

**APRIL 13 - EMERGING ISSUES
IN REGIONAL WELL-BEING**

**APRIL 14 - AUTOMATION AND
WELL-BEING**

APRIL 13-14, 2023

ALETTA CAMPUS

KAPTEYN BUILDING

ORGANIZERS

**Femke Cnossen (FSS)
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Richard Rijnks (FSS)**

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Aletta Health Grant

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Background

Towards the end of 2022, we (Milena, Femke, and Richard) got together to outline our future collaboration. We decided to organize a pair of workshops on well-being and automation. The goal was to bring together scholars we already knew and people who would be very interesting to meet, all centered around the topics of workplace automation and regional well-being. Our goal was to have a diverse set of speakers from various scientific backgrounds to foster a wider discussion than we normally see at the highly specialized sessions in scientific conferences.

To this end, we held two workshops, one on April 13 (Emerging Issues in Regional Well-being) and one on April 14 (Automation and Well-being).

Our workshops were made possible by the generosity of two funding partners within the University of Groningen. First, the April 13 workshop was sponsored by the Aletta Health Grant, a grant issued by the Aletta Jacobs School of Public Health (AJSPH) to assist research and activities around AJSPH-related themes and stimulate work on societal challenges and issues. We are very grateful for receiving the grant and for being hosted by the AJSPH in the House of Connections when our planned location was no longer available.

Second, the April 14 workshop was sponsored by the Young Academy Groningen (YAG) Incentive Fund. The YAG Incentive Fund aims to facilitate interdisciplinary projects and collaborations with a view to future project development.



Finally, we are grateful to our speakers, discussants, and workshop participants. To our speakers, many, many thanks for preparing the exceptionally insightful talks, and for engaging in the lively and intellectually stimulating discussions afterward. We saw some incredibly insightful papers and discussions, far exceeding our lofty expectations. We were also very happy to have a broad range of workshop participants who engaged energetically with all the interesting material presented. About 25 participants attended each of the workshops.

We look forward to reprising this format in the upcoming years!



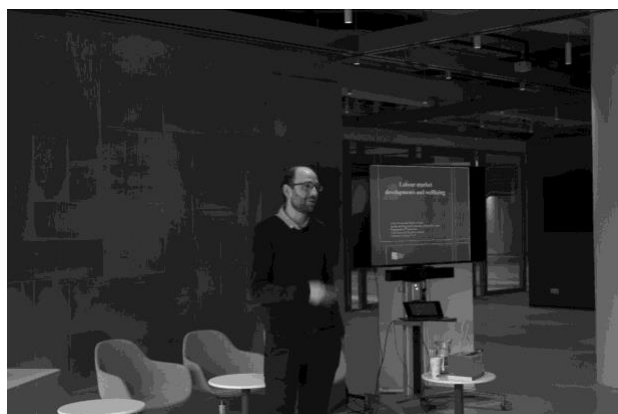
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The April 13 workshop started with a nice lunch in the beautiful new headquarters of the Aletta Jacobs School of Public Health in the Groningen city Centre. After lunch, the scientific part began with a talk by **Anthony Lepinteur (University of Luxembourg)**, who presented the latest developments in *Measuring Well-being*. The presentation responds to the Bond and Lang 2019 critique on measuring well-being. In particular, the presentation honed in on the reversibility critique, which states that varying the assigned numerical value on ordinal well-being scales may reverse the analysis outcomes. Factors contributing to well-being may be detrimental if the scales are stretched one way or another. Anthony showed that the potential for reversal could be measured and analyzed, highlighting key factors that limit the reversibility of the outcome (number of observations, lower p-values, exogenous settings, and fewer response categories for subjective well-being questions). In their replications of previous well-being work in top economics journals, Anthony and co-author Caspar Kaiser find that a third of all outcomes are not reversible under any circumstances, and the vast majority of findings of key



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papers (key facts in the literature) are stable against all but the boldest of stretching of the scales and assumptions. All in all, a positive result for well-being research.



After the break, **Justin Doran (University College Cork)** presented his most recent work on the relationship between automation risk and well-being (happiness, life satisfaction, health, and job satisfaction). Focusing on the well-being side of the argument, Justin presented various theoretical insights binding research on meaningful work, purposeful work, autonomy, and the emerging

literature on sensitivity to automation outcomes. The study's novelty is the connection with well-being outcome measures hinting at people's perceived precarity in their current occupation. The initial results show that vulnerabilities are different along the life course, with the youngest and oldest (post-retirement) working groups seemingly experiencing the greatest declines in job satisfaction. For the younger generations, this may be explained by a sense of precarity for those setting out on their careers. For the oldest group, this may be dominated by those not retiring out of necessity, whose livelihoods may be at stake. Breaking the results down by sector shows that the arts and entertainment, education, and electricity, gas, and energy sectors are most at risk. These results may be explained by a larger distance from these industries to other suitable occupations. Overall, the life and job satisfaction measures broadly respond to the risk of

automation predictably, while the heterogeneity of impacts highlights the societal relevance of this type of research.

Rounding off an excellent afternoon of presentations, **Femke Cnossen (University of Groningen)** turned the spotlight on the study of meaningful work in the context of economics.



She discussed a recently published paper on meaningful work, why economists should care about it, and some recent ongoing work on conceptualizing meaning and motivation into labor supply models. Her research, joint with Milena Nikolova, highlights the importance of the workers' experiences of autonomy, competence, and relatedness for the ability to perceive meaning at work. In their paper, Milena and Femke show that meaning, in turn, affects labor market outcomes that proxy for effort, such as sick days, intended retirement age, and participation in training to develop further skills. She also presented new results of ongoing work that showed that robots at work might negatively affect the experience of meaningfulness and autonomy. To conceptualize these findings, Femke presented a new version of an economic framework of labor supply, with a key role for the self-determination variables of autonomy, competence, and relatedness. All in all, the key messages of her talk for the audience were twofold. First, the perceptions of meaning and self-determination at work are important indicators to study, not only because of their intrinsic value but also because they predict economic outcomes. Second, working on these topics in the context of economics may be trying at times since standard economic models have a strong focus



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on the monetary rewards of labor rather than the experience of meaning from tasks. Nevertheless, it is worthwhile to try to convince economists of the importance of meaningfulness at work, something that may become even more relevant in the current age of robotization and automation.

Each presented spoke for 45 minutes, followed by some questions from the audience. We closed the session with drinks on the top floor of the brewery Martinus, followed by a post-workshop dinner taking our international delegation to the Australian / Pacific / Irish pub in Groningen. While we have yet to convince the Irish delegation that Guinness tastes just fine here as well, we managed to (re-)cover a lot of the discussions around well-being issues and broader academia while at the same time managing our nightly perambulations to match with an early start on Friday. All in all, a very successful and fruitful workshop! Based on the participants' feedback, such a workshop covering interdisciplinary issues related to well-being is welcome and needed.



APRIL 14, 2023 – AUTOMATION AND WELL-BEING

The April 14 (Friday) morning workshop, organized in cooperation with the Centre for Public Health in Economics and Business, started bright and early. First, we benefited from the "human in the loop" (thanks a million, Steven!) to bring our coffees to the actual room where we had the workshop, something decidedly not an option in the automatic online system. However, in parallel, another human went the wrong way in a different loop and exited Groningen to the sunny south. Thankfully, Justin made it back on time and even got to experience the legend that is line 15 on the way back up. We are also very thankful to Jeroen van der Vaart (Centre for Public Health in Economics and Business, FEB) for helping us overcome technical difficulties and make the hybrid workshop possible. We had five presenters (unfortunately, Aleid Brouwer from the University of Groningen could not join us because she was ill, we missed you, Aleid). Each presenter spoke for 20 minutes, followed by 5 minutes of remarks by a designated discussant and some Q&A with the audience.



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The Friday session started with **Samuele Murtinu (Utrecht University)**, who presented a theoretical model of how humans and algorithms interact. Based on the model, the nature of interactions depends on the comparative advantages in processing information based on different content, frequency, and relevance. The central thesis consists of two splits: first, there is the split between high and low-frequency information, and second, the split between quantitative and qualitative information. Depending on the compositions of each of these factors, tasks are either best performed by a human or an algorithm or through the cooperation of humans and algorithms. However, the key takeaway of the presentation is that large swathes of tasks are, in fact, best performed with human and automated processes working in tandem.



Next up, we were very lucky to be joined online by **Gudela Grote (ETH Zurich)**, who presented a broader overview of theories relevant to studying the impact of artificial intelligence on work and organizational design. The presentation especially focused on the role of accountability and control in automated work processes and delved into psychological and ethical aspects of misalignments between the two, which can hinder value creation by AI. She emphasized the challenges posed by AI systems' ability to autonomously learn during system use, which increase opacity even for system developers and make it harder to locate control and accountability. Gudela proposed that these challenges need to be addressed by broad stakeholder dialogue. A key takeaway from this was that we are currently starting to see fully automated processes through AI. As a result, no human is in "control" anymore regarding at least some of this process, which severely limits accountability.

Next up, **Anthony Lepinteur (University of Luxembourg)** introduced a micro-level analysis of the consequences of robotization for the self-reported tasks that workers do. He showed that robotization increases workers' perceptions of doing routine tasks. At the same time, paradoxically, workers' tasks become more routine with rising robotization and have fewer abstract and social components. One interpretation of these results is that while machines have made work more efficient and less routine as a whole, the tasks that are left over for humans are even more routine, dull, and non-creative, in line with the Polanyi Paradox.





Piotr Lewandowski took us through the role that automation might play in increasing or decreasing economic inequalities. Where this talk really pushed the boat out was by looking at household income inequality rather than individual wages. At the household level, job automation is unlikely to make much of a difference regarding inequality, whereas, at the individual level, there is a small impact on inequality.

After lunch, **Justin Doran (University of Cork)** took us on a regional journey of automation findings again. Basing himself on the same empirics as the previous day, Justin went into slightly more detail regarding the industrial decomposition of the expected impacts of automation. Much of the discussion was geared towards measuring the exposure to automation, with Frey and Osborne's O*NET methodology in one corner and the OECD's Nedelkoska and Quintini's measures in the other. The former focuses on skills and knowledge required for jobs, while the second takes a more detailed look at the skills and knowledge required for workers within those jobs.



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In the final session of the workshop, first up was **Jenny van Doorn** (University of Groningen), who discussed her work on the introduction of robots in caregiving, with a number of interesting outcomes. For example, the care sector is quite receptive to the adoption of robots. There is an acute awareness in the sector that there will not be enough labor on the supply side to cover all the tasks that need doing, and robots can work in parallel with care workers to achieve this. The manner in which robots are most effectively used from a patient's perspective is, however, a very nuanced subject. For instance, having a robot cooperate with a human works best when the human is in charge and the robot merely assists. Reversing these roles means patients are less likely to cooperate, and less likely to follow through on new skills. Robots work well in embarrassing situations and alleviate feelings of being socially judged, but situations, where robots and humans collaborate require further investigation.

Finally, **Fulvio Castellacci** (University of Oslo) presented a paper on the effects of innovation on well-being, based on agent-based modeling. He first



spoke about how specifically innovation theoretically affected individual well-being and called for expanding the field of the economics of innovation to include a well-being perspective. He called for looking beyond consumption and material well-being and considering a broader array of mechanisms that link innovation and well-being. The rest of the talk presented an agent-based model of well-being that produced seven interesting effects related to wages, consumption, environment, time use, health, and values. These effects have different relevance for well-being, and some are uncertain (as in the case of wages), some are temporary (as in the case of consumption), and some are permanent (environment shaping, health, and value-shaping) and affect individuals' capabilities and functionings. The model is very promising for inspiring a future research agenda on the mechanisms through which innovation shapes well-being.

The second workshop day ended with a short walk along the river Reitdiep, followed by drinks and dinner with those with energy remaining at Bax Brewery, bringing proceedings to a close. Upon reflection, we note two things: first, the incredible quality of the speakers that made their way to Groningen or joined online and the diversity of their talks. Every talk sparked discussion. Whether it was metrics, methods, outcomes, or implications, both days touched on a broad spectrum of the discourse around automation and regional well-being. Second, we should aim to do this more often. The social gatherings were a superb opportunity for everyone to mingle, from early career researchers to senior academics who are barely older than their h-index. In the future, we will order fewer cakes and treats for the high tea, though.



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