expectancy (sLE) and explored determinants of the individual variance of sHLE and sLE.

Methods

We conducted a cross-sectional online survey in 2019. Subjective health expectations were measured at 60, 70, 80 and 90 years of age via the Global Activity Limitation Indicator (GALI). Point-estimates of sLE and background variables were also recorded. sHLE was estimated from GALI and sLE responses. Actuarial estimates of life expectancy (LE) and HLE for 2019 were provided by the Central Statistical Office of Hungary.

Results

Five hundred and four respondents (female 51.6%) were included. Mean (±SD) age was 63 (±7.5) years. Median LE (81.5 years, 95%CI 81.1–81.7) and sLE (82 years, 95%CI 80–85) were similar ($p = 0.142$), while median sHLE (66.8 years, 95%CI 65.5–68.3) was lower than HLE (72.7 years, 95%CI 82.4–82.9) by 5.9 years ($p<0.001$). Despite the greater median actuarial LE of women compared to men ($p<0.001$), we found no gender differences between the median sLE ($p = 0.930$), HLE ($p = 0.417$) and sHLE ($p = 0.403$) values. With less apparent gender differences among the predictors when compared to sLE, sHLE was mainly determined by self-perceived health, age and place of residence, while self-perceived health, close relatives' longevity, social conditions, happiness and perceived lifestyle influenced sLE.

Conclusions

Along subjective life expectancy, subjective healthy life expectancy may be a feasible indicator and provide insights to individuals' subjective expectations underlying the demographic estimates of the healthy life expectancy of the population.

https://doi.org/10.1371/journal.pone.0264708

Csomós, György; Lengyel, Balázs

Geographies of the global co-editor network in oncology

PLOS ONE 1932-6203

The co-editor networks of academic journals are generally examined at the journal level. This paper investigates the geographies of the global co-editor network in oncology through the lens of cities. After using different network methods to analyze the global co-editor network, we found that the network can be characterized by a core-periphery structure. The dense core is occupied by many highly interconnected cities, whereas the periphery contains many cities maintaining loose connections with the core cities. The core shows an asymmetric dual sub-core structure. The greater sub-core is constituted by Northern American cities with New York, Washington DC, Boston, Houston, and Los Angeles in the center, whereas the smaller sub-core is formed by Asian cities and centered on Tokyo, Seoul, Osaka, Beijing, and Shanghai. The European core cities do not form a well-outlined sub-core but produce a ringlike shape around the Northern American core. This structure of the co-editor network is a consequence of the prestige effect still characterizing global science. Many European and Chinese journals tend to employ Northern American editors (US-based editors in the first place) to help increase the reputation of the journal. However, US-based journals are more interested in recruiting American editors from the top-ranked national cancer centers and universities rather than outside of the country.

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Banai, Ádám; Berlinger, Edina; Dömötör, Barbara

Adjustable-rate mortgages in the era of global reflation

PLOS ONE 1932-6203

We investigate the problem of interest rate risk transforming into default risk of adjustable-rate mortgage loans in the EU. Bank regulation is strikingly not neutral in this aspect, it explicitly favors short-duration adjustable-rate loans over long-duration fixed-rate loans in the framework of the gap management. This asymmetry in the regulation creates perverse incentives both for banks and households, which can lead to aggressive risk-taking, over-indebtedness of unhedged households, high procyclicality of mortgage markets, and increased systemic risks. We present a stress test model to quantify potential losses stemming from this specific risk from the perspective of lender institutions. We estimate the average extra capital that is needed to cover the additional risk of adjustable-rate mortgage loans in the EU to be 0.53% of the value of the total mortgage portfolio and 1.97% of the value of the adjustable-rate mortgage portfolio. We propose introducing a stress test model as a new mandatory element into banks' risk management framework.

https://doi.org/10.1371/journal.pone.0263599

Book chapters

Benczúr, Péter; Kónya, István

Convergence to the Centre

In *László Mátyás (Editor), Emerging European Economies after the Pandemic (pp. 1–51)*
Springer International Publishing

This chapter focuses on the main macroeconomic developments in the Emerging European Economies (EEE) group leading up to and during the Covid-19 pandemic, and also on the longer term outlook after the crisis. The emphasis is on economic convergence and crisis resilience, with a comparison of economic and social indicators during the current pandemic and the previous large economic shock, the global financial crisis of 2008-2012. The goal here is to set the stage for the more detailed analyses of subsequent chapters, and provide a context in which those details can be interpreted. Our main message is that while the EEE overall have exhibited significant convergence to the more advanced European Union (EU) member states, gaps remain, especially when we look at various social indicators. Crisis resilience also improved after the global financial crisis, so there is hope that the EEE will emerge faster and stronger from the current crisis than it did from the previous one. To complete the convergence process, to reap the benefits of a potential relocation of global value chains to Europe, and to avoid persistent negative consequences of the economic shocks, it is important to boost productivity, increase innovation, and invest in human capital.

https://doi.org/10.1007/978-3-030-93963-2_1

Demeter, Tamás

A mental fictionalism worthy of its name

In *Tamás Demeter, T. Parent, & Adam Toon (Editors), Mental Fictionalism (pp. 86–103) Routledge*

This chapter clarifies the central aspects of one version of mental fictionalism, alternatively called “affective fictionalism” or “storyism”, and places it in the context of other forms thereof. In this construal, folk psychology is a system of conventions for the expression of socially relevant sentiments. By relying on these conventions, we can achieve a non-epistemic understanding of behaviour without real prospects of metarepresentation. Consequently, while folk psychology does not suit the purposes of explanation and prediction, it effectively facilitates the orientation and evaluation of behaviour in social contexts.

https://doi.org/10.4324/9781003091073-6

Demeter, Tamás, Parent, T., Toon, Adam

What is mental fictionalism?

In *Tamás Demeter, T. Parent, & Adam Toon (Editors), Mental Fictionalism (pp. 1–24) Routledge*

This chapter introduces several versions of mental fictionalism, along with the main lines of objection and reply. It begins by considering the debate between eliminative materialism ("eliminativism") versus realism about mental states as conceived in "folk psychology" (i.e. beliefs, desires, and intentions). Mental fictionalism offers a way to transcend the debate by allowing talk of mental states without a commitment to realism. The idea is to treat folk psychology as a "story" and three different elaborations of this are reviewed. First, prefix semantics paraphrases a sentence like "Biden believes that Trump lost" as "According to folk psychology, Biden believes that Trump lost," whereby ontological commitment to belief is avoided. Similarly, pretense theory suggests that we do not assert "Biden believes that Trump lost," but only pretend to assert it. Third, affective theory proposes that such discourse is used in a metaphorical way to understand a person's affective and dispositional states vis-a-vis the community. The main objections concern whether folk psychology has the features of storytelling, and whether mental fictionalism ends up being self-refuting. The chapter also recaps a less discussed fictionalist view about "qualia" or phenomenal states, and closes by summarizing the papers contained in the volume.

https://doi.org/10.4324/9781003091073-1

Jáki, Erika, Halmosi, Péter

Technology-Oriented Startups in the Intersection of Industry 4.0, Venture Capital Financing and Business Scaling – Empirical Examples from the Automotive Industry

In *Bem, Agnieszka; Daszynska-Zygadlo Karolina; Hajdíková, Tatana; Jáki, Erika; Ryszawska, Bożena (Editors), Sustainable Finance in the Green Economy (pp. 61–74). Springer*

In the era of Industry 4.0, a new segment of companies emerges, the so-called technology-oriented startups establishing new forms, methods, and channels of knowledge transfer. The notion of "scaling" is well-known in the world of information and technology. Currently, it is also commonly used in business being interpreted concerning applied technology in data procession, sales, etc. Startups' survival depends on their ability to be successful in international markets. This requires well-established organization management, technology development, sales, and marketing strategy. Technology-oriented startups specialized in Industry 4.0 solutions face a challenge to scale their business. To meet this challenge, they have to find sector-specific answers on what, how, and when to scale to get a sustainable business model. Based on the literature review of this area, we are convinced that there is an ultimate claim for a joint international investigation among researchers and experts to understand the scalability of a business respecting technology-oriented startups in the era of Industry 4.0. The findings of this chapter provide a better understanding of the technology-oriented sector in the automotive sector that has not been analyzed yet, either in national or in an international context.

https://doi.org/10.1007/978-3-030-81663-6_4

Jáki, Erika; Major, Fruzsina; Molnár, Endre Mihály

Key Competencies of Startup Teams Sought After by Investors

In *Bem, Agnieszka; Daszynska-Zygadlo Karolina; Hajdíková, Tatana; Jáki, Erika; Ryszawska, Bożena (Editors), Sustainable Finance in the Green Economy (pp. 75–87) Springer*

The management team is one of the most important characteristics of a startup in the investment evaluation process. Several authors summarized and categorized the investment decision criteria concluding that the entrepreneur/team is one of the most important factors. For startupers, it is important to understand the key competencies of the management team required for a successful proposal for venture capital investment, but the empirical analysis and findings of this area have strong limitations. We defined the most important team competencies based on the literature and defined a coding system of the characteristics of the team along with several aspects and quantitatively analyzed them on the Hungarian television show called "Cápák Között" (Among Sharks). In this show, investors listen to pitches of startup entrepreneurs who seek equity investment and, after questioning the entrepreneurs, decide whether they want to invest in the company or not. In our study, we made the first step to code the most important characteristics of the management team and test the methodology of real investment decisions. We have to consider that the investors' preferences could differ in normal business circumstances outside the TV show; however, in the show the investors made real investments in the selected companies using their own money. It is always hard when we want to analyze factors connected to personal attributes. Through this study, we made tangible some subjective factors of startup teams based on the investors' feedback. The findings of this chapter provide a new methodology for other researchers to study the personal investment criteria.

https://doi.org/10.1007/978-3-030-81663-6_5

Juhász, Péter; Szabó, Ágnes

An Enterprise Risk Model for COVID-19 Crisis Effects – The Hungarian Experience

In *J. Puck, L. Piscitello, A. Verbeke, & R. van Tulder (Editors), International Business in Times of Crisis: Tribute Volume to Geoffrey Jones (pp. 491–513).*
Emerald Publishing Limited

Companies over the world faced several risks related to the COVID-19 crisis. However, when quoting those risks, it is common to mix up pandemic effects with general consequences of work at home or the use of electronic communication channels. At the same time, a lot of indirect effects of the crisis are not straightforward, and some consequences may only turn evident in the long term. This chapter collects different appearances and implications of the risk caused by the epidemic based on literature review, questionnaires, in-depth interviews, and expert panels with a particular emphasis on the findings from Hungary. The authors conclude that risk effects differ little across countries but rather widely across industries and individuals. The risk map presented clarifies critical connections and offers a structured overview for the first time in the literature. A better understanding of the risk effects may assist managers and regulators when another similar crisis would emerge in the future.

https://doi.org/10.1108/S1745-886220220000016026

Mizik, Tamás

Sustainable Fuels in Private Transportation–Present and Future Potential

In *G. Di Blasio, A. K. Agarwal, G. Belgiorno, & P. C. Shukla (Editors), Clean Fuels for Mobility (pp. 9–26)*
Springer Nature Singapore Pte Ltd

Global warming caused by greenhouse gas emissions is one of the greatest challenges the world faces. Humanity is in the age of modern transportation, where a key issue is what can and should be used to fuel our vehicles. Fossil energy sources are limited; therefore, it is crucially important to research every possible alternative fuel. Ethanol offers a promising answer (mature technology, octane booster, less negative environmental effects, etc.) Biodiesel has similar characteristics for diesel engines, especially when used oils are recycled for production. Besides biofuels, further promising renewable alternatives are electricity, biogas, and green hydrogen. All of them provide advantages; however, they also have shortcomings. Regarding pros, reduced greenhouse gas emissions and their renewable nature are the most advantageous. Cons vary among these alternative fuels. In the case of the current biofuel generations, food vs fuel production is the major problem. Fast charging, a limited range, and the number of fueling stations are the Achilles heels of electric cars. Besides, the plug-in vehicle fleet still has a marginal share within the global vehicle stock. The growth of biofuels will outpace electricity even in the next decade. Green hydrogen has high production costs, while biogas production is limited by the available raw materials. Moreover, the use of these gases requires special pumps at gas stations, as well as the modifications of the vehicles' fuel tanks. However, achieving higher sustainability in private transportation is essential. This subchapter provides an overview of these alternative fuels by showing their advantages and disadvantages and comparing them to fossil fuels.

https://doi.org/10.1007/978-981-16-8747-1_2

Molnár, Gábor Tamás

Coping with a Closed and Politicized System. The Advisory Roles of Political Scientists in Hungary

In *A. Timmermans; M. Brans (Editors), The Advisory Roles of Political Scientists in Europe (pp. 181–203)*
Palgrave Macmillan

This chapter provides a first look at the policy advisory system of an illiberal-populist democracy, Hungary, asking how can we explain the low level of advisory engagement of Hungarian political scientists? and how can we apply our theoretical framework to describe the patterns of policy advisory activities of Hungarian political scientists? Based on an overview of Hungarian policymaking, we expect a closed, politicized policy advisory system dominated by the central government and its externalized structures of advice. Access is expected to be selective, based on personal connections. We find that policy advice is neither especially restricted nor incentivized by professional norms and academic career considerations, but there is a general lack of fit between knowledge demand from policymakers and traditional areas of political science. The decisive factor in explaining the low level of engagement in Hungary seems to be demand from the potential recipients and the selective access to the policymaking process. Advice is institutionalized outside of academia and the internal governmental arena, with (consulting) firm membership being the strongest predictor of advisory engagement and think tanks being the most frequent recipient. The advisory strategies observable are often highly informal, while those lacking personal connections utilize alternative, more formal means.

https://doi.org/10.1007/978-3-030-86005-9_9

Rashdan, Omar; Csepy, Gábor

Sustainable Business Models in Healthcare: A Scoping Review of the Quality and Quantity of Literature

In *Bem, Agnieszka; Daszynska-Zygadlo Karolina; Hajdíková, Tatana; Jáki, Erika; Ryszawska, Bożena (Editors), Sustainable Finance in the Green Economy (pp. 167–176) Springer*

***Purpose**: In light that sustainable business models started gaining attention in academic literature in recent years, our work aims to identify, quantify, and qualitatively analyze research directions in peer-reviewed scientific literature focusing on sustainable business models in healthcare to date. **Methods**: A combination of systematic literature review methods and qualitative and quantitative content analysis tools was used to create out bibliometric review. Scopus and EBSCO databases were selected as a data source. Scimago ranking system was used to assess the quality of the journals. **Results**: In total, and after de-duplication, 146 articles were identified relevant. Keyword analysis resulted in (economics, commercial phenomena, telemedicine) as the highest used. Journals International Journal of Integrated Care and Journal of the American Pharmacists Association: JAPhA came out as top publishing journals in the field. The top cited article was "Biobankonomics: Developing a sustainable business model approach for the formation of a human tissue Biobank" which was written by Vaught J. et al. Top journal disciplines publishing in the field were medicine, health policy, and pharmacology. A percentage of 49 of published research was published in Q1 journals. Governmental perspective was dominant with 72% of the articles addressing a country-level action. Information technology field was the most researched topic with 33% of the articles addressing topics such as telemedicine and IoT interventions. **Conclusions**: The most influential articles, journals, and topics in the field were highlighted. More than two-thirds of the highest-quality articles addressed a governmental perspective rather than an industrial perspective. The field of research appears to be multidisciplinary which shows clearly in both the keyword and disciplines analysis.*

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Urbán, Ágnes

Hungary. Growing concentration, intensifying control

In *Fengler Susanne; Eberwein Tobias; Karmasin, Matthias (Editors), The Global Handbook of Media Accountability (pp. 165–174)*
Routledge

The Hungarian media market has undergone a major transformation in recent years. There have been changes in media ownership, accompanied by a growing media concentration, and politics has visibly distorted the market. Both media corporations and journalists have to commit themselves to improving quality and professional standards. The lack of strong media accountability mechanisms is clearly a major obstacle to improving journalism and raising professional standards in the media industry.

https://doi.org/10.4324/9780429326943-18

Vékony, Dániel

Hungary. Country report

In *Müssig, Stephanie; Račius, Egdūnas; Akgönül, Samim; Alibašić, Ahmet; Nielsen, Jørgen S.; Scharbrodt, Oliver (Editors), Yearbook of Muslims in Europe, Volume 13 (pp. 316–332)*
Brill

Introduction

2020 was an extraordinary year for Hungarian society because of the unprecedented challenges posed by the covid-19 pandemic. Muslims in Hungary and their organisations were no exceptions. The covid-19 pandemic brought some inevitable challenges…

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