Statistics and Actuarial Science Seminar

Title: Estimation and projection of cancer risk: inequalities and COVID-19 impact

Speaker: Ayse Arik

Date: Thu 22nd February 2024 at 3:00PM

Location: E0.32 (beside Pi restaurant)

Abstract: Reliable modelling of cancer risk is important for insurance purposes since it can impact pricing and reserving in areas such as critical illness insurance. It also has a significant direct impact on health and social care. In this study, we focus on investigating two major cancer types, breast cancer and lung cancer, based on the population data of England between 2001 and 2018. We examine these cancer rates with a focus on projection of cancer mortality in the future. We consider a Bayesian setting to identify regional and socioeconomic differences in breast and lung cancer whilst also accounting for heterogeneity and uncertainty in the data. We have found that socioeconomic differences in lung cancer mortality would persist in the future, whereas marginally significant regional differences would exist in breast cancer mortality. Our research has further revealed that increases in average age-at-diagnosis, that can be associated with diagnostic delays due to COVID-19 health disruptions, could lead to significant increases in excess lung cancer mortality, also exhibiting uneven outcomes at regional and deprivation level.