CORVINUS UNIVERSITY of BUDAPEST

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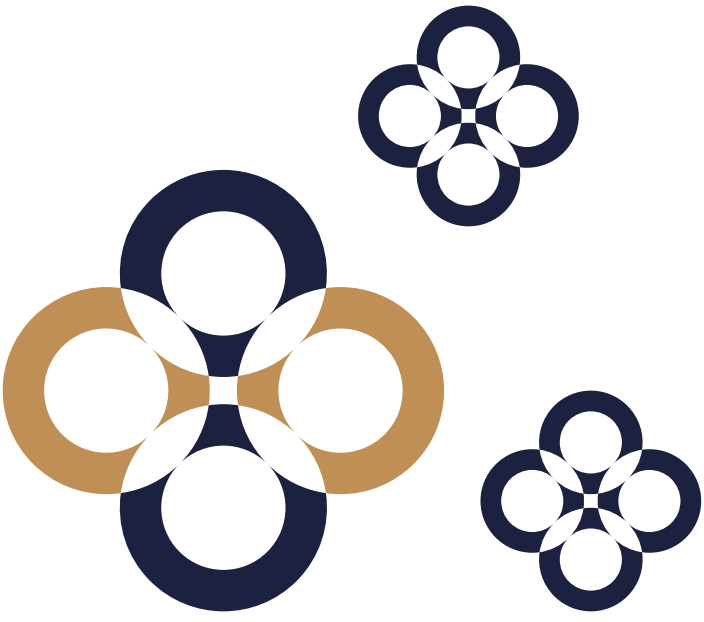
Quarterly Corvinus Research Highlights

July-September 2023



BUDAPESTI CORVINUS EGYETEM

Quarterly Corvinus Research Highlights

July - September 2023

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FOREWORD

Dear Colleagues,

I'm delighted to present the Autumn 2023 edition of the Quarterly Corvinus Research Highlights. This latest release showcases a remarkable compilation of 24 outstanding journal articles, complemented by 11 book chapters contributed by esteemed faculty members of Corvinus University.

The selection criteria for the journal articles were as follows: 1) publication in international Q1 journals with AIP score at least 70, 2) inclusion in the Hungarian Scientific Bibliography Database (MTMT) between July and September 2023, 3) affiliation with Corvinus University, 4) a minimum Corvinus authorship rate of 20%, and 5) categorization as an article or review.

To ensure your work is considered for future editions of the Quarterly Corvinus Research Highlights, it is of utmost importance to upload them to MTMT.

Additionally, the Quarterly Corvinus Research Highlights include eleven book chapters from publishers evaluated under the Corvinus Research Excellence Award (CKK) criteria, with a minimum Corvinus authorship rate of 20%.

The meticulous curation of the Highlights was overseen by a Committee led by Tamara Keszey, Vice-Rector for Research. Alongside her, Committee members Valentin Brodszky, Tamás Kristóf, and Tamás Kocsis represented the Institutes, with the valuable contribution of Mónika Fischer, Director General of the University Library.

To make your exploration easier, the journal articles have been thoughtfully arranged based on their journal rankings, while the book chapters are presented in alphabetical order according to their titles.

As we delve into the Autumn 2023 edition, I am reminded of the vast intellectual wealth that resides within our university. It is your passion for research and your willingness to share your insights that makes these publications a source of inspiration for all of us.

I strongly encourage you to explore our website where you'll find an abundance of information about CUB's ongoing research and development initiatives. There, you can uncover a wealth of opportunities that will pave the way for innovative research projects to flourish. I look forward to witnessing the remarkable discoveries and contributions that will surely emerge in the seasons to come.

Sincerely,

Dr Tamara Keszey

Vice-Rector for Research

Professor

JOURNAL ARTICLES

01 Structural Change within the Services Sector and the Future of Cost Disease

ÁKOS VALENTINYI; GEORG DUERNECKER; BERTHOLD HERRENDORF

Journal of the European Economic Association 2023

In his seminal work, Baumol observed that developed economies suffer from cost disease, i.e., aggregate productivity growth falls because structural change reallocates production to services with low productivity growth. We document that cost disease importantly contributed to the productivity growth slowdown in the postwar U.S. To assess how severe cost disease may become, we build a model of structural change among the goods sector and broad services sectors. Calibrating the model to the postwar U.S. implies that broad categories of services are substitutes and the services with low productivity growth do not take over production. Simulating the calibrated model forward implies that future cost disease will be less severe than the past one.

Link to Paper

02 Identifying money and inflation expectation shocks to real oil prices

SZILÁRD BENK; MAX GILLMAN

Energy Economics 2023 126: 106878

Highlights

• We extend the SVAR oil price model by identifying monetary shocks that significantly increase real oil prices.

• We find robust results using different data sample periods, alternative world aggregate demand, and adding oil inventories.

• MB, M1, and M2 monetary aggregates with subtraction of Fed Swaps robustly shock up real oil prices.

• Monetary shocks caused departures from fundamentals in three historical crises when the US money supply was sterilized.

• We suggest that ending Fed interest on reserves could improve economic stability and energy and monetary policy.

Abstract

The paper extends the well-known three-variable SVAR model that explains real oil prices based on supply and demand shocks to the oil market. We identify significant monetary sources of shocks to real oil prices through a money supply shock and an inflation expectations shock. Results indicate robust significance of these two monetary shocks under a variety of time periods, using an alternate aggregate demand variable, and adding a fourth fundamental variable based on oil inventories. We also use alternative money aggregates for the money supply. Given their significance, we derive a historical variance decomposition of real oil price changes by each shock's contribution. We find a significant displacement of oil supply and demand factors by monetary factors that we match up to historical US monetary policy regimes. During major oil price episodes when monetary shocks dominate, the US money supply and inflation expectation shocks largely explain oil price increases above fundamentals. We interpret this in terms of the US monetary policy during crisis periods and find a common component of that policy linked to oil price episodes. Results imply that US monetary policy led to unintended consequences in energy markets. The results could facilitate improvements in international energy policy, US monetary policy, and global economic stability.

Link to Paper

03 Quantifying the impact of energy consumption sources on GHG emissions in major economies

MUTAZ ALSHAFEEY; OMAR RASHDAN

Energy Strategy Reviews 2023 49: 101159

Highlights

- The study aims to quantify the impact of different energy sources on GHG emissions
- GHG emissions and energy sources data for USA, China, and EU were collected.
- ANN and gradient-boosting techniques were utilized to analyze the data.
- The findings suggest effective strategies to reduce GHG emissions in each region.
- The suggested strategies are tailored based on the utilized energy sources.

Abstract

This article aims to quantify the impact of different energy consumption sources on greenhouse gas (GHG) emissions for three major economies: the United States of America (USA), China, and the European Union (EU). To achieve this, energy consumption and GHG emissions data were obtained from "Our World in Data" for the period 1965–2021. Then, two machine learning techniques were utilized. Gradient Boosting (GB) was used to identify the major energy consumption sources contributing to GHG. While Artificial Neural Network (ANN) was used to quantify the effects of these major energy consumption sources on GHG emissions. The findings have significant implications for policymakers, as they suggest that effective strategies to reduce GHG emissions must be tailored based on the energy utilization sources of each country. Specifically, for the USA it was found that reducing coal consumption could be the most effective strategy to reduce GHG emissions, as increasing coal consumption by 25% would result in a 13% increase in GHG emissions. In contrast, increasing nuclear consumption by 25% in China would result in an 11% decrease in GHG emissions due to the displacement of fossil fuel-based energy sources. Increasing wind energy consumption by 25% in China would result in a 3% decrease in GHG emissions. In the EU, the study found that increasing oil consumption has a minor effect on GHG emissions while increasing coal consumption by 25% would result in an 11% increase in GHG emissions, highlighting the importance of reducing coal consumption. This study's originality lies in the use of machine learning techniques to identify the key energy consumption sources driving GHG emissions in the three major economies, as well as its specific recommendations for reducing emissions.

Link to Paper

04 Interactions between recovery and energy policy in South Africa

BENCE KISS-DOBRONYI; NOKULUNGA MBONA; MARGARET CHITIGA-MABUGU; RICHARD LEWNEY

Energy Strategy Reviews 2023 50: 101187

Highlights

- Interactions of recovery and energy policy are considered
- Considers integrated assessment modelling for South Africa
- "Colourless" recovery policy increase emissions up to 1% with BAU energy policy
- Long-term decarbonisation policy cuts impact of recovery policies by half
- Investments needs to increase by 27–40% for ambitious decarbonisation

Abstract

The COVID-19 pandemic caused a severe economic shock to which governments responded by announcing large-scale recovery packages with magnitudes unseen before. While some of these policies have been expected to have positive environmental outcomes ("green" policies), most of them have not been designed to address those challenges ("colourless"). Focusing on the economic recovery program announced in South Africa, a country still heavily reliant on fossil-fuels, this paper shows how colourless recovery policy can increase environmental harm, whereas green elements in recovery packages can enhance the decarbonisation effects of energy policy and promote positive economic outcomes. The analysis uses the energy-environment-economy model E3ME to simulate effects of different kinds of recovery policies and quantify the combined impact of a package of measures.

Link to Paper

05 Designing a future-proof gas and hydrogen infrastructure for Europe – A modelling-based approach

PÉTER KOTEK; BORBÁLA TAKÁCSNÉ TÓTH; ADRIENN SELEI

Energy Policy 2023 180: 113641

Highlights

- We propose a straightforward decision tree for hydrogen pipeline investments.
- Blending is not a fitting solution for higher volumes of hydrogen transport.
- Investment need for CH4 and H2 infrastructure is EUR ~19–25 bn between 2020 and 2050.
- About 56% of the infrastructure needed in 2050 can be repurposed pipeline.
- A large part of the existing gas infrastructure still needs to be decommissioned.

Abstract

Hydrogen has been at the centre of attention since the EU kicked-off its decarbonization agenda at full speed. Many consider it a silver bullet for the deep decarbonization of technically challenging sectors and industries, but it is also an attractive option for the gas industry to retain and future-proof its well-developed infrastructure networks. The modelling methodology presented in this report systematically tests the feasibility and cost of different pipeline transportation methods – blending, repurposing, and dedicated hydrogen pipelines - under different decarbonization pathways and concludes that blending is not a viable solution and pipeline repurposing can lead to excessive investment outlays in the range of EUR 19–25 bn over the modelled period (2020–2050) for the EU-27.

Link to Paper

06 Amenity complexity and urban locations of socio-economic mixing

SÁNDOR JUHÁSZ; GERGŐ PINTÉR; ENDRE BORZA; LÁSZLÓ LŐRINCZ; BALÁZS LENGYEL; ÁDÁM J. KOVÁCS; GERGELY MÓNUS

EPJ Data Science 2023 12: 34

Cities host diverse people and their mixing is the engine of prosperity. In turn, segregation and inequalities are common features of most cities and locations that enable the meeting of people with different socio-economic status are key for urban inclusion. In this study, we adopt the concept of economic complexity to quantify the sophistication of amenity supply at urban locations. We propose that neighborhood complexity and amenity complexity are connected to the ability of locations to attract diverse visitors from various socio-economic backgrounds across the city. We construct the measures of amenity complexity based on the local portfolio of diverse and non-ubiquitous amenities in Budapest, Hungary. Socio-economic mixing at visited third places is investigated by tracing the daily mobility of individuals and by characterizing their status by the real-estate price of their home locations. Results suggest that measures of ubiquity and diversity of amenities do not, but neighborhood complexity and amenity complexity are correlated with the urban centrality of locations. Urban centrality is a strong predictor of socio-economic mixing, but both neighborhood complexity and amenity complexity add further explanatory power to our models. Our work combines urban mobility data with economic complexity thinking to show that the diversity of non-ubiquitous amenities, central locations, and the potentials for socio-economic mixing are interrelated.

Link to Paper

07 Content validity of the EQ-5D-5L with skin irritation and self-confidence bolt-ons in patients with atopic dermatitis

ÁKOS SZABÓ; VALENTIN BRODSZKY; FANNI RENCZ; ESZTER SZLÁVICZ; ÁGNES KINYÓ; ANITA SZEIFFERT; TAMÁS BANCSÓK; ROLLAND GYULAI

Quality of Life Research 2023

Objectives

Two bolt-on dimensions (skin irritation, self-confidence) have been developed for the EQ-5D-5L to improve its content validity and responsiveness in psoriasis. However, the two bolt-ons are not strictly psoriasis-specific and are potentially relevant in other skin conditions. This study aims to explore the content validity of the EQ-5D-5L with two bolt-ons in patients with atopic dermatitis (AD).

Methods

In 2021–2022, qualitative, semi-structured interviews were conducted with 20 adult AD patients at a university dermatology clinic in Hungary. We aimed for a heterogeneous sample in terms of age, gender, education and disease severity. Patients completed the EQ-5D-5L with two bolt-ons using a think-aloud protocol. Probing questions were posed to investigate item relevance, potential conceptual overlaps, missing concepts and the appropriateness of the recall period. Interview transcripts were subjected to thematic analysis.

Results

The EQ-5D-5L with the two bolt-ons covered the most important aspects of health-related quality of life in AD patients. Most patients found both the skin irritation and self-confidence bolt-ons relevant. Fifteen potential missing concepts were identified, but only two (social relationships, judgement by others) were identified by more than one patient. A smaller conceptual overlap was found between the skin irritation and pain/discomfort dimensions in 7 patients (35%). Half the patients expressed a preference for a recall period of 1 week rather than of 'today'.

Conclusions

The EQ-5D-5L with skin irritation and self-confidence bolt-ons showed good relevance, comprehensiveness and comprehensibility in patients with AD. However, in terms of comprehensiveness, social relationships and judgement by others (stigma) may be missing from the questionnaire.

Link to Paper

08 Time perspective profile and self-reported health on the EQ-5D

FANNI RENCZ; MATHIEU F. JANSSEN

Quality of Life Research 2023

Objectives

Time perspective (TP) is a psychological construct that is associated with several health-related behaviours, including healthy eating, smoking and adherence to medications. In this study, we aimed to examine the associations of TP profile with self-reported health on the EQ-5D-5L and to detect which domains display response heterogeneity (cut-point shift) for TP.

Methods

We conducted a secondary analysis of EQ-5D-5L data from a representative general population sample in Hungary (n = 996). The 17-item Zimbardo Time Perspective Inventory was used to measure individuals' TP on five subscales: past-negative, past-positive, present-fatalist, present-hedonist and future. The associations between TP subscales and EQ-5D-5L domain scores, EQ VAS and EQ-5D-5L index values were analysed by using partial proportional odds models and multivariate linear regressions.

Results

Respondents that scored higher on the past-negative and present-fatalist and lower on the present-hedonist and future subscales were more likely to report more health problems in at least one EQ-5D-5L domain ($p < 0.05$). Adjusting for socio-economic and health status, three EQ-5D-5L domains exhibited significant associations with various TP subscales (usual activities: present-fatalist and future, pain/discomfort: past-negative and future, anxiety/depression: past-negative, present-fatalist, present-hedonist and future). The anxiety/depression domain showed evidence of cut-point shift.

Conclusions

This study identified response heterogeneity stemming from psychological characteristics in self-reported health on the EQ-5D-5L. TP seems to play a double role in self-reported health, firstly as affecting underlying health and secondly as a factor influencing one's response behavior. These findings increase our understanding of the non-health-related factors that affect self-reported health on standardized health status measures.

Link to Paper

09 Hungarian population norms for the 15D generic preference-accompanied health status measure

VALENTIN BRODSZKY; FANNI RENCZ; ANNA NIKL; MATHIEU F. JANSSEN

Quality of Life Research 2023

Objectives

15D is a generic preference-accompanied health status measure covering a wide range of health areas, including sensory functions. The aim of this study was to establish population norms for the 15D instrument in Hungary.

Methods

2000 members of the Hungarian adult general population participated in an online cross-sectional survey in August 2021. The sample was broadly representative in terms of gender, age groups, highest level of education, geographical region, and settlement type. Index values were derived using the Norwegian 15D value set. In addition to providing population norms, mean index values were computed for 32 physical and 24 mental health condition groups.

Results

Most respondents (78.7%) reported problems in at least one 15D domain. The most problems were reported with sleeping (50.7%), followed by vitality (49.2%), distress (43.6%), discomfort and symptoms (31.2%), depression (31.1%), sexual activities (29.6%), breathing (28.1%), and vision (27.8%). The mean 15D index value was 0.810. With advancing age categories, the 15D index values showed an inverse U-shaped curve. Generally, mean index values in respondents with mental health conditions were lower [range 0.299 (post-traumatic stress disorder) to 0.757 (smoking addiction)] than those of respondents with physical conditions [range 0.557 (liver cirrhosis) to 0.764 (allergies)].

Conclusions

This study provided 15D population norms of the Hungarian general population; furthermore, this is the first study to provide population norms for the 15D in any country. The values established in this study can serve as benchmarks for evaluating efficacy outcomes in clinical trials, quantifying disease burden and identifying unmet needs.

Link to Paper

10 Right-left asymmetry of the eigenvector method: A simulation study

LÁSZLÓ CSATÓ

European Journal of Operational Research 2023

Highlights

- The eigenvalue technique of AHP methodology exhibits right-left asymmetry.
- A thorough numerical experiment compares the right and inverse left eigenvectors.
- Row geometric mean turns out to be a good compromise between the two eigenvectors.
- The differences between the three methods do not always increase with inconsistency.
- Right-left asymmetry can lead to rank reversal even for quite distant priorities.

Abstract

The eigenvalue method, suggested by the developer of the extensively used Analytic Hierarchy Process methodology, exhibits right-left asymmetry: the priorities derived from the right eigenvector do not necessarily coincide with the priorities derived from the reciprocal left eigenvector. This paper offers a comprehensive numerical experiment to compare the two eigenvector-based weighting procedures and their reasonable alternative of the row geometric mean with respect to four measures. The underlying pairwise comparison matrices are constructed randomly with different dimensions and levels of inconsistency. The disagreement between the two eigenvectors turns out to be not always a monotonic function of these important characteristics of the matrix. The ranking contradictions can affect alternatives with relatively distant priorities. The row geometric mean is found to be almost at the midpoint between the right and inverse left eigenvectors, making it a straightforward compromise between them.

Link to Paper

11 Psychometric properties and general population reference values for PROMIS Global Health in Hungary

VALENTIN BRODSZKY; ARIEL ZOLTÁN MITEV; FANNI RENCZ; BALÁZS JENEI; ALEX BATÓ

The European Journal of Health Economics 2023

Objectives

Patient-Reported Outcomes Measurement Information System–Global Health (PROMIS-GH) is a widely used generic measure of health status. This study aimed to (1) assess the psychometric properties of the Hungarian PROMIS-GH and to (2) develop general population reference values in Hungary.

Methods

An online cross-sectional survey was conducted among the Hungarian adult general population (n = 1700). Respondents completed the PROMIS-GH v1.2. Unidimensionality (confirmatory factor analysis and bifactor model), local independence, monotonicity (Mokken scaling), graded response model fit, item characteristic curves and measurement invariance were examined. Spearman's correlations were used to analyse convergent validity of PROMIS-GH subscales with SF-36v1 composites and subscales. Age- and gender-weighted T-scores were computed for the Global Physical Health (GPH) and Global Mental Health (GMH) subscales using the US item calibrations.

Results

The item response theory assumptions of unidimensionality, local independence and monotonicity were met for both subscales. The graded response model showed acceptable fit indices for both subscales. No differential item functioning was detected for any sociodemographic characteristics. GMH T-scores showed a strong correlation with SF-36 mental health composite score (rs = 0.71) and GPH T-scores with SF-36 physical health composite score (rs = 0.83). Mean GPH and GMH T-scores of females were lower (47.8 and 46.4) compared to males (50.5 and 49.3) ($p < 0.001$), and both mean GPH and GMH T-scores decreased with age, suggesting worse health status ($p < 0.05$).

Conclusion

This study established the validity and developed general population reference values for the PROMIS-GH in Hungary. Population reference values facilitate the interpretation of patients' scores and allow inter-country comparisons.

Link to Paper

12 How Public Service Media Disinformation Shapes Hungarian Public Discourse

ÁGNES URBÁN; GÁBOR POLYÁK; KATA HORVÁTH

Media and Communication 2023 11(4)

The structure of the illiberal Hungarian media system is well documented. Fewer publications address the question of how disinformation is reshaping public discourse in Hungary. The most important feature of disinformation in Hungary is that it is often generated and disseminated by the pro-government media. This is certainly unusual, as in other EU countries it is typically the fringe media which are responsible for spreading disinformation. The Russian war against Ukraine illustrates how the disinformation ecosystem works in Hungary, and it also reveals its devastating impact on democratic public discourse. Public service media play a prominent role in spreading disinformation. We were able to identify several false narratives in the period of the first year since the start of the war. In the first few months of the war, a key element of disinformation that was being spread in Hungary suggested that Ukraine had provoked the armed conflict. Later, the prevailing message was that only Hungary wanted peace, while the Western powers were interested in a continuation of the war. During autumn, the focus of the disinformation campaign increasingly shifted to the EU, disseminating an anti-EU message that was more concerned with the sanctions than the war. The pro-government media constantly told news consumers that the economic difficulties and the rise in energy prices had not been caused by the war launched by Russia but by the sanctions that the EU had imposed in response to the aggression. Public opinion research clearly shows the impact of these narratives on the perceptions of the Hungarian public. The polls readily capture how the Hungarian public's opinion has changed over time. This study is primarily based on a content analysis of the relevant shows of the M1 public television channel, but we have also relied on some insights from public opinion polls to inform our analysis.

Link to Paper

13 Exploring park visitation trends during the Covid-19 pandemic in Hungary by using mobile device location data

ENDRE MÁRK BORZA; GYÖRGY CSOMÓS; JENŐ ZSOLT FARKAS

Scientific Reports 2023 13: 11078

Sweeping changes in park visitation have accompanied the Covid-19 pandemic. In countries where governments imposed strict lockdowns during the first wave, park visitation declined in cities. The benefits of visiting urban green spaces on people's mental and physical health and well-being are generally acknowledged; many people in confinement during lockdowns reported increasing mental health issues. Therefore, based on lessons learned from the Covid-19 pandemic's first wave, urban parks and other urban green spaces remained open in most countries in subsequent pandemic phases. Furthermore, many studies have reported an overall increase in park visitation after strict lockdowns imposed in the pandemic's first wave have been removed. This study aims to investigate park visitation trends in Hungary based on a dataset of 28 million location data points from approximately 666,000 distinct mobile devices collected in 1884 urban parks and other urban green spaces in 191 settlements between June 1, 2019, and May 31, 2021. Findings demonstrate that park visitation increased in the inter-wave period of 2020, compared to the pre-pandemic period of 2019, and decreased in Waves 2–3 of 2021, compared to Wave 1 of 2020.

Link to Paper

14 Inclusion unlocks the creative potential of gender diversity in teams

ORSOLYA VÁSÁRHELYI; BALÁZS VEDRES

Scientific Reports 2023 13: 13757

Several studies have highlighted the potential contribution of gender diversity to creativity, also noted challenges stemming from conflicts and a deficit of trust. Thus, we argue that gender diversity requires inclusion as well to see increased collective creativity. We analyzed teams in 4011 video game projects, recording weighted network data from past collaborations. We developed four measures of inclusion, based on de-segregation, strong ties across genders, and the incorporation of women into the core of the team's network. We measured creativity by the distinctiveness of game features compared to prior games. Our results show that gender diversity without inclusion does not contribute to creativity, while at maximal inclusion one standard deviation change in diversity results in .04–.09 standard deviation increase in creativity. On the flipside, at maximal inclusion but low diversity (when there is a 'token' female team member highly integrated in a male network) we see a negative impact on creativity. Considering the history of game projects in a developer firm, we see that adding diversity first, and developing inclusion later can lead to higher diversity and inclusion, compared to the alternative of recruiting developers with already existing cross-gender ties. This suggests that developer firms should encourage building inclusive collaboration ties in-house.

Link to Paper

15 Large-step predictor-corrector interior point method for sufficient linear complementarity problems based on the algebraic equivalent transformation

TIBOR ILLÉS; PETRA RENÁTA RIGÓ; ROLAND TÖRÖK

EURO Journal on Computational Optimization 2023 11: 100072

Highlights

- Algebraic equivalent transformation (AET) method is used to define search direc- tions.
- We defined a new wide neighbourhood depending on AET function.
- New predictor-corrector interior-point algorithm for P∗(κ)-LCPs is proposed.
- We prove polynomial complexity in the size of the problem and in parameter κ.
- Numerical results show the efficiency of the presented algorithm.

Abstract

We introduce a new predictor-corrector interior-point algorithm for solving $P_*(\kappa)$-linear complementarity problems which works in a wide neighbourhood of the central path. We use the technique of algebraic equivalent transformation of the centering equations of the central path system. In this technique, we apply the function $\varphi(t) = \sqrt{t}$ in order to obtain the new search directions. We define the new wide neighbourhood $\mathscr{D}_\varphi$. In this way, we obtain the first interior-point method, where not only the central path system is transformed, but the definition of the neighbourhood is also modified taking into consideration the algebraic equivalent transformation technique. This gives a new direction in the research of interior-point algorithms. We prove that the interior-point method has $\mathscr{O}\left((1+\kappa)n\log\left(\frac{(\mathbf{x}^0)^T\mathbf{s}^0}{\epsilon}\right)\right)$ iteration complexity. Furthermore, we show the efficiency of the proposed predictor-corrector algorithm by providing numerical results. To our best knowledge, this is the first predictor-corrector interior-point algorithm which works in the $\mathscr{D}_\varphi$ neighbourhood using $\varphi(t) = \sqrt{t}$.

Link to Paper

16 Faultlines, Familiarity, Communication: Predictors and Moderators of Team Success in Escape Rooms

REBEKA O. SZABÓ; FEDERICO BATTISTON; JÚLIA KOLTAI

Small Group Research 2023

We contribute to faultline research by identifying familiarity and cross-subgroup communication as potential moderators in the relationship between diversity faultline and team performance. We employ a novel experimental design utilizing escape rooms as a noninterventional social laboratory, enabling us to capture real-time interactions among 40 teams engaged in problem-solving activities. We find that team familiarity has a negative influence and a suppression effect on success. Faultline affects team success negatively when faultline-induced subgroups do not communicate enough with each other. Our work contributes to a better understanding of complex processes and interdependencies that lead to team success or failure.

Link to Paper

17 The relationship between the ecologisation of farms and total factor productivity

IMRE FERTŐ; LAJOS BARÁTH

Agricultural Economics Society 2023

The European Green Deal aims to mitigate the environmental impact of food production while improving the income of primary producers and strengthening the EU's competitiveness. We examine how the degree of ecologisation affects farms' total factor productivity (TFP). Our analysis combines a random-parameter stochastic production frontier model with a composite indicator and a dose–response function approach. Results show a monotonically decreasing relationship between ecologisation and expected TFP level. On average, a one-step increase in the degree of ecologisation results in a 12% decrease in TFP. However, the results indicate a non-linear relationship. Three regions of the dose–response function can be distinguished; associated with high, medium and low degrees of ecologisation. In a region with a low degree of ecologisation, farms can increase the degree of ecologisation without reducing TFP. Both efficiency and technological differences contribute to these differences, but the main reason is technological. With increasing ecologisation, farm technology becomes more 'land using'. Therefore, farms can increase their TFP and degree of ecologisation simultaneously by using land-saving technologies or through sustainable intensification.

Link to Paper

18 Societal costs and health related quality of life in adult atopic dermatitis

ZSUZSANNA BERETZKY; FANNI RENCZ; XU FEIFEI; VALENTIN BRODSZKY; KAMILLA KOSZORÚ; KRISZTINA HAJDU; JÚLIA BORZA; KATALIN BODAI; ANDREA SZEGEDI; MIKLÓS SÁRDY

BMC Health Services Research 2023 23: 859

Background

Cost-of-illness studies are widely used for healthcare decision-making in chronic conditions. Our aim was to assess the cost-of-illness of adult atopic dermatitis (AD) from the societal perspective in Hungary.

Methods

We conducted a multicentre, cross-sectional questionnaire survey between February 2018 and January 2021. Data was collected from consecutive AD patients aged ≥ 18 years and their physicians at dermatology departments in Hungary. We calculated direct and indirect costs, including costs for treatments, outpatient visits, hospital admissions, informal care, travel costs and productivity loss. To assess indirect costs, the Work Productivity and Activity Impairment (WPAI) questionnaire was used to collect data, and costs were estimated with the human capital approach. Generalized linear model was used to analyse predictors of total, direct and indirect costs.

Results

Altogether 218 patients completed the survey (57.8% female) with an average age of 31.3 (SD = 11.7). Patients' average Dermatology Life Quality Index (DLQI) score was 13.5 (SD = 8.5). According to Eczema Area and Severity Index (EASI) score, 2.3% (n = 5), 21.2% (n = 46), 54.4% (n = 118) and 22.1% (n = 48) had clear, mild, moderate, and severe AD, respectively. We found that the average total, direct medical, direct non-medical and indirect annual costs per patients were €4,331, €1,136, €747, and €2450, respectively, with absenteeism and presenteeism being the main cost drivers, accounting for 24% and 29% of the total cost of AD. A one-year longer disease duration led to, on average, 1.6%, and 4.2% increase in total and direct non-medical costs, respectively. Patients with worse health-related quality of life (higher DLQI score) had significantly higher total, direct medical, direct non-medical costs, and indirect costs.

Conclusions

Our results indicate a substantial economic burden of AD from a societal perspective, mainly driven by productivity losses.

Link to Paper

19 Information security awareness maturity

ANDREA KŐ; ARIEL MITEV; GÁBOR TARJÁN

Information Technology & People 2022 36(8): 174-195

Purpose

This paper aims to provide a maturity model for information security awareness (MMISA), based on the literature, expert interviews and feedback. In addition to developing the MMISA, the authors investigate the role of the three decisive factors that affect ISA maturity level: risk management mechanism, organizational structure and ISA.

Design/methodology/approach

The research methodology is a combined one; qualitative and quantitative methods were applied, including surveying the literature, interviews and developing a survey to collect quantitative data about decisive factors that affect ISA maturity level. The authors perform a variance-based partial least squares-structural equation modeling (PLS-SEM) investigation of the relationships between these factors.

Findings

The investigation of decisive factors of ISA maturity levels revealed that if the authors identify a strong risk assessment mechanism (through a documented methodology and reliable results), the authors can expect a high level of ISA. If there is a well-defined organizational structure with clear responsibilities, this supports the linking of a risk management mechanism with the level of ISA. The connection between organizational structure and ISA maturity level is supported by ISA activities: an increased level of awareness actions strengthens an organizational structure via the best practices learned by the staff.

Originality/value

The main contribution of the proposed MMISA model is that the model offers controls and audit evidence for maturity levels. Beyond that, the authors distinguish in the MMISA model controls supporting knowledge and controls supporting attitude, emphasizing that this is not enough to know what to do, but the proper attitude is required too. The authors didn't find any other ISA maturity model which has a similar feature. The contribution of the authors' work is that the authors provide a method for solving this complex measurement problem via the MMISA, which also offers direct guidance for the daily practices of organizations.

Link to Paper

20 The roles of community-based organizations in socializing sustainable behavior

TAMÁS VERESS; GABRIELLA KISS; ÁGNES NEULINGER

Environmental Policy and Governance 2023

This research supports the argument that community-based organizations (CBOs) can be effective vehicles to shift societal norms and expectations in order to facilitate co-creation and acceptability of new and sustainable ways of living. CBOs are conceptualized as meso-level entities where sustainable behavior can be socialized through not-for-profit and socioecological-oriented approaches, a unique position in a market society. To learn what roles CBOs fulfill when providing space for peer interactions influencing sustainable behavior, a qualitative research study was carried out based on 21 interviews with key stakeholders from CBOs working in different sustainability-related fields (mobility, food, energy, etc.) in the urban context of Budapest, Hungary. The grouping and interpretation of interview data show that the sampled urban CBOs can impact sustainable behavior through (1) raising members' awareness; (2) influencing everyday practices; and (3) providing space for non-consumerist peer interactions. These impacts can be exercised through the three roles of translation, reinforcement, and contribution. Translation covers the practical-cognitive (why it is important and how to do it) dimensions of peer interactions, while reinforcement and contribution are psychological-emotional factors, the former being directed toward adopting individual practices (through positive reinforcement), the latter pointing to the collective, the common good to which one feels one is contributing. These results imply that sustainability-oriented policymaking could support the sustainability transition by co-designing systems of provisions together with the affected communities.

Link to Paper

21 Peer-to-peer lending: Legal loan sharking or altruistic investment? Analyzing platform investments from a credit risk perspective

BARBARA DÖMÖTÖR; FERENC ILLÉS; TÍMEA ÖLVEDI

Journal of International Financial Markets, Institutions and Money
2023 86: 101801

Highlights

- We found no evidence of the benefits of alternative information in P2P lending.
- The platform's scoring model relies on the country effect.
- P2P borrowers are mainly high-risk, bank ineligible clients.
- Average interest rate is extremely high, contradicting altruistic investors' motives.
- Even the loan sharking level interest rates are insufficient to compensate investors.

Abstract

This paper analyzes the performance of peer-to-peer investments, the potential benefits of their information processing and the investor returns, based on the entire portfolio of the Estonian platform Bondora. We found that the platform's scoring model relies on different default probabilities across countries and is weak at predicting default within countries. Alternative information could improve the models, but our analysis could not confirm this benefit of the platform. The average internal rate of return on closed transactions was –4.17%, and 42% of the loans end with a negative IRR. We concluded that P2P borrowers in the European market are mainly high-risk, bank ineligible clients, accepting even loan-sharking level interest rates, which excludes altruistic motives of investors. Even so, investors are not compensated for the credit risk.

Link to Paper

22 The impact of crisis periods and monetary decisions of the Fed and the ECB on the sovereign yield curve network

MILÁN CSABA BADICS; ZSUZSA R. HUSZÁR; BALÁZS B. KOTRÓ

Journal of International Financial Markets, Institutions and Money
2023 88: 101837

Highlights

• We study the sovereign yield curve networks of twelve developed countries during four different crises.

• We find that local and global crises behave differently.

• US yield curve factors are the key participants of the network in calm periods as well as in local and global crises.

• The dominance of the US factors peaks if the Fed leads the hiking cycle and reaches its minimum when the interest rate cycle is led by the ECB.

Abstract

This study investigates the sovereign yield curve network of 12 developed countries. We decompose the term structure of interest rates into the Level, Slope, and Curvature factors using the Diebold and Li (2006) model. The connections between the latent yield curve factors across the countries are measured using the Toda and Yamamoto (1995) model, which is suitable for cointegrated time series. Our timeframe covers more than 23 years; therefore, we are able to compare two global and two local crisis periods. For deeper understanding the structural changes, and identify the key participants in the sovereign yield curve network, we analyze the connections on factor, country, and node levels. Investigating the network on node level, in the entire sample period, all three US latent factors act as key participants in our network, however, their contribution is time variant. We find that local and global crises behave differently. The network density differences on average are relatively small across calm and local crises periods, but significantly larger during the Global Financial Crisis and the European sovereign debt crises. Furthermore, we explore links between the easing and tightening decisions by the Fed and the ECB, and the time-varying dominance of the US yield curve in our sovereign yield curve network. The dominance of the US factors peaks if the Fed leads the hiking cycle and reaches its minimum when the interest rate cycle is led by the ECB.

Link to Paper

23 Supply-side economics with AS-AD in Ramsey dynamic general equilibrium

SZILÁRD BENK; MAX GILLMAN; TAMÁS CSABAFI

Economic Analysis and Policy 2023 80: 505-531

The Ramsey dynamic general equilibrium (RDGE) model has been applied broadly within mainstream macroeconomic analysis. While the labor market of the RDGE model has long been developed, any consensus on the goods market has remained elusive. This has made supply-side policy analysis within it difficult since it is founded upon the premise of aggregate supply (AS) featuring more prominently than aggregate demand (AD). Specifying a relative price of output that makes the goods market consistent with the recursive structure of the RDGE paradigm, the paper then applies AS-AD quantitatively to study productivity increases and income tax rate decreases that have been a centerpiece in supply-side economics. The paper contributes how both a productivity increase and a capital income tax rate decrease cause a net shift out of AS relative to AD that lowers the relative price of output. It shows how productivity increases and tax rate reductions quantitatively increase macroeconomic variables. The increase in economic activity remains proportional to the percentage increase in productivity, giving rise to our introduction of the concept of a productivity multiplier. Tax rate reductions cause increased economic activity at a decreasing rate as the level of the tax rate decreases. The paper shows the sense in which capital income tax rate reductions quantitatively have larger magnitude effects on output, consumption, investment, and capital wealth, while labor income tax rate reductions have larger magnitude effects on employment. Tax revenue implications are also presented with the first Laffer curves linked to the RDGE AS-AD analysis. Limitations, extensions and policy applications are suggested.

Link to Paper

24 On the coincidence of optimal completions for small pairwise comparison matrices with missing entries

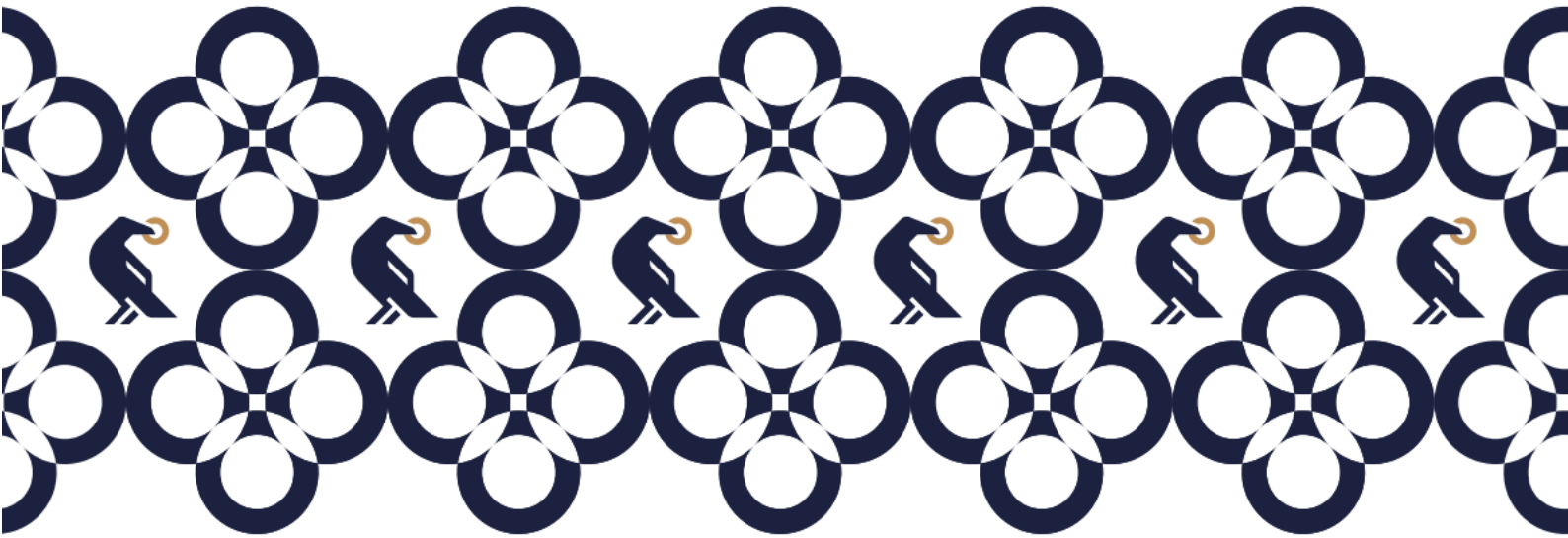
LÁSZLÓ CSATÓ; KOLOS CSABA ÁGOSTON; SÁNDOR BOZÓKI

Annals of Operations Research 2023

Incomplete pairwise comparison matrices contain some missing judgements. A natural approach to estimate these values is provided by minimising a reasonable measure of inconsistency after unknown entries are replaced by variables. Two widely used inconsistency indices for this purpose are Saaty's inconsistency index and the geometric inconsistency index, which are closely related to the eigenvector and the logarithmic least squares priority deriving methods, respectively. The two measures are proven to imply the same optimal filling for incomplete pairwise comparison matrices up to order four but not necessarily for order at least five.

Link to Paper

BOOK CHAPTERS



01

ANDREA KŐ; TIBOR KOVÁCS

Artificial/enhanced intelligence

In: Nagy Sándor Gyula (ed.): Smart Business and Digital Transformation. An Industry 4.0 Perspective. (2023) pp. 82-89.

Routledge

Artificial intelligence (AI) was launched in the 1940s, and, with the exception of two brief periods, it grew enormously. This chapter provides an overview of the current state of AI technologies from industrial applications perspective as well as an illustration – a real-world case study – of an industrial AI application from the field of machine learning. Industrial AI (I-AI) is considered a subdomain of AI and it addresses machine learning algorithms and targets industrial applications, and it provides methodology and solutions for industrial problems. It connects the academic research community with industry practitioners. I-AI can impact manufacturing in many ways by bringing new capabilities and new applications. The main challenges of industrial artificial intelligence are threefold: data quality, machine-to-machine interaction and cybersecurity. The benefits of running an effective preventative maintenance system, however, can easily outweigh the cost of breakdowns, repairs, scrap due to poor quality and the penalties due to late, unreliable deliveries.

Link to Book Chapter

02

ANDREA KŐ; TIBOR KOVÁCS

Data mining, analysis and evaluation

In: Nagy Sándor Gyula (ed.): Smart Business and Digital Transformation. An Industry 4.0 Perspective. (2023) pp. 45-61.

Routledge

Data coming from various sources and in different forms is a key component of Industry 4.0 systems. Capgemini introduced a widely accepted threefold taxonomy for business analytics in 2010, including descriptive, predictive and prescriptive analytics. The advent of Industry 4.0 technologies meant that the number of available data sources has increased greatly and the emergence of the Industrial Internet of Things delivered new sensors that collect real-time manufacturing data in quantities that were not possible to achieve before. Industry 4.0 gives new opportunities to monitor and understand how products perform under real-world usage conditions. Traditional manufacturing focused on structured data, i.e., management data and equipment data of sensor values from SCADA systems that are often stored in Relational Database Management Systems. Data visualisation is aimed at helping to convey and communicate knowledge through graphical means, which was discovered during the data processing and data analysis phases.

Link to Book Chapter

03

LÁSZLÓ ZSOLNAI

Poetic Dwelling Models for Business

In: Michael Thate, Zsolnai László (eds.): Humanities as a Resource and Inspiration for Humanizing Business. (2023) pp. 191-197.

Springer

The core of today's market metaphysics is the calculative thinking which considers everything as a marketable resource. This position is highly destructive both for the subject and the object of economic activities. To preserve nature and satisfy real human needs, gentle, careful ways of undertaking economic activities are needed. Poetic dwelling models inspired by the arts can inspire organizations and people to transform themselves into responsive and caring agents. The great paradox of values is that if utility considerations precede beauty and ethics, then utility itself will be destroyed. If we wish to live in a sustainable and human world, we should prioritize beauty and ethics over utility.

Link to Book Chapter

04

ANDRÁS RÁCZ

Russia's Defense Policy and Belarus after 2020

In: Arkady Moshes, Ryhor Nizhnikau (eds.): Russian Policy toward Belarus after 2020. At a Turning Point? (2023) pp. 47-68.

Lexington Books

Traditionally Belarus has always had a special status in Russia's foreign policy. Russia's approach towards a key political and military ally and a "Slavic brother" was always an indicator of how Russia would see the optimal relationships with other countries of the post-Soviet space. At this moment Belarus-Russia relations are evolving in unexpected ways. The two interconnected crises – the Belarusian mass protests of 2020 and Russia's invasion of Ukraine – have had a profound impact on the Belarusian regime and society, the regional security and Russian policy towards Belarus. This book explores the ongoing development of Belarus-Russia relations and discusses the future of the relationship. This edited volume reviews the state of the relationship and underlines key emergent trends of Belarus's and Russia's policies towards each other to identify new mechanisms and practices as they shape into a new model. The book is comprised of in-depth empirical contributions in a range of interdisciplinary perspectives on cooperation in political, economic, security, media, and societal domains within a broader regional context.

Link to Book Chapter

05

LÁSZLÓ ZSOLNAI; KNUT J. IMS

Self-Realization in Business

In: Michael Thate, Zsolnai László (eds.): Humanities as a Resource and Inspiration for Humanizing Business. (2023) pp. 67-78.

Springer

Business is more than profit making or wealth creation. It can be considered as an existential/spiritual exercise. Business activities affect and sometimes determine the fate and well-being of people, natural beings, and future generations. The paper uses Henrik Ibsen's Peer Gynt to explore what does self-realization mean in business. Peer Gynt, a global entrepreneur, is reflecting on his life, and discovering that his life-journey was without purpose and meaning. The paper explores Ibsen's enigmatic sentence "To be oneself, the self must die". The problem for Peer Gynt is that he has never been himself in the true sense. He has been a "troll", i.e. lived in a greedy, selfish way. The paper also presents the positive case of Yvon Chouinard, the founder of Patagonia, who has fostered innovative pro-social and pro-environmental approaches in business. Chouinard practices authenticity and holds that "you have to be true to yourself", to know your strengths and limitations, and live within your means. The paper concludes with the inherent paradox of self-realization. When a business person strives for only money, then he or she will destroy his or her own self. Self-realization requires denying the instincts of one's lower self and practicing genuine selflessness.

Link to Book Chapter

06

ZOLTÁN SZABÓ; ANDRÁS GÁBOR

Smart agriculture

In: Nagy Sándor Gyula (ed.): Smart Business and Digital Transformation. An Industry 4.0 Perspective. (2023) pp. 171-179.

Routledge

Smart agriculture is a new trend in the utilisation of information and communication technology (ICT) in agricultural production. In light of rapid ICT development in terms of both infrastructure and application, traditional sectors are undergoing radical transformations. Many paradigm shifts can be discovered in the history of capitalism. One possible way to overcome obstacles is precision agriculture or intelligent farming. The technologies that underpin smart farming are still in early development, but there are many promising opportunities. Smart farming can be implemented on different maturity levels. Widespread adoption of smart farming technologies will take time, as it requires significant changes in practices and mindset, along with the modernisation of the equipment and supporting infrastructures. Milking and feeding robots will save human efforts, and autonomous solutions for greenhouse lighting or irrigation will save energy and water.

Link to Book Chapter

07

GABRIELLA KISS; MÁTÉ CSUKÁS; DÁNIEL OROSS

Social Distancing and Participation: The Case of Participatory Budgeting in Budapest, Hungary

In: Enza Lissandrello, Janni Sørensen, Kristian Olesen, Rasmus Nedergård Steffansen (eds.): The 'New Normal' in Planning, Governance and Participation. (2023) pp. 125-137.

Springer

Pandemic and social distancing are not conducive to the implementation of participatory processes based on deliberation. In our research, the resilience of a newly established participatory institution was examined during the pandemic. The first announcement of participatory budgeting (PB) introduced in Budapest (Hungary) coincided with the appearance of the COVID-19 pandemic. The chapter explores the participatory decision-making aspects of innovation in Budapest between 2020 and 2021. The main questions are the following: (1) How do different decision-makers in Hungary react to the crisis? and (2) How did the pandemic affect the different PB solutions in Budapest? The results show that resilience and fair deliberation generally do not help each other and that relevant trade-offs occur in the time of pandemic and social distancing. Hungarian experiences of participation during the pandemic reflect the resilience of the process of PB in Budapest and show that a continuous redesign of engagement strategies and the real commitment of the decision-makers was essential. The chapter draws on the change of such a commitment in participatory design to discuss a possible "new normal" in the required efforts in participation in a pandemic and post-pandemic world.

Link to Book Chapter

08

GABRIELLA KISS

The “sack-race” academic: A post-socialist portrait of a single mother facing social expectations and the trade-offs of an academic career path

In: Sarah Robinson, Alexandra Bristow, Olivier Ratle (eds): Doing Academic Careers Differently. Portraits of Academic Life. (2023) pp. 329-339.

Routledge

In this portrait, Gabriella Kiss draws attention to how being a single mother of two young children in a post-socialist country has made her academic career feel like a sack-race. Several times in her career, she has felt at disadvantage, as if she is not on a good racetrack, or as if she is racing with her legs tied. She presents some of the issues and challenges inherent to being a female academic in the context of the social welfare system in Central and Eastern Europe, with a focus on Hungary. She draws attention to the role expectations of mothers and women in post-socialist countries, with an emphasis on gender differences, the challenges of single parenthood, and the pitfalls of a universalist approach to performance measurement. The notion of “trade-off” is used to understand how those challenges can be navigated: trade-offs between family and career, between university public service and research/education, and in the context of studying transdisciplinary issues, between having social impact and working on mainstream topics.

Link to Book Chapter

09

LILLA VICSEK; TAMÁS TÓTH

Visions of Human-Centered Artificial Intelligence: Relations with Ethics and Power

In: Micheal Filimovicz (ed.): Algortihmit Ethics. Algorithms and Society. (2023) pp. 1-21.

Routledge

In recent years, there has been heightened sensibility to ethical issues connected with artificial intelligence. Conceptions of different types of AI have emerged which touch upon this new sensibility, including wholesome augmented intelligence, responsible/trustworthy/ethical AI, AI for good and human-centered AI. In this chapter, we focus on the concept of human-centered AI, which has gained more prominence lately and has even appeared in the names of organizations. However, there are major problems with the conceptualization and operationalization of human-centered AI. This chapter critically analyzes academic visions about human-centered AI in five Western university institutions' online textual content (n = 573). The study scrutinizes institutions that use the term "human-centered" in their names. Even though institutions provide more content framed with supportive attitudes rather than focusing on technical solutions, the related texts fail to address several important issues. First, they often treat humanity as a homogenous group, suggesting that every society struggles with the same problems. Second, human-centered AI is treated as being mainly aligned with the Global North's needs. Finally, most of the texts associated with the scrutinized institutions lack discussion of the surging inequalities connected to the capitalist system. Therefore, they do not offer many AI-supported solutions that might address the challenges of a lack of clean water, poverty, or the presence of dangerous jobs that harm the Global South. Instead, the analyzed institutions primarily present societal challenges within national borders, while they disregard the need for redressing fundamental problems that hinder the creation of acceptable living conditions in poor regions. Building on the sociology of expectations, this study argues that the visions of human-centered AI are of paramount importance. These expectations have the potential to legitimize, guide and coordinate the activities of different actors responsible for the research, development and application of AI-driven technologies.

Link to Book Chapter

10

LÁSZLÓ ZSOLNAI

Ways Forward in Humanizing Business and Management

In: Michael Thate, Zsolnai László (eds.): Humanities as a Resource and Inspiration for Humanizing Business. (2023) pp. 225-233.

Springer

This concluding paper summarizes how can the humanities and the arts contribute to humanizing today's business and management. It explores and discusses various ways to integrate the views and approaches of the humanities and the arts in business and management scholarship and practice responding to the unprecedented challenges of the Anthropocene era including climate change, biodiversity loss, ecosystems collapse, raising inequalities and social unrest globally and nationally. From systems theory we know that the performance of a system is determined by the adequateness of its basic assumptions. Problems indicate the inadequateness of the basic assumptions on which the system's functioning is based. The basic assumptions of today's business and management are flawed and the humanities and the arts can help revising and replacing the erroneous conceptions and models of mainstream business and management.

Link to Book Chapter

11

LÁSZLÓ ZSOLNAI; ANDRÁS ÓCSAI; GABOR KOVACS; KALMAN KELEMEN; ZOLTAN VALCSICSAK

Wellbeing Policies for Countries and Cities

In: Zsolnai László, Thomas Walker, Paul Shrivastava (eds.): Value Creation for a Sustainable World. Innovating for Ecological Regeneration and Human Flourishing. (2023) pp. 285-307.

Springer

Today most countries and cities follow policies that strive for competitiveness, economic growth, and wealth creation. However, this uncritical pursuit of mainstream economic dictates is producing considerable "ills" in the Anthropocene, including climate change, biodiversity loss, ecosystem collapse, and national and global inequalities. The current paper presents some of the leading alternative approaches of countries and cities that focus on creating wellbeing in a broad socio-ecological context. The emerging wellbeing focused policy framework includes the Gross National Happiness of Bhutan, Costa Rica's National Decarbonization Plan, the Wellbeing budget of New Zealand, and the "doughnut economy" of Amsterdam. The wellbeing policy framework abandons the idea of GDP-centered economic growth and directly targets human wellbeing and ecological regeneration. It implies encouraging economic and business activities, and programs that create socio-ecological wellbeing and discouraging or even punishing activities and programs that create illbeing for people and the Earth.

Link to Book Chapter

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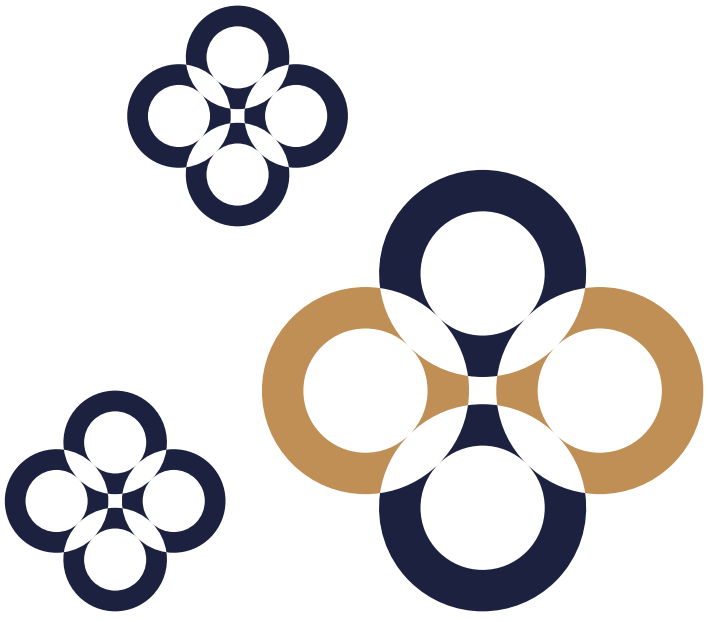

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