

# 2023 Measuring Progress Annual Workshop



LUXEMBOURG  
2-3 JUNE

**Hotel Parc Bellevue, Luxembourg, 2nd – 3rd of June 2023**

Organized by STATEC Research, the Research Division of the National Institute of Statistics and Economic Studies of Luxembourg (STATEC), in collaboration with STATEC and with the sponsorship of the Ministry of the Economy of the Grand Duchy of Luxembourg, and of the International Society for Quality of Life Studies (ISQOLS).

This international workshop will bring together **leading scholars and practitioners** discuss the quest for better lives, **how to measure progress, and tools to lastingly increase quality of life. This workshop builds upon the [Measuring Progress Seminar Series](#), extending it to an in-person event to facilitate community building and the exchange of ideas.**

The workshop will take place over two days, and it will feature two keynote speeches, numerous presentations, and a social dinner. All sessions will be plenary, and streamed online to facilitate remote attendance. Speakers will have approximately 25 minutes for presentation and discussion.

## BOOK OF ABSTRACTS



**Stefano Bartolini, University of Siena**  
**Francesco Sarracino, STATEC Research**

**Do People Care About Future Generations? Derived Preferences from Happiness Data**

The main approaches for computing very long-term discount rates – revealed and stated preferences – have limitations. We overcome previous shortcomings using derived preferences, i.e. we retrieve information on very long-term time preferences from happiness data and people's expectations about the living conditions of future generations. We account for possible endogeneity between expectations about the future and current well-being using 2SLS. We find that negative (positive) expectations about future generations have a very large negative (positive) impact on subjective well-being. This finding suggests that the very long-term discount rate is lower than implied by most traditional economic analyses.

**Bjorn Becker, Trier University**  
**Laszlo Goerke, Trier University**  
**Yue Huang, Trier University**

**Trade Unions and Life Satisfaction in Germany**

While the relationship between trade union membership and job satisfaction has been documented extensively, the evidence on the linkage to life satisfaction is scarce. Arguably, life satisfaction is a better proxy for individual utility than job satisfaction. Therefore, the effect of union membership on the former indicator of well-being is more relevant. Using data from the German Socio-Economic Panel from 1985 to 2019, we find a negative correlation between trade union membership and life satisfaction in OLS and FE specifications. The association may arise because union members are more concerned about their job and the economic situation and less satisfied with their work. Social capital and wages also perform as channels between union membership and life satisfaction. The negative correlation is restricted to settings in which trade unions are relatively weak.

**Finbarr Brereton, University College Dublin,**  
**Anna Onida, University College Dublin,**

**Blue Space and Subjective Well-being: A Review of Published Literature in the European Union**

This paper aims at systematically reviewing published research on blue spaces and well-being in the European Union. The review shows how there is a growing amount of research on how natural environments, particularly parks and forests, are important assets to public health. However, the effects of blue spaces on well-being are still underexplored. Studies were selected through online databases and chosen based on their relevance to different types of



well-being and exposure to blue environments. The heterogeneous results show that there are still some discrepancies on how public health is affected by water exposure. The analysis shows that active exposure, like swimming in the sea, has been extremely beneficial to well-being and mental health. However, less coherent information is given on how passive exposure, as in relaxing on the beach or walking alongside water, is affecting health. Public health is also affected by other determinants, such as accessibility to facilities, availability of clean bathing sites, conservation of nature and more. EU Environmental Policy, through the Bathing Water Directive, is crucial to maintaining high water quality standards and tries to mend these different factors to maximise health benefits and use blue spaces as tools to tackle climate change. The review shows that the BlueHealth project aims at merging these components together and finding solutions to improve and preserve blue infrastructures throughout urban spaces, especially in deprived neighbourhoods

**Mark Fabian, University of Warwick**

**Anna Alexandrova, University of Cambridge**

**Yamini Cinamon Nair, University of Cambridge**

**Johanna Thoma, London School of Economics**

**Halima Khan, University of Cambridge**

**Jamie Anderson, University of Manchester**

**Michael Jacobs, University of Sheffield**

### **Coproducing wellbeing public policy – objectives, measures, and evaluations**

‘Wellbeing’ - what is good for someone or makes their life go well - is a value-laden term. Its definition requires a value-judgement, and liberal-democratic norms require that this value judgement be left to citizens when designing public policy. This raises objections to the development and imposition of wellbeing metrics from the ‘top-down’ in public policy, as these metrics are typically drawn from scientific practice without the involvement of citizens or ‘street-level’ bureaucrats. This paper outlines an alternative method for coproducing wellbeing metrics for public policy from the ‘bottom-up’. The method involves bringing together stakeholders who will be affected by policy, practitioners who will implement that policy, and technical experts with wellbeing and area-specific knowledge to collaboratively develop context-sensitive wellbeing definitions, policies, and metrics. This collaboration involves two-way learning and genuine power sharing, in contrast to more technocratic modes of wellbeing governance. It produces wellbeing policy frameworks that speak to immediate reform priorities, the idiosyncrasies of local policy contexts, and the realities of everyday public management. These frameworks can be generalised by drawing together representatives from adjacent policy contexts to coproduce wellbeing policy frameworks for higher scales of practice and analysis. The paper illustrates this procedure using a case study from coproduction exercises with the UK national anti-poverty charity Turn2us and multiple-complex disadvantage charity MayDay trust, and preliminary insights from a project with the Greater London Authority and its 32 constituent boroughs.



**Roger Fernandez-Urbano, University of Luxembourg**

### **Youth's Eco-Anxiety is related to Happiness but not to Life Satisfaction: The Moderating Role of Proximity to Extreme Weather Events**

Beyond the material consequences, climate change can also produce non-material effects, which politicians have mainly overlooked, such as emotional concerns and preference shifts among citizens. One of the non-material effects that has recently been popularized in the media and academia is eco-anxiety, which seems to particularly affect young people in developed countries and refers to the anxiety people face from constantly being surrounded by the threatening problems associated with climate change. This article investigates how eco-anxiety is related with subjective well-being among youth using data from Luxembourg. It also analyses how this relationship is moderated by proximity to extreme weather events. Luxembourg is a relevant setting because it is the country with the highest GDP per capita in the world and one of the happiest, and like other European countries, it experienced a severe flooding in the summer of 2021. With a sample of 3.500 observations, our results show that while there is a strong positive relationship between eco-anxiety and short-term happiness beyond individual characteristics, this relationship appears to be non-existent when we use an evaluative measure of subjective wellbeing (life satisfaction). Furthermore, our results indicate that the association between eco-anxiety and happiness is not sensitive to the flooding in their country, unless individuals are directly exposed to it, in which case the association between eco-anxiety and happiness becomes negative. The article stipulates several potential explanations for these results and presents avenues for future research. Overall, this evidence can also help to understand why citizens are less willing to take action against climate change in the short-term.

**Tiffany Ford, Brookings Institute**

### **The Existence and Persistence of the Black-white Subjective Well-being Paradox in the United States**

Subjective well-being research has consistently surfaced a surprising finding: Black people report better well-being than white people in the United States. I report on the existence and persistence of this paradoxical finding among Black and white U.S. adults in a nationally representative sample of Gallup Daily data (N = 1,246,564) by assessing whether the paradox can be found in evaluative and hedonic well-being indicators, despite low objective experiences, and if it varies with gender in the United States of America. I find that Black people were more optimistic and less stressed than White people before and after sociodemographic controls. Additionally, Black people with low objective experiences reported higher SWB than white people with low objective experience. Both findings remained true in gender-specific samples. After assessing the ubiquity of the Black-white subjective well-being paradox, I consider how sociopolitical context and racialization might be shaping these paradoxical well-being outcomes for Black people in the United States.



**Talita Greyling, University of Johannesburg**

**Stephanie Rossouw, Auckland University of Technology**

### **Collective emotions and macro-level shocks: COVID-19 vs the Ukrainian war**

We know that when collective emotions are prolonged, it leads not only to action (which could be negative) but also to the formation of identity, culture, or an emotional climate. Therefore, policymakers must understand how collective emotions react to macro-level shocks to mitigate potentially violent and destructive outcomes. Given the above, our paper's main aim is to determine the effect of macro-level shocks on collective emotions and the various stages they follow. To this end, we analyse the temporal evolution of different emotions from pre to post two different types of macro-level shocks; lockdown, a government-implemented regulation brought on by COVID-19 and the invasion of Ukraine. A secondary aim is to use narrative analysis to understand the public perceptions and concerns that lead to the observed emotional changes. To achieve these aims, we use a unique time series dataset derived from extracting tweets in real-time, filtering on specific keywords related to lockdowns (COVID-19) and the Ukrainian war for ten countries. Applying Natural Language Processing, we obtain these tweets underlying emotion scores and derive daily time series data per emotion. We compare the different emotional time series data to a counterfactual to derive changes from the norm. Additionally, we use topic modelling to explain the emotional changes. We find that the same collective emotions are evoked following similar patterns over time regardless of whether it is a health or a war shock. Specifically, we find fear is the predominant emotion before the shocks, and anger leads the emotions after the shocks, followed by sadness and fear.

**Caspar Kaiser, Tilburg University & University of Oxford**

**Samuel Dupret, Happier Lives Institute**

**Michael Plant, Happier Lives Institute & University of Oxford**

**Conrad Samuelsson, Happier Lives Institute**

### **Assessing the comparability, linearity, and neutrality of subjective wellbeing measurements**

Data on self-reported wellbeing are increasingly used across the social sciences and in applied policy-making. Such analyses fundamentally rely on assuming that self-reports are comparable (e.g. on a scale from 0 to 10, your 6/10 is the same as my 6/10) and linear (e.g. the difference between a 3/10 and a 4/10 is the same as between a 6/10 and a 7/10). When using wellbeing data to make trade-offs between the quantity and quality of life, we additionally need to know the point of neutrality on such scales. Despite these assumptions being foundational for modern subjective wellbeing research, evidence on neutrality, comparability, and linearity is critically scarce. We address this gap. Specifically, we field a comprehensive survey of about 50 novel questions to quantitatively understand respondents' scale-use and understanding of life satisfaction questions. Based on an initial sample (N=140), we find that although there are some deviations from linearity, these seem to be too small to undermine standard results in the literature. Similarly, with respect to comparability, there is little evidence of strongly divergent scale-use across respondents. Finally, concerning



neutrality, we find that the average neutral level – i.e. the point of indifference between being alive and dead – is roughly at a level of 1.3/10. However, these results depend on several philosophical considerations that are not frequently discussed in the social sciences. With the aim of making wellbeing data amenable for comprehensive welfare analyses, we provide an exposition and assessment of these philosophical considerations. We will run a larger-scale version of this survey across multiple countries and currently seek feedback before doing so.

**Judit Kalman, Centre for Economic and Regional Studies**

### **Gender Differences in Effects of Labor Market Status on Subjective Well-Being Across European Welfare Regimes**

This research investigates what gender differences exist in the relationship of work and subjective well-being across different European welfare regimes. Besides estimating individual-specific socio-demographic effects, especially that of labor market status it emphasizes the institutional context of different welfare regimes, the generosity of welfare policy schemes and some macroeconomic factors (GDP, social and ALMP expenditures) and/or gender regimes on individual life satisfaction. Using micro-data from ESS 1-7 waves from 22 countries, adding context variables from various sources (e.g. Scruggs CWED2 welfare generosity scores, OECD, EIGE gender equality index etc.) it applies a pooled cross-section analysis with relevant multivariate methods). Apart from individual factors, it confirms welfare and gender regime typology, as well as the finer measure of generosity of welfare provisions to matter.

**Anthony Lepinteur, University of Luxembourg**

**Caspar Kaiser, Tilburg University & University of Oxford**

### **Reversing the Reversal? An Appraisal of the Robustness of Economic Research on Self-Reported Wellbeing**

Using the non-reversal condition of Kaiser and Vendrik (2022), we estimate the extent to which the wellbeing literature is really plagued by the threat of reversal (Bond and Lang, 2019). To do so, we first replicate the near-universe of the wellbeing articles published in top Economic journals since 2010. We show that the threat of reversal is very limited: only 10% of the universe of wellbeing literature can be plausibly reversed. We find similarly low reversal risks in the literature documenting a U-shape curve in age, a female penalty, a negative effect of unemployment and a positive effect of income. Last, we try to find the best research design to reduce the reversal risk. Early results suggest that exogenous independent variables are the least prone to reversal.



**Lucía Macchia, City, University of London**

### **Governments should measure pain when assessing societal wellbeing**

Traditionally, the Gross Domestic Product has been considered the key indicator of societal progress and wellbeing. Due to the limitations of the standard statistics, governments started to use measures of psychological wellbeing (e.g., happiness, life satisfaction) to evaluate citizens' welfare. More recently, scholars across the social sciences suggested that alternative approaches to measuring wellbeing should be taken into account. To that end, this perspective argues that governments should measure physical pain when assessing societal wellbeing. This article analyses physical pain as a socioeconomic, psychosocial, and behavioural phenomenon and discusses why pain should be used to complement the existing measures of societal wellbeing. This proposal aims to move the science of wellbeing forward and improve the design and evaluation of public policies for wellbeing.

**Giorgia Menta, LISER**

**Anthony Lepinteur, University of Luxembourg**

**Andrew E. Clark, Paris School of Economics**

**Conchita D'Ambrosio, University of Luxembourg**

### **Depression and Early-Retirement Age: Causal Evidence from a Gene-Environment Setup**

Differences in genetic endowments can influence how individuals react to changes in their environment (such as policy interventions and living conditions). We here estimate the role of the individual genetic propensity to be depressed as a moderating factor of the association between the exposure to a pension reform in the UK and health outcomes. Using data from the Understanding Society longitudinal study in the UK and exogenous variations in early retirement age from the 1995 to 2011 Pensions Acts, we first show that women who are exposed to an increase in pension age are more likely to stay in employment and less likely to retire. We then show that the reform has a detrimental effect on their mental and physical health. While the labour-market effect is orthogonal to the genetic predisposition for depression, we find that the adverse health effects of the reform are only found for women with a higher genetic propensity to be depressed. We additionally provide evidence that the health effects of the reform are driven by women whose labour market status is affected by the reform. Our results suggest that labour market reforms can have unexpected effects on individuals' health that enhance genetic health inequalities.

**Malgorzata Mikucka, University of Mannheim**

**Eva Jarosz, University of Warsaw**

**Annalisa Donno, University of Padova**

### **Inequality in time spent together**

Social research has not paid much attention to companionship or the physical presence of others in one's surroundings. However, the changing demographic landscape and increasing





prevalence of remote work warrant more investigation into the topic. We hypothesize that companionship is shaped by both structural and behavioural factors, and that it is a dimension of social inequality. This study analyses how the amount of time spent in the company of household members or people not living in the household differs across the life course, between genders, and depending on socioeconomic characteristics. The study uses harmonized data (N=90,944 respondents) from five nationally representative time-use surveys: Finnish (2009-10), British (2014-15), German (2012-13), Italian (2013-14), and Polish (2013-14). The results show that in all countries companionship differs substantially with age and between genders. We also find that the time spent in the company of people not living in a respondent's household is higher among the higher educated and those with higher household income. Blinder-Oaxaca decomposition demonstrates that these differences are partly explained by the differences in the groups' composition, mainly family and employment status. The present study is the first one to discuss companionship as subject to multidimensional, structurally rooted social inequality.

**Francis Munier, University of Strasbourg**

**Monica Guillen-Royo, Center for International Climate Research**

### **Contributions of the Economics of Happiness to a Green Economy: the Importance of the Concept of Recognition**

The ecological debates consider essentially two approaches. The technological solution and the greening of behaviour. Technology will provide answers, but it is not enough. Attitudes must also become greener. Can being green and happy only be aporetic? The purpose of this article is to show a contrario that happiness is a key concept not only for understanding the impact of global warming, but also for demonstrating that happiness seems to be a viable solution to the problem of climate change. More specifically, we focus here on a salient result from the economics of happiness indicating that a key factor of subjective well-being is indeed good and frequent social relationships (Bartolini, Bilancini and Pugno, 2013; Bartolini and Bonatti, 2008; Bartolini and Sarracino, 2015), and that these are also correlated with greener behaviour when the focus is thus on relational goods (Bartolini, 2014, Uhlener, 1989). In other words, an ad hoc policy against global warming would be to facilitate social capital while making individuals happier. Nevertheless, arguing that social relations are a nexus of happiness is not enough. In order to move forward on these issues, this ecological virtue (Pelluchon, 2018) of social relations needs to be conceptualised more ontologically to allow a paradigmatic shift from homo oeconomicus to homo felix (according to Binder, 2020). Drawing on the work of Honneth (1992, 2006), Hoevel (2013), Calvo (2018), Munier (2018), Burger et al, (2020) and Pelluchon (2018), we suggest an ethics and aesthetics of recognition for a green and cordial economy.





**Anton Nivorozhkin, Institut für Arbeitsmarkt**

**Markus Promberger, Institut für Arbeitsmarkt**

### **Unemployment entry and life satisfaction: The role of benefit conditionality**

Previous research suggests that unemployment negatively affects wellbeing, but it remains unclear whether and how unemployment benefits can offset this effect. This paper takes a closer look at the effects of two benefit schemes in Germany that aim to support unemployed individuals. The first benefit scheme – unemployment benefit (UB I) is insurance based, the second is – welfare benefits that may be awarded to unemployed individuals if they live in the household that is considered to be poor (UB II). Two schemes differ in eligibility criteria and generosity. More important the benefit schemes differ in conditionality requirements that aim to reward desirable behaviour and punish “undeserving” benefit of non-compliance with norms of benefit recipient are examples conditionality requirements. By using variation in conditionality requirements of two benefit schemes we are able to clarify their effect on subjective wellbeing of unemployed. We use German survey “Panel Labour Market and Social Security” (PASS) for the period 2007 to 2021 and apply fixed-effects regression. To separate the effect of conditionality requirements from the effect of generosity we use changes in the household income and concentrate the discussion of the effect of entering unemployment. Our results suggest that stronger conditionality requirements imbedded in UB II, as opposed UB I, lead to greater decrease in life satisfaction of people that enter unemployment. Our results have important policy implications for the design of unemployment benefit schemes.

**Nuno Nunes, Iscte-University Institute of Lisbon**

**Maria do Carmo Botelho, Iscte-University Institute of Lisbon**

### **My well-being improves society? Challenges in measuring progress and development theories**

In this presentation, we will theoretically discuss how the (new) sociology of development is incorporating the science of well-being. This theoretical discussion will “open the floor” to present data and better understand how well-being perceptions are linked with successful societies, in terms of objective and subjective indicators. The question “My well-being improves society?” will be the theory-driven and the empirical guidance for both advancing in measuring progress and to contribute for the sociology of development. This research aims to propose a system of possible indicators for measuring the perceptions of Europeans regarding the different dimensions of well-being, and to assess the existing relationship with objective indicators. The methodological objectives will be to: 1) comparatively analyse different micro-data bases of European coverage; 2) define a system of indicators to measure Europeans' perceptions of well-being; 3) analyse the interdependencies between perceptions of well-being and the relation with objective indicators of well-being, growth and inequalities; and 4) compare well-being in European countries and regions. This presentation will be structured around the following output-steps:



- I. Objectives of the current project “How I feel: Unequal well-being perceptions of Europeans”;
- II. State-of-art of the sociology of development for the research question “My well-being improves society?” and with dealing the main global contemporary problems;
- III. Data supported in examples of statistically relevant relations between objective and subjective indicators for measuring progress in European countries and regions.

**Kelsey J. O’Connor, STATEC Research**

### **Methods to measure and (not) achieve societal progress**

Societal progress is characterized primarily as an improvement in the distribution of well-being, based on the views of the United Nations, among others. Although both subjective and objective measures of well-being have their limitations, subjective measures, such as life satisfaction, overcome many of the objective-measure limitations, and they presently represent our best single-item headline measures of well-being and progress. This is in part because respondents, when evaluating their satisfaction with life, implicitly assess and weigh all of the relevant factors in their lives. In a first study, we evaluated the long-run correlates of life satisfaction in a sample of ten European countries over the period 1981 to 2018. Long-run changes in life satisfaction are not correlated to long-run rates of GDP per capita growth, meaning economic growth does not in itself represent nor strictly lead to societal progress. Air pollution, social trust, and unemployment rates likewise did not affect life satisfaction. Social safety net programs did however. Countries that expanded their safety nets experienced lasting increases in life satisfaction. Three further studies are discussed, which, using different methods, also show safety net programs are associated with greater life satisfaction. This research does not rule out other determinants of, or potential forms of, progress. However, what we can reliably argue is that providing greater economic and health security leads people to feel better about their lives and represents societal progress.

**Ekaterina Oparina, London School of Economics**

**Maria Cotofan, King's College London**

**Christian Krekel, London School of Economics**

### **Wellbeing Effects of Combining Sports and Volunteering**

Mental health and wellbeing are increasingly being recognised as essential components that contribute to overall health and quality of life. As a result, there is a growing interest in non-clinical interventions such as social prescribing. Social prescribing involves referring individuals to non-clinical activities, such as physical activity, volunteering, or cultural events, to promote their health and wellbeing. NHS England identifies social prescribing as a crucial aspect of Universal Personalised Care. However, evidence on the effects of such prescriptions, particularly when they involve more than one activity, is limited. In this study, we examine the effects of combining physical activity and volunteering on wellbeing. We conducted an online survey among members of a not-for-profit UK company that provides an infrastructure



for combining physical activity with volunteering tasks. The company's aim is to help its members use their gym energy to do good in their local communities. By exploring variation in participation, we demonstrate that participating in these activities is negatively associated with loneliness and mental distress, and positively associated with life satisfaction, worthwhileness, and belonging. We find no effect on trust in people in the local area or in general. Additionally, estimating the wellbeing effects allows us to calculate private wellbeing returns to volunteers, which are often overlooked in societal benefit calculations of volunteering in general.

**Sofia Panasiuk, University of Toronto**

**Ethical concerns about “Average” in measuring progress in well-being: The do’s and don’ts of well-being aggregation.**

Rote approaches to population well-being aggregation have thorny ethical implications that are rarely if ever, acknowledged. The problem of quantifying population well-being has not received enough attention, despite the fact that many countries are adopting well-being strategies alongside economic ones. The most popular approach is using the average is used to represent the distribution of happiness. However, using average well-being as a key performance indicator is problematic for numerous reasons, not the least of which is its tolerance for increases in average well-being at the cost of the worst off in a given society. In this paper, we critically examine three alternative practical methods of well-being aggregation along with their supporting theories of prioritarianism, sufficientarianism, and telic egalitarianism and contrast them to the standard—average utilitarianism. Second, using Gallup World Poll data from almost 300,000 participants in 140 countries, we calculated the 7-year difference in life satisfaction using the tenets of each framework. Our findings show notable differences in the rankings of the countries according to different aggregative theories. These results demonstrate the need to re-evaluate the existing paradigm of well-being aggregation and realign it with societal values of equity, which may be better expressed in the alternative methods outlined. Given the shift in global priorities toward well-being promotion, we risk detrimental consequences if our policy decisions are informed by aggregative methods that are ambivalent towards those that are suffering in our society.

**Eleanor Rees, UK Office of National Statistics**

**Measuring National Well-being in the UK**

The UK Office for National Statistics has been reporting on developments in society for over 50 years. In 2010, building our Beyond GDP work plan, we launched the Measuring National Well-being Programme. Part of this programme included a national debate into ‘What matters most?’. We received 34,000 responses, which helped us develop the Measures of National Well-being. The 44 measures were established across 10 domains to evaluate how we are doing through the lenses of the Economy, the Environment and Society. Our 10 domains are Personal well-being, Our relationships, Health, Where we live, What we do,



Education and Skills, Personal Finance, Economy, Governance and Environment. The covid-19 pandemic and the current cost of living pressures have highlighted the importance of the Measures of National well-being, but they have also led us to ask whether the current measures continue to capture what matters most in the UK? Consequently, from October 2022 to March 2023, we have been reviewing our measures of national well-being and how we disseminate them. We have carried out an open review survey asking users what matters most to national well-being, and for feedback on our current measures. We have also undertaken research using our Opinions and Lifestyle survey to understand what the public say matters to their individual and community well-being now. Additionally, we conducted focus groups and an engagement exercise with our stakeholders. This presentation will give a background to the UK Measures of National Well-being, outline the research conducted as part of this review and showcase our proposal for the next steps for the measures.

**Gemma Riera Mallol, University of Luxembourg**

#### **War destruction and resilience in the long-term**

This paper uncovers the long-term consequences of warfare on resilience. I exploit a quasi-experimental setting, using variation in WWII destruction in West German cities and variation in exposure to the war. I use data from the German Municipality Statistical Yearbooks of 1949 and combine it with the German Socio-Economic Panel (SOEP). Employing a difference-in-differences estimation, I find that exposure to greater war intensity during birth, childhood or young adulthood increases the resilience of individuals when they grow older. Cohort analysis shows that older generations were especially sensitive to the shock. The findings are robust to sample selection, falsification tests and validity checks.

**Francesco Sarracino, STATEC Research**

**Kelsey J. O'Connor, STATEC Research**

#### **A measure of well-being efficiency based on the World Happiness Report.**

We estimate a measure of well-being efficiency that assesses countries' ability to transform inputs into subjective well-being (Cantril ladder). We use the six inputs (real GDP per capita, healthy life expectancy, social support, freedom of choice, absence of corruption, and generosity) identified in the World Happiness Reports and apply Data Envelopment Analysis to a sample of 126 countries. Efficiency scores reveal that high ranking subjective well-being countries, such as the Nordic countries, are not strictly the most efficient ones. Also, the scores are uncorrelated with a traditional (total factor) measure of economic efficiency. This suggests that the implicit assumption that economic efficiency promotes well-being is not supported. Subjective well-being efficiency can be improved by changing the amount (scale) or composition of inputs and their use (technical efficiency). For instance, countries with lower unemployment, and greater healthy life expectancy and optimism are more efficient.



Ana Suarez, University of Oviedo

Maria R. Vicente, University of Oviedo

### **Life satisfaction and the twin green and digital transition. Evidence for Europe.**

The European Commission is prioritizing the twin green and digital transition as a key policy objective to establish a new economic growth model based on a green, digital, and resilient economy. With the great importance of both transitions as drivers of major changes in society, it is essential to understand how they are related to each other and how they affect individuals' well-being. This paper tries to unravel the existing relationship between Internet use, environmental concern and life satisfaction in Europe using data from the European Social Survey (ESS). We model the relationship between these three factors using a model of three equations, in which the endogeneity of Internet use is addressed and the potential mediating effect of environmental concern on well-being is analysed. We seek to answer the following research questions: 1) What effect does internet use have on environmental awareness? And 2) What effect does internet use and environmental awareness have on life satisfaction? The results show that using the internet daily has a significant positive and strong effect on environmental awareness and is also positively related to life satisfaction. Moreover, people who show higher environmental concern report lower levels of life satisfaction. The paper suggests that policymakers should promote investments in sustainable and digital infrastructures, encourage green and digital behaviours, and promote environmental and digital literacy to have positive impacts on people's well-being. In conclusion, the internet can be a powerful tool for raising environmental awareness and enhancing life satisfaction, and its potential should be harnessed in the twin green and digital transition.

Thanasis Ziogas, University of Groningen

Dimitris Ballas, University of Groningen

Sierdjan Koster, University of Groningen

Arjen Edzes, University of Groningen

### **A bigger bang for your buck: sources of income and happiness**

Income is an important component for an individual's well-being. There are, however, many means by which someone can earn it. There is extensive literature in economics providing a wealth of robust evidence that the relationship between income and happiness is positive. Nevertheless, most studies to date treat income as one variable with no attempt to break it down to its different sources such as income earned from labour, social or private benefits and income from investments among others. This distinction is important because of the social norms and stigma effects that exist, especially in small areas where people identify that they belong. We further argue that the level of social capital as well as the share of individuals receiving stigmatised income in the area moderate the relationship between subjective well-being and stigmatised income. The article uses data from the United Kingdom, where individuals are nested at the Local Authority Districts (LADs) level, while we employ linear and quantile regressions as well as propensity score matching techniques that allow us to examine



the causal effect of stigmatised income on happiness. We find that the various sources of income have a different (and nonlinear) relationship with happiness, even after controlling for a wide range of relevant individual characteristics. We also find that when controlling for social capital measures at the small geographical scale, the latter act as a buffer against stigmatised income resulting in mitigating its effect. Lastly, we show that social benefits seem to have a negative and significant causal effect on happiness.

