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| **BIOGRAPHICAL SKETCH** | | | |
| NAME: Yoëlle Kilsdonk | | | |
| eRA COMMON USER NAME: n.kilsdonk | | | |
| POSITION TITLE: MSc student | | | |
| EDUCATION/TRAINING | | | |
| INSTITUTION | DEGREE | COMPLETION DATE | FIELD OF STUDY |
| Erasmus University, Rotterdam, Netherlands | BSc | 07/2021 | Econometrics |

**A. Personal Statement**

In 2022, I started a MSc in Econometrics and Management Science at the Erasmus University in Rotterdam. I am currently employed as a thesis intern at the Dept. of Public Health of Erasmus Medical Center (MC). As MSc thesis intern, I will develop the Microsimulation Screening Analysis (MISCAN) model for colorectal cancer under the supervision of Iris Lansdorp-Vogelaar, Rosita van den Puttelaar and Danica van den Berg, and use the updated model to address questions of personalized screening and surveillance.

**B. Positions and Employments**

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| 2021 – present | *Administrative employee & research assistant | ERASMUS MC*  A healthcare professional can submit a request to have radiological images reassessed by our department's radiologists or nuclear physicians. We then handle all kinds of administrative work regarding the incoming applications for reassessments, which must be discussed in the multidisciplinary consultation. |
| 2019 – 2020 | *Product Specialist | Apple Store*  Specialists are the first employee who meets the customers upon arrival, and the one who guides them: we give advice, sell products and, if necessary, help them on their way with their purchase. We also fulfill other tasks, such as attractively presenting the products in the store and assisting other team members. |
| 2017 – 2019 | *Pharmacy assistant | Kennemerbax geneesmiddelen distributiecentrum*  As a pharmacy assistant, we operated the machines who prepack medicines for one whole week in a roll for other pharmacies (baxtering). |
| 2019 | *Tutor | Universiteit van Amsterdam*  I tutored in Mathematics and Business Mathematics Quantitative Research Methods I |

**C. Contribution to Science**

Bachelor seminar: (co-author)

**“A regression discontinuity design study: How perceived corruption affects foreign direct investments”**

In this paper, we measure the effect of the binary classification of being perceived as either more or less corrupt on foreign direct investments (FDI). This research uses Transparency International's Corruption Perceptions Index (CPI) as measure of perceived corruption. This report is the first that analyses the effect of perceived corruption by means of regression discontinuity design (RDD). We analyse the data of FDI, CPI, gross domestic product, and population size for 152 countries over the period of 2012 to 2019 using RDD. We find no discontinuous effects of perceived corruption around the predetermined threshold of 50 on the CPI on both FDI scaled by population and FDI attractiveness. Therefore, these results suggest that companies generally do not base their investments on a country's perceived corruption classification.

Bachelor thesis:

**“Child Penalties in the United States: A difference-in-differences extension”**

In my bachelor thesis, I first reproduce the child penalty estimates of Kleven et al. (2019)[[1]](#footnote-1) in female and male earnings in the United States. The estimates are based on event studies around the birth of the first child. I find that women's earnings sharply diverge after birth, while male earnings seem unaffected. Moreover, I find a long-run child penalty in earnings of 36%. Furthermore, as a robustness check, I provide a difference-in-differences event study that uses childless individuals as controls over multiple treatment periods combined with coarsened exact matching. The analysis confirms the key qualitative findings from the event study for women. However, it alludes to new insights in which fathers might be adversely affected by childbirth, contradicting the findings of Kleven et al. (2019).

Master seminar: (co-author)

**A Second Life for Logistic Regression: Interpretable Machine Learning in Credit Risk**

In credit risk literature, traditional models such as Logistic Regression (LR) are often outperformed by Machine Learning (ML) models in the prediction of the probability of default. However, even though ML often leads to more accurate estimates, financial institutions should be able to understand and explain their default predictions. To this end, instead of interpreting complex ML methods *post hoc*, several studies use the inherently interpretable LR model and add simple nonlinear features through ML. This study compares these so-called hybrid methods in terms of performance, and proposes a novel hybrid method with a tuning parameter that fixes the level of interpretability in an intuitive way. Analyses on multiple data sets show that this new model outperforms other hybrid approaches, while remaining highly interpretable. In some cases, the proposed model even achieves performance competitive with the highly accurate, yet opaque, XGBoost classifier.

Running projects

The focus of my research will be on implementing a haemoglobin simulation model in existing computer simulation models, with an emphasis on colorectal cancer (CRC) screening.

**“Simulating Haemoglobin Concentrations for MISCAN-Colon Using Black-box Machine Learning as a Step Towards Personalised Colorectal Cancer Screening” (Master Thesis)**

To evaluate the benefits of personalised screening strategies, based on the previous haemoglobin (Hb) concentration found in a person’s stool, MISCAN-Colon (microsimulation model) needs an accurate simulation model for the Hb values. The aim of this paper is to extend the MISCAN-Colon model with a simulation model for the Hb concentration found in a person’s stool. Questions to be answered within this paper are: Does the introduction of random-effects in machine learning models lead to better performance, i.e., do mixed-effect machine learning models outperform `regular' machine learning models? Which model is best suited for predicting the haemoglobin concentration based on the data set provided by EMC? And how well does this model perform as simulation model in MISCAN-Colon?

**D. Additional information: Research support**

# Ongoing Research Support

U01CA253913 (Zauber) 09/01/2020 - 08/31/2025

**Comparative Modeling of Effective Policies for Colorectal Cancer Control**

This builds on prior collaborative work, by using microsimulation models to evaluate CRC interventions. By extending and updating the existing models, address new research questions, including evaluation of new approaches to screening, diagnosis, treatment and post-treatment surveillance. Through dissemination of findings, inform and facilitate policy decisions and clinical guidelines regarding how cancer-control interventions can effectively improve health outcomes and alleviate the burden of CRC.

1. H. Kleven, C. Landais, J. Posch, A. Steinhauer, and J. Zweim ̈uller. [Child penalties across countries: Evidence and explanations](https://www.aeaweb.org/articles?id=10.1257/pandp.20191078). AEA Papers and Proceedings, 109:122–26, May 2019a. doi:10.1257/pandp.20191078. [↑](#footnote-ref-1)