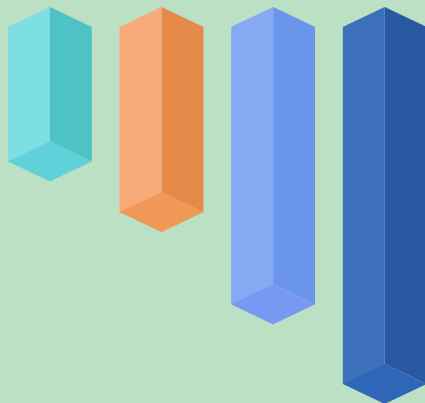


5^η

**ΠΑΓΚΥΠΡΙΑ
ΗΜΕΡΙΔΑ
ΣΤΑΤΙΣΤΙΚΗΣ
ΕΠΙΣΤΗΜΗΣ**

**ΠΑΡΑΣΚΕΥΗ
14.06.2024
9:00 - 18:00
ΚΤΗΡΙΟ ΧΩΔ01
ΠΑΝΕΠΙΣΤΗΜΙΟΥΠΟΛΗ
ΠΑΝΕΠΙΣΤΗΜΙΟ ΚΥΠΡΟΥ**



**Πληροφορίες: 22892634
info@css.org.cy**

Συνδιοργανωτές



**Πανεπιστήμιο
Κύπρου**

Χορηγοί



Alliott Partellas Kiliaris Ltd
Certified Public Accountants



Πρόγραμμα – 5^η Παγκύπρια Ημερίδα Στατιστικής, 14 Ιουνίου 2024
Πανεπιστήμιο Κύπρου – Κυπριακή Στατιστική Εταιρεία

Program – 5th Pancyprian Conference in Statistics, 14 June 2024
University of Cyprus – Cyprus Statistical Society

9:00 – 10:00	Κτίριο ΧΩΔ01, Αμφιθέατρο 109 Εγγραφές – Registrations		
10:00 – 11:00	Κτίριο ΧΩΔ01, Αμφιθέατρο 109 Προεδρεύων – Τάσος Χριστοφίδης Chair – Tasos Christofides <ul style="list-style-type: none"> • Χαιρετισμοί – Welcoming messages • Προσκεκλημένη Ομιλήτρια – Αθηνά Τσουδερού Keynote Speaker – Athena Tsouderou “Climate Risk in Mortgage Markets” 		
11:00 – 11:30	Προθάλαμος, Κτίριο 7 Διάλειμμα – Καφές Coffee break		
11:30 – 13:10	Κτίριο ΧΩΔ01, Αίθ. 103 Στατιστική Θεωρία και Μεθοδολογία 1 – Statistical Theory and Methodology 1 Προεδρεύουσα – Μιλτώ Χατζηκυριάκου <ol style="list-style-type: none"> 1. Κωνσταντίνος Φωκιανός: Clustering Multivariate Time Series using Energy Distance 2. Sophia Loizidou: Optimal testing for symmetry on the torus 3. Panagiotis Maouris: Inferring Periodicity of a Stationary Time Series via AR(2)-Model Fitting 4. Andreas Anastasiou: Wasserstein distance bounds for the normal approximation of empirical autocovariances and cross-covariances 	Κτίριο ΧΩΔ01, Αίθ. 104 Επιχειρηματική και Οικονομική Στατιστική – Business and Economic Statistics Προεδρεύουσα – Πετρούλα Μαυρικίου <ol style="list-style-type: none"> 1. Magda Tofini: Forecasting the European Union GDP Growth using the Mixed-Frequency (MIDAS) models 2. Stella Kitromilidou: What? So, what? Now, what? 3. Haritini Tsangari: A comprehensive model for the determinants of motivation and job satisfaction of fresh University graduates 4. Χαράλαμπος Χαραλάμπος: Κίνδυνος Φτώχειας και Κοινωνικού Αποκλεισμού στην Κύπρο (Έρευνα Εισοδήματος 	Κτίριο ΧΩΔ01, Αμφιθέατρο 110 ERC Funding Opportunities Webinar for Statisticians (Μέχρι τη 13:30)

	5. Andreas Artemiou: Real time Sufficient Dimension Reduction	και Συνθηκών Διαβίωσης των Νοικοκυριών)	
13:10 – 14:30	Γεύμα – Lunch Break Προθάλαμος, Κτίριο 7		
14:30 - 15:50	<p>Κτίριο ΧΩΔ01, Αίθ. 103</p> <p>Στατιστική Θεωρία και Μεθοδολογία 2 – Statistical Theory and Methodology 2</p> <p>Προεδρεύων – Ανδρέας Αναστασίου</p> <ol style="list-style-type: none"> Sergios Agariou: A new for achieving Bayesian nonparametric adaptation Iosif Pintirishis: Bayesian Nonparametric Modelling for Sparse and Power-law Graphs with Applications in Social Networks Milto Hadjikyriakou: Strong Laws of large numbers for lightly trimmed sums of generalized Oppenheim expansions Ανδρέας Μακρίδης: Survival analysis and modelling through special stochastic processes 	<p>Κτίριο ΧΩΔ01, Αίθ. 104</p> <p>Κοινωνική Στατιστική, Υγεία και Εκπαίδευση – Social Statistics, Health and Education</p> <p>Προεδρεύουσα – Χαριτίνη Τσαγκάρη</p> <ol style="list-style-type: none"> Χριστόφορος Παντελή: New technology comes at crossing boundaries Andria Christodoulou: The Dietary Inflammatory Index and cardiometabolic parameters in US firefighters Eirini Chrysanthou: Discovery and validation of sex-specific survival biomarkers in early-stage melanoma Ioulia Televantou: Students’ Motivational Outcomes and Immigration Background: A cross-national study on the “Immigrant Paradox” using TIMSS 2019 	
15:50 – 16:20	Προθάλαμος, Κτίριο 7 Διάλειμμα – Καφές Coffee break		
16:20 – 17:20	Κτίριο ΧΩΔ01, Αμφιθέατρο 109 Ετήσια Γενική Συνέλευση της ΚΣΕ Annual General Meeting of CSS		

Σημείωση: Στο πρόγραμμα αναφέρονται τα ονόματα των ομιλητών/τριών.

Το βιβλίο των περιλήψεων περιλαμβάνει τα ονόματα όλων των συν-συγγραφέων (όπου υπάρχουν)

Note: The program includes the names of the speakers.

The book of abstracts includes the names of all co-authors (if applicable).

ΧΟΡΗΓΟΙ:



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5^η ΠΑΓΚΥΠΡΙΑ ΗΜΕΡΙΔΑ ΣΤΑΤΙΣΤΙΚΗΣ ΕΠΙΣΤΗΜΗΣ

5TH PANCYPRIAN CONFERENCE IN STATISTICS

<https://www.ucy.ac.cy/stats2024/>

ΠΕΡΙΛΗΨΕΙΣ ΕΡΓΑΣΙΩΝ

BOOK OF ABSTRACTS

ΠΕΡΙΛΗΨΕΙΣ ΕΡΓΑΣΙΩΝ

BOOK OF ABSTRACTS

5^η Παγκύπρια Ημερίδα Στατιστικής Επιστήμης – 5th Pancyprian Conference in Statistics

ΠΡΟΣΚΕΚΛΗΜΕΝΗ ΟΜΙΛΙΑ - KEYNOTE SPEECH

“Climate Risk in Mortgage Markets”

**Athena Tsouderou, Assistant Professor of Finance
University of Miami**

Abstract:

Using the Credit Risk Transfers (CRTs) issued by Fannie Mae and Freddie Mac, we study how, absent government intervention, mortgage markets would price hurricane risk. Currently, such risk is priced equally across locations even if it is location-specific. We hand collect a novel and detailed database to exploit CRTs’ heterogeneous exposure to Hurricanes Harvey and Irma. Using a diff-in-diff specification, we estimate the reaction of private investors to hurricane risk. We use the previous results to calibrate a model of mortgage lending. We simulate hurricane frequencies and mortgage default probabilities in each US county to derive the market price of mortgage credit risk, that is, the implied guarantee fees (g-fees). Market-implied g-fees in counties most exposed to hurricanes would be 70% higher than inland counties.

ΣΤΑΤΙΣΤΙΚΗ ΘΕΩΡΙΑ ΚΑΙ ΜΕΘΟΔΟΛΟΓΙΑ 1 – STATISTICAL THEORY AND METHODOLOGY 1

Τίτλος: Clustering Multivariate Time Series using Energy Distance

Κωνσταντίνος Φωκιανός

Πανεπιστήμιο Κύπρου

Email: fokianos@ucy.ac.cy

A novel methodology is proposed for clustering multivariate time series data using energy distance. Specifically, a dissimilarity matrix is formed using the energy distance statistic to measure separation between the finite-dimensional distributions for the component time series. Once the pairwise dissimilarity matrix is calculated, a hierarchical clustering method is then applied to obtain the dendrogram. This procedure is completely nonparametric as the dissimilarities between stationary distributions are directly calculated without making any model assumptions. In order to justify this procedure, asymptotic properties of the energy distance estimates are derived for general stationary and ergodic time series. The method is illustrated in a simulation study for various component time series that are either linear or nonlinear. Finally, the methodology is applied to two examples; one involves GDP of selected countries and the other is population size of various states in the U.S.A. in the years 1900–1999.

Τίτλος: Optimal testing for symmetry on the torus**Sophia Loizidou^{1,*}, Andreas Anastasiou², Christophe Ley¹**¹University of Luxembourg²University of Cyprus**Speaker's email:** sophia.loizidou@uni.lu

Several complex data in the real world can be viewed as data on the hyper-torus, which is the cartesian product of circles. This has motivated, over the past years, new proposals of distributions on the torus, both (pointwise) symmetric and sine-skewed asymmetric. In practice, it is relevant to know whether one should use the simpler symmetric models or the more convoluted yet more general asymmetric ones. So far, only parametric likelihood ratio tests have been defined to distinguish between a symmetric density and its sine-skewed counterpart. In this talk, a new semi-parametric test is presented, a test which is not only valid under a given parametric hypothesis but instead under a very broad class of symmetric distributions. A description of its construction, asymptotic properties under the null and alternative hypotheses will be presented. Using Stein's method, bounds for the rate of convergence of the test statistic are derived and finite sample behaviour (through Monte Carlo simulations) will be given, as well as an application of the test on protein data.

Τίτλος: Inferring Periodicity of a Stationary Time Series via AR(2)-Model Fitting**Panagiotis Maouris^{1,*}, Efstathios Paparoditis¹ and Jens-Peter Kreiss²**¹University of Cyprus²TU Braunschweig**Speaker's email:** pmaour01@ucy.ac.cy

Estimating periodicity of a stationary time series via fitting a second order autoregressive (AR(2)) model has been introduced in a seminal paper by Yule (1927). We rigorously investigate properties of this procedure. We first show that for a general stationary process possessing a spectral density with a dominant peak, an AR(2) fit obtained via solving the system of Yule-Walker equations, correctly identifies its frequency and consequently the dominant periodicity of the time series. To tackle the associated problem of statistical inference, we adopt a "near to pole" asymptotic framework by considering triangular arrays of stationary stochastic processes with spectral densities possessing a peak which becomes more and more pronounced as the sample size n increases to infinity. We prove consistency of the AR(2) estimator of the peak location. A simple, dependent wild type bootstrap procedure is finally proposed which consistently estimates the distribution of the estimator of interest and enables the construction of valid confidence intervals for the dominant periodicity. Simulations complement our theoretical investigations.

Τίτλος: Wasserstein distance bounds for the normal approximation of empirical autocovariances and cross-covariances

Andreas Anastasiou^{1,*} and Tobias Kley²

¹University of Cyprus

²University of Göttingen

Speaker's mail: anastasiou.andreas@ucy.ac.cy

The autocovariance and cross-covariance functions naturally appear in many time series procedures (e.g. autoregression or prediction). Under assumptions, empirical versions of the autocovariance and cross-covariance are asymptotically normal with covariance structure depending on the second- and fourth-order spectra. Under non-restrictive assumptions, we derive a bound for the Wasserstein distance of the finite-sample distribution of the estimator of the autocovariance and cross-covariance to the Gaussian limit. An error of approximation to the second-order moments of the estimator and an m -dependent approximation are the key ingredients to obtain the bound. As a worked example, we discuss how to compute the bound for causal autoregressive processes of order 1 with different distributions for the innovations.

Τίτλος: Real time Sufficient Dimension Reduction**Andreas Artemiou****University of Limassol****Email: artemiou@uol.ac.cy**

We propose a real-time approach for sufficient dimension reduction. Compared with popular sufficient dimension reduction methods including sliced inverse regression and principal support vector machines, the proposed principal least squares support vector machines approach enjoys better estimation of the central subspace. Furthermore, this new proposal can be used in the presence of streamed data for quick real-time updates. It is demonstrated through simulations and real data applications that our proposal performs better and faster than existing algorithms in the literature.

ΕΠΙΧΕΙΡΗΜΑΤΙΚΗ ΚΑΙ ΟΙΚΟΝΟΜΙΚΗ ΣΤΑΤΙΣΤΙΚΗ – BUSINESS AND ECONOMIC STATISTICS

Τίτλος: Forecasting the European Union GDP Growth using the Mixed-Frequency (MIDAS) models

Elena Andreou and Magda Tofini*

University of Cyprus

Speaker's email: mtofin01@ucy.ac.cy

The consequences of the recent financial and health crises have significantly queried global confidence, giving a boost to the interest and need to signify the short-run economic activity prospects and business cycle patterns internationally using leading indicators. As such, our analysis aims to evaluate the predictive power of quarterly GDP growth in the European Union through the MIDAS modelling approach using the so-called 'soft' survey and financial leading indicators sampled at a higher monthly frequency. This study underscores the advantageous use of the MIDAS models employing specific Leading Confidence (e.g. the Consumption), Financial (e.g. Stock), and Composite (e.g. the CCLEI) predictors in forecasting exercises at the aggregate European level and at the country level (Spain, United Kingdom, and Cyprus). Particularly, the aggregate EU empirical analysis highlights a significant bias in estimated slope coefficients when employing a Linear-ADL model based on traditional aggregation techniques, compared to a MIDAS model. Also, MIDAS models display superior out-of-sample performance, exhibiting the highest gains in terms of RMSFE vis-à-vis the AR, RW, and Linear-ADL models, especially when financial predictors such as Stocks or Euribor rates are used, as well as Sentiment indicators, across short and long term forecasting horizons. Remarkably, the unequivocal role of the Consumer Survey Confidence Indicator in describing and anticipating movements in the EU GDP growth and other European countries through the MIDAS models is depicted.

Τίτλος: What? So, what? Now, what?

Stella Kitromilidou

KPMG Cyprus

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The gender gap in STEM fields remains a significant issue, characterized by the underrepresentation of women. Despite advances in both education and professional opportunities, women continue to face systemic barriers, including biases, stereotypes, and lack of support, which hinder their participation and advancement in STEM careers. Enhancing the role of women in STEM is not only a matter of equality but also essential for the scientific and technological progress of society. This talk summarizes several statistics related to the topic and attempts to raise awareness, with focus on the business aspect of things.

Τίτλος: A comprehensive model for the determinants of motivation and job satisfaction of fresh University graduates

Haritini Tsangari^{1*} and Carole Serhan²

¹University of Nicosia

²University of Balamand

Speaker's email: tsangari.h@unic.ac.cy

In today's challenging markets, organizations need to explore new ways to maximize the productivity and business performance of their employees. The study focuses on a special group of employees, namely fresh University graduates. A new, integrated modeling framework is proposed (MJCM), aiming to identify the practices and conditions under which employed fresh graduates will experience high levels of internal work motivation, satisfaction, effectiveness and commitment ("personal/work outcomes"). The framework is an extension of Hackman and Oldham's Job Characteristics Model, bridging some of its theoretical gaps. The model was tested on 630 respondents. Its psychometric properties were first examined, where the validity and reliability of the model were verified. The relation between "core job dimensions" and "personal/work outcomes" was then tested, indicating the significant determinants. It was also found that this relation is mediated by "experienced psychological states", such as self-confidence and experienced meaningfulness of the work. Interesting results were obtained, demonstrating the importance of effective job design and redesign strategies for employed fresh graduates.

Τίτλος: Κίνδυνος Φτώχιας και Κοινωνικού Αποκλεισμού στην Κύπρο (Έρευνα Εισοδήματος και Συνθηκών Διαβίωσης των Νοικοκυριών)

Χαράλαμπος Χαραλάμπος

Στατιστική Υπηρεσία

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Η Έρευνα Εισοδήματος και Συνθηκών Διαβίωσης των Νοικοκυριών (EU-SILC) διεξάγεται από τη Στατιστική Υπηρεσία από το 2005 και στοχεύει στο να συλλέξει συγχρονικά και διαχρονικά μικροδεδομένα σχετικά με την κατανομή του εισοδήματος, τη φτώχεια και τον κοινωνικό αποκλεισμό. Τα μικροδεδομένα αυτά πρέπει να είναι έγκαιρα και συγκρίσιμα μεταξύ των κρατών μελών της Ευρωπαϊκής Ένωσης (ΕΕ). Τα στοιχεία της έρευνας χρησιμοποιούνται, μεταξύ άλλων, σε διάφορες πολιτικές της ΕΕ σχετικά με τις συνθήκες διαβίωσης και τη φτώχεια, όπως την παιδική φτώχεια, την πρόσβαση στις υπηρεσίες φροντίδας υγείας και άλλες υπηρεσίες, τη στέγαση, την υπερχρέωση των νοικοκυριών και την ενεργειακή φτώχεια. Επιπρόσθετα, ο Δείκτης Κινδύνου Φτώχιας ή Κοινωνικού Αποκλεισμού (AROPE) είναι ο κύριος δείκτης για την παρακολούθηση του στόχου της Ευρωπαϊκής Ένωσης για το 2030 για τη φτώχεια και τον κοινωνικό αποκλεισμό. Το αντικείμενο της παρουσίασης αφορά στην περιγραφή της μεθοδολογίας της έρευνας, καθώς και την παρουσίαση και επεξήγηση βασικών δεικτών.

**ΣΤΑΤΙΣΤΙΚΗ ΘΕΩΡΙΑ ΚΑΙ ΜΕΘΟΔΟΛΟΓΙΑ 2 – STATISTICAL THEORY AND
METHODOLOGY 2**

Τίτλος: A new for achieving Bayesian nonparametric adaptation

Sergios Agapiou^{1,*} and Ismael Castillo²

¹University of Cyprus

²Sorbonne Université

Speaker's email: agapiou.sergios@ucy.ac.cy

We will consider Bayesian nonparametric settings with functional unknowns and we will be interested in evaluating the asymptotic performance of the posterior in the infinitely informative data limit, in terms of rates of contraction. We will be especially interested in priors which are adaptive to the smoothness of the unknown function.

In the last decade, certain hierarchical and empirical Bayes procedures based on Gaussian process priors, have been shown to achieve adaptation to spatially homogeneous smoothness. However, we have recently shown that Gaussian priors are suboptimal for spatially inhomogeneous unknowns, that is, functions which are smooth in some areas and rough or even discontinuous in other areas of their domain. In contrast, we have shown that (similar) hierarchical and empirical Bayes procedures based on Laplace (series) priors, achieve adaptation to both homogeneously and inhomogeneously smooth functions. All of these procedures involve the tuning of hyperparameters of the Gaussian or Laplace prior.

After briefly reviewing the above results, we will present a new strategy for adaptation to smoothness based on heavy-tailed priors. We will illustrate it in a variety of nonparametric settings, showing in particular that adaptive rates of contraction in the minimax sense are achieved without tuning of any hyperparameters and for both homogeneously and inhomogeneously smooth unknowns. We will also present numerical simulations corroborating the theory.

The main part of the talk is joint work with Ismaël Castillo.

Τίτλος: Bayesian Nonparametric Modelling for Sparse and Power-law Graphs with Applications in Social Networks**Iosif Pintirishis*, Xenia Miscouridou, Sergios Agapiou****University of Cyprus****Speaker's email: jpinti01@ucy.ac.cy**

Networks are complex structures found in many areas of modern life, such as social sciences, economics and engineering. Our work focuses on analysing these networks to address important questions about society. We discuss key network features like sparsity and degree heterogeneity, which greatly affect how networks are structured and behave. We use the Bayesian Nonparametric Framework (BNP) to build our statistical models. This approach allows our models to be very flexible and adapt to the data we observe. By combining BNP with network theory, one gains a deeper understanding of how networks are connected and how they change over time. This helps in studying evolving networks and uncovering hidden communities within them, offering new insights into social interactions and connectivity in complex systems.

Τίτλος: Strong Laws of large numbers for lightly trimmed sums of generalized Oppenheim expansions

Rita Giuliano¹ and Milto Hadjikyriakou^{2,*}

¹Università di Pisa Largo Bruno

²UCLan Cy

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In the framework of generalized Oppenheim expansions, we prove strong law of large numbers for lightly trimmed sums. First, we identify a particular class of expansions for which we provide a convergence result assuming that only the largest summand is deleted from the sum; this result generalizes a strong law recently proven for the Luroth case. Then, we drop any assumptions concerning the structure of the Oppenheim expansions and we prove a result concerning trimmed sums when at least two summands are trimmed; finally we derive a corollary for the case in which only the largest summand is deleted from the sum.

Τίτλος: Survival analysis and modelling through special stochastic processes

Ανδρέας Μακρίδης

Πανεπιστήμιο Αιγαίου

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The work deals with the description of the competing risks model in terms of the Multi-State Systems (MSS) methodology and the associated statistical inference when the sojourn times i.e. the waiting times on each state follow distributions belonging to a general class of distributions which is closed under minima.

**ΚΟΙΝΩΝΙΚΗ ΣΤΑΤΙΣΤΙΚΗ, ΥΓΕΙΑ ΚΑΙ ΕΚΠΑΙΔΕΥΣΗ – SOCIAL STATISTICS, HEALTH
AND EDUCATION**

Τίτλος: New technology comes at crossing boundaries

Χριστόφορος Παντελή*, Ανδρέας Αναστασίου, Μάριος Στυλιανού, Χρυσάφης Ανδρέου

Πανεπιστήμιο Κύπρου

Speaker's email: panteli.christoforos@ucy.ac.cy

This talk will tell the story of how a physicist, a statistician, a microbiologist, and an electronic engineer came together to tackle Urinary-Tract Infection diagnosis. By thinking out of the box and combining and transferring knowledge, new ideas are born. This new idea is based on three facts. First, bacteria release gases when they grow in culture media. Second, electronic gas sensors are not specific but cheap and easy to integrate with microelectronics for multiple time point measurements and dynamic monitoring. Third, change-point detection (CPD), a statistical methodology, can detect changes in the mean or slope of a time-series signal at low computational cost despite noisy data. Putting all three facts together, off-the-shelf gas sensors were used to monitor the released gases in culture dishes during bacterial growth. CPD was able to identify changes in the time-series of released gases of urinary tract infection related bacterial during growth under 10 hours. This result is significantly faster than the 24-hour duration of the current diagnostic method.

Τίτλος: The Dietary Inflammatory Index and cardiometabolic parameters in US firefighters**Andria Christodoulou*, Costas A. Christophi, Mercedes Sotos-Prieto, Steven Moffatt, Longgang Zhao, Stefanos N. Kales and James R Hébert****Cyprus University of Technology****Speaker's email: christodoulou_andria@hotmail.com**

Introduction: Dietary choices play a crucial role in influencing systemic inflammation and the eventual development of cardiovascular diseases (CVD). The Dietary Inflammatory Index (DII®) is a novel tool designed to assess the inflammatory potential of one's diet. Firefighting, which is characterized by high-stress environments and elevated CVD risk, represents an interesting context for exploring the dietary inflammatory-CVD connection.

Aim: This study aims to investigate the associations between Energy-adjusted Dietary Inflammatory Index (E-DIITM) scores and cardiometabolic risk parameters among US firefighters. Methods: The study analyzed 413 participants from the Indianapolis Fire Department who took part in a Federal Emergency Management Agency (FEMA)-sponsored Mediterranean diet intervention trial. Thorough medical evaluations, encompassing physical examinations, standard laboratory tests, resting electrocardiograms, and submaximal treadmill exercise testing, were carried out. Participants also completed a detailed food frequency questionnaire to evaluate dietary patterns, and E-DII scores were subsequently computed based on the gathered information.

Results: Participants had a mean body mass index (BMI) of 30.0 ± 4.5 kg/m² and an average body fat percentage of $28.1 \pm 6.6\%$. Regression analyses, adjusted for sex, BMI, maximal oxygen consumption (VO₂ max), max metabolic equivalents (METS), age, and body fat percentage, revealed significant associations between high E-DII scores and total cholesterol ($\beta=10.37$, $p=0.04$). When comparing low Vs median E-DII scores there is an increase in glucose ($\beta=0.91$, $p=0.72$) and total cholesterol ($\beta=5.51$, $p=0.26$).

Conclusion: Our findings support an association between higher E-DII scores and increasing adiposity, as well as worse lipid profiles.

Τίτλος: Discovery and validation of sex-specific survival biomarkers in early-stage melanoma**Eirini Chrysanthou****University of Turin****Email: eirini.chrysanthou@gmail.com**

The prevalence of sex-based disparities across various cancers has long been acknowledged, impacting factors like incidence, survival rates, and responses to treatment. Notably, in melanoma, men exhibit a twofold higher likelihood of developing the disease and face a higher mortality rate compared to females. This research is dedicated to identifying sex-specific gene expression prognostic markers in early-stage (stage I-II) melanoma.

Methodologically, we examined gene expression datasets comprising 311 females and 256 males with stage I and II melanoma from the Leeds Melanoma Cohort (LMC), along with subsets from the TCGA RNA-seq dataset (28 females and 46 males) and melanoma tissues from 22 females and 21 males collected from the local hospital (RT-qPCR). We examined gene expression variability (GEV) and evaluated the immune cell compositions using the xCell deconvolution method. The study employed sex as both a covariate and an effect modifier in survival analyses, conducting multivariate Cox regression analyses separately for each gender.

Our findings unveiled a lower GEV in early-stage female melanomas, contrary to conventional expectations. Survival analysis elucidated a strong reliance on female-specific genes, unveiling a three-gene female-specific prognostic signature (UHRF1, UBE7, HLA-E). A prognostic model consisting of two genes (BEX3 and SF3B3), age and stage was obtained in males with stage I-II melanomas. Validation of these signatures by RT-qPCR on the external local cohort demonstrated robust predictive abilities, with the female signature achieving an UNO AUC of 0.80 and the male signature exhibiting an UNO AUC of 0.71. Moreover, immune cell analysis disclosed differential enrichment of 24 immune cell subtypes between female and male stage I-II melanomas, with 10 subtypes correlating positively with survival exclusively in females at this stage.

In conclusion, this study emphasizes the criticality of sex-specific stratification in melanoma survival analyses, underlining a notably superior performance of sex-specific features in the female cohort. It unravels unexpected sex-based discrepancies in GEV and illuminates distinct biological pathways and immune cell populations in male versus female melanomas. Ultimately, this research challenges existing paradigms in survival analysis, advocating for a fundamental shift to refine personalized and targeted medicine approaches.

Τίτλος: Students' Motivational Outcomes and Immigration Background: A cross-national study on the "Immigrant Paradox" using TIMSS 2019

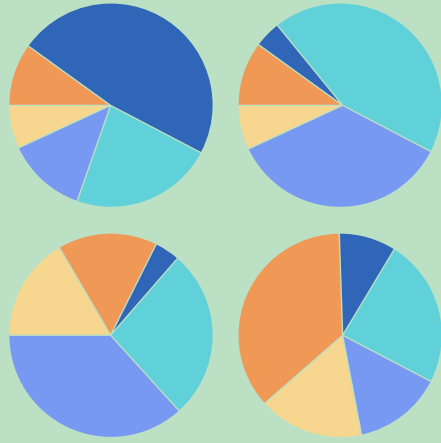
Ioulia Televantou^{1,*}, Andrés Christiansen² and Rolf Strietholt²

¹European University of Cyprus

²Research and Analysis Unit, IEA

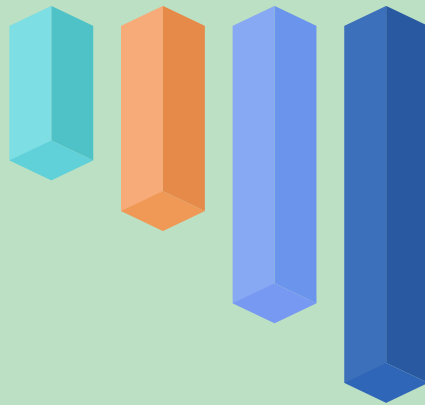
Speaker's email: i.televantou@euc.ac.cy

Recent immigrant students have better motivational outcomes (e.g., educational aspirations, educational expectations) than native individuals and later immigrants, despite the considerable barriers they face when moving to another country; this trend is commonly referred to as the "immigrant paradox". Using cross-national data from TIMSS 2019 on grade four students' self-concept we show that, given the same level of achievement, recent immigrants have higher self-concept than their native peers and later immigrants. This finding remains robust after adjustments for socio-economic status, and, it is detected using data from different educational systems present in the database. However, for some countries, it isn't shown. Further research is needed before conclusions are reached as to why this paradox may occur.



5th PANCYPRIAN CONFERENCE IN STATISTICS

FRIDAY
14.06.2024
9:00 - 18:00
BUILDING XΩΔ01
UNIVERSITY CAMPUS
UNIVERSITY OF CYPRUS



Information: 22892634
info@css.org.cy

Organisers



University
of Cyprus

Sponsors



Statistical solutions to drug development



Alliott Partellas Kiliaris Ltd
Certified Public Accountants