

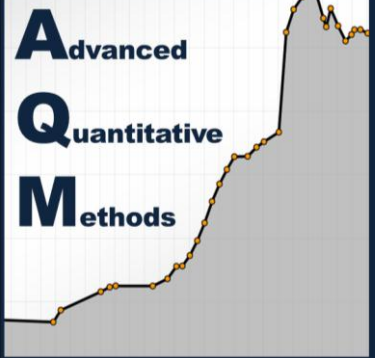
MANCHESTER
1824

The University of Manchester

LANCASTER
UNIVERSITY



UNIVERSITY OF
LIVERPOOL



PGR Mini-Symposium

University of
Liverpool

4th June 2014

10:30-17:00



North West
Doctoral Training Centre

E · S · R · C
ECONOMIC
& SOCIAL
RESEARCH
COUNCIL

AQM Mini-Symposium Schedule 2014

10.00-10.30 **Arrival and Registration**

10.30-10.35 **Welcome**

Session 1 *Chair: Gabriella Melis*

10.35-10.55 Labour market status and well-being during the Great Recession

David Bayliss

10.55-11.15 Mortality among immigrants and their descendants in Britain

Matthew Wallace

11.15-11.35 Rural-to-urban migration and left-behind children's' nutritional health in rural China: A mixed-methods approach

Nan Zhang

Session 2 *Chair: David Bayliss*

11.45-12.05 Combining data from multiple spatially referenced prevalence surveys using generalized linear geostatistical models

Emanuele Giorgi

12.05-12.25 Space time data mining of reporting of injuries, diseases and dangerous occurrences regulations data

Linda Blade

12.25-12.45 Estimation of a school choice model using preferences inferred from observed allocations

Matthew Weldon

12.45-13.45 **Lunch**

Session 3 *Chair: Matthew Weldon*

13.45-14.05 Modelling and testing capital flow volatility to emerging market economies: A quantile regression approach

Xichen Wang

14.05-14.25 Stochastic volatility for intraday return volatility and the role of duration and trading volume

Xuguang Li

14.25-14.45 Quantifying the economic value of data obtained from river gauging stations in Scotland: A users' perspective

Kush Thakar

Session 4 *Chair: Matthew Wallace*

14.55-15.15 Modelling social attitudes: The influence of family background from an intergenerational perspective

Gabriella Melis

15.15-15.35 Older worker exit transitions from employment in a recessionary era – What changes from a time of economic growth?

Jennifer Prattley

15.35-15.55 Partnership status and mortality in England and Wales: The effect of living arrangements or health selection?

Sebastian Franke

16.15-17.00 **Keynote: Knowing me, knowing you - are social relations amenable to statistical modelling?**

Dr Johan Koskinen

Keynote Speaker: Dr Johan Koskinen

Dr Johan Koskinen will deliver a keynote entitled 'Knowing me, knowing you - are social relations amenable to statistical modelling?'



Dr Johan Koskinen got his PhD in Statistics from Stockholm University and has since worked at the Department of Sociology and Statistics, Stockholm University, The Swedish Institute for Social Research, the MelNet group, University of Melbourne and at ReMiSS, Department of Politics and International Relations, University of Oxford, and as a Non-Stipendiary Research Fellow of Nuffield College. He joined the Cathie Marsh Centre for Census and Survey Research in January 2011.

Among Johan's research interests are modelling and inference issues for different types of social networks in varying contexts and circumstances, with recent applications including single instances of networks and networks repeatedly observed through time and by different observers. Of special interest is a general concern with classes, positions, roles and context and how this may be approached in statistical analysis. These issues require approaches that draw on and incorporate elements from missing data modelling, a posterior block models, and latent class analysis. Recent projects include: model assisted estimation of the size of a hidden population through snowball sampling, analysis of multimodal network data and MCMC for distributions with intractable normalizing constant.

Johan has published in a wide range of journals, including *Survey Research Methods*, *Social Networks*, *the Journal of Statistical Physics*, *the Journal of Education and Behavioural Statistics* and *Mathematical Population Studies*. Johan has also contributed a series of book chapters and in 2013, edited *Exponential Random Graph Models for Social Networks* alongside Dean Lusher and Garry Robins. Johan has also authored a series of research and technical reports for the Department of Statistics while at Stockholm University and the MelNet Social Networks Laboratory while in Melbourne.

Programme and Abstracts



Session 1

Labour market status and well-being during the Great Recession

David Bayliss, University of Manchester

[*\(david.bayliss-2@postgrad.manchester.ac.uk\)*](mailto:david.bayliss-2@postgrad.manchester.ac.uk)

It has been claimed that the well-being of people in the UK has remained stable during the current economic crisis. Such claims are perhaps counterintuitive given the severity of the crisis; the longest on record in the UK (Myers 2012). The narrative of well-being that accompanies such major events is important at a time when governments are (at least talking about) taking non-GDP measures of success more seriously. Claims that events such as recession do not significantly alter people's well-being can help to justify public acceptance of recession, large scale redundancies and a weakening of supportive social services (National Advisory Council on Economic Opportunity 1979, in Riegle 1982). Such claims could further support the current ongoing austerity measures which risk prolonged periods of high unemployment and reduced welfare support.

In this research these claims are analysed by critiquing the conceptualisation and operationalization of well-being as synonymous with subjective well-being (SWB), an approach which could and perhaps has masked a decline in overall well-being during the current economic crisis. Instead, the idea that well-being cannot be detached from the nature of a person's existence is pursued. The stability (or lack thereof) of well-being as conceived from a realist perspective is then compared, arguing that a multidimensional understanding of well-being provides a more valid approach for evaluating the impact of the economic crisis. To test this claim, in the first analysis an evaluative measure of SWB (life satisfaction) is compared to a more objective measure (of positive psychological health) which is conceived as a single dimension of well-being. Eight years of panel data for the UK working age population are used to produce latent growth curves estimating change in individual well-being from the pre-recession 'boom' into the recessionary 'bust'. Results confirm a decline in the tested dimension of well-being, whereas stability is replicated using the SWB measure.

Mortality among Immigrants and their Descendants in Britain

Matthew Wallace, University of Liverpool

[*\(m.wallace@liverpool.ac.uk\)*](mailto:m.wallace@liverpool.ac.uk)

Background: Previous research shows low mortality for some international migrants compared with natives in the host country. This advantage is often attributed to health selection processes in immigration, emigration and re-migration, and to protective health behaviours among immigrants. Other explanations focus on data issues. If return migration from the host country is under-recorded, the moves produce a numerator-denominator bias leading to under-estimation of migrant mortality

(‘data artefact’). **Research questions:** (i) to examine mortality patterns among immigrants and their descendants (ii) to investigate causes of mortality differences between immigrants, their descendants and hosts. **Data:** I use the Office for National Statistics Longitudinal Study, a representative 1% sample of the population of England and Wales (sample c.500, 000 individuals). **Methods:** I use parametric and semi-parametric survival analysis to calculate mortality rates for immigrants, their descendants and British-born, adjusting for socioeconomic and selection effects. I conduct sensitivity analysis to ensure that results are not ‘data artefact’. I fit a number of frailty models to examine selection; this will allow the detection and control for unobserved characteristics which differentiates immigrants. I explore the fit of various models with different assumptions on baseline mortality (Gompertz and piecewise constant) and frailty distribution (Gamma, log-normal; inverse Gaussian). **Results:** Mortality of I-generation Indians, Pakistanis, Bangladeshis, Chinese, Other Asians, Other Caribbeans and Western European immigrants is lower than mortality of natives in England and Wales. These differences become more pronounced after controlling for socioeconomic characteristics.

Internal Migration and Left-Behind Children’s Nutritional Health in Rural China: A Mixed Methods Approach

Nan Zhang, University of Manchester

nan.zhang-7@postgrad.manchester.ac.uk

Introduction: China’s unprecedented internal migration has left around 61 million children under 18 years of age (37.7% of total rural children) living apart from either one or both parents in rural areas. Few studies have examined the long-term effects of the lengths of being left behind on their nutritional health. **Methods:** This study employs a mixed-methods approach. The quantitative part draws on data from the five waves of China Health and Nutrition Survey (CHNS; N=2408). Three-level growth curve modelling was used to follow multiple cohorts (aged 0-6) up to age 18 in 2009, and examine whether growth rates in height and weight differ for children who were left behind for once or more, as compared to their peers with intact households. Additionally, a qualitative study of interviewing 26 children (21 left-behind children and 5 non-left-behind children) and 33 caregivers was conducted in rural China to explore how the caregiving is organised. **Results:** Being left behind for once and more can lower children’s growth rates on height, but not for weight. Children who are left behind for a longer period tend to be better off in height and weight than non-left behind children of same age, and even better off than those left behind for a shorter period. Both height and weight are positively associated with a composite score of household assets, and negatively affected by income although insignificant. This may imply that long-term socio-economic status instead of short-term economic status improves children’s nutritional health.

Session 2

Combining data from multiple spatially referenced prevalence surveys using generalized linear geostatistical models

Emanuele Giorgi, Lancaster University

(e.giorgi@lancaster.ac.uk)

Data from multiple prevalence surveys can provide information on common parameters of interest, which can therefore be estimated more precisely in a joint analysis than by separate analyses of the data from each survey. However, fitting a single model to the combined data from multiple surveys is inadvisable without testing the implicit assumption that all of the surveys are directed at the same inferential target. We propose a multivariate generalized linear geostatistical model that accommodates two sources of heterogeneity across surveys so as to correct for spatially structured bias in non-randomized surveys and to allow for temporal variation in the underlying prevalence surface between consecutive survey-periods. We describe a Monte Carlo maximum likelihood procedure for parameter estimation, and show through simulation experiments how accounting for the different sources of heterogeneity among surveys in a joint model leads to more precise inferences. We describe an application to multiple surveys of malaria prevalence conducted in Chikwawa District, Southern Malawi, and discuss how this approach could inform hybrid sampling strategies that combine data from randomized and non-randomized surveys so as to make the most efficient use of all available data.

Space time data mining of Reporting of Injuries, Diseases and Dangerous Occurrences Regulations data

Linda Blade, University of Liverpool

(lblade@liverpool.ac.uk)

The Health and Safety Executive reported that between 2011 and 2012, 171 workers were killed at work in Great Britain, with approximately 115,000 employees suffering from injuries in the workplace. Although the number of workplace accidents has been declining in recent years, incident levels remain significantly high. This research study focuses on identifying the causes of these workplace accidents through space-time data mining of the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) dataset, provided by the HSE. The RIDDOR dataset consists of 6 years of recorded workplace accident data. It provides an extensive amount of detail regarding the accident, ranging from the geographic location of where the incident occurred to what time and date it took place, as well as information relating to the worker, such as age and gender. Methods include space-time data mining of the RIDDOR dataset through GIS visualisation techniques, as well as regression modelling. The initial results have shown that there is potentially a connection between physical factors such as daylight hours and seasonal variation on the level of

workplace accidents across Great Britain. Regression models suggest that workers living in highly deprived areas are more likely to have accidents in their workplace than those living in less deprived areas.

Session 3

Determinants of capital flows to emerging countries: would it be different during sudden stops?

Xichen Wang, Lancaster University

[*\(x.wang18@lancaster.ac.uk\)*](mailto:x.wang18@lancaster.ac.uk)

The major goal of this study is to characterize the determinants explaining the level and variation of capital flow, using a panel of more than 50 EMEs over 1996-2010. Starts with a dynamic panel approach, this paper suggests that domestic pull factors, such as real interest rate differential, real growth rate, and institutional quality are important in attracting levels of capital flow. In contrast, the significances of global push factors tend to disappear after controlling for business cycle effect. Further, this study employs a quantile regression to investigate the factors driving capital variation conditional on different capital movement episodes. The empirical findings suggest that global factors generally trigger capital waves. However, conditional on the occurrences of sudden stops, which is shown in the lower conditional quantiles, it is domestic factors such as external financing need, capital account openness and exchange rate regime dominating the variations. Overall, from a policy perspective, these empirical finds suggest to improve domestic macro fundamentals to attract capital flows, and mitigate large drops during sudden stops by curbing inflation, tightening capital control and allowing for a more exchange rate regime.

Stochastic Volatility (SV) model for intraday volatility and the information of duration and trading volume for volatility

Xuguang Li, Lancaster University

[*\(x.li7@lancaster.ac.uk\)*](mailto:x.li7@lancaster.ac.uk)

Background: During the recent decades, the rapid development of algorithmic trading systems has been boosting the high-frequency trading, such as the appearance of 'High Frequency finance hedge funds'. The ability to capture the best price and manage the risk now strongly depends on how fast you can send your order to the market and how volatile the market is at that specific time. Therefore, it is meaningful to study intraday volatility model for the high frequency finance. **Research Objectives:** Most studies tend to aggregate high frequency data into a daily 'realized volatility' (RV) measure to avoid directly modelling intraday returns and volatility. We try to build an SV model to fit the intraday volatility. The intraday SV model uses the mean of 5-minute expected duration that calculated from standard Autoregressive Conditional Duration (ACD) model to fit the intraday pattern of volatility. **Methods:** We estimate the ACD model following the procedure described in Engle and Russell (1998). Then we estimate the extended SV model based on the quasi-maximum likelihood estimate (QML) method offered by Harvey et al. (1994). **Data:** SPDR S&P 500 ETF TR intraday Trade and Quote data from 4 Jan 2010 to 30 Apr 2010. The model comparison of intraday SV models with GARCH and GARCH-ACD is based on different (rolling) forecasting horizons. **Results:**

According to the mean absolute error, the intraday SV model performs better than GARCH and GARCH-ACD.

Quantifying the economic value of data obtained from river gauging stations in Scotland: a users' perspective.

Kush Thakar, University of Liverpool

[\(kthakar@liverpool.ac.uk\)](mailto:kthakar@liverpool.ac.uk)

River gauging stations operated by the Scottish Environmental Protection Agency (SEPA) measure the level of river water across 392 sites in Scotland. River flow statistics calculated using this data inform a wide range of functions from climate change monitoring and national flood risk assessment to water resource regulation and recreation in both the public and private sectors. Hydrometric data is therefore a critical input to several economic, governmental and societal applications; however, no quantified assessment of its monetary value currently exists. This is problematic because cost-benefit evaluations of public sector programmes fail to include the economic worth of hydrometric information in itself and, by extension, under-value the infrastructure used to collect the data. Hydrometric networks lacking a quantified assessment of value are thus at a distinct disadvantage in comparison to alternative programmes competing for public investment. However, non-market valuation techniques may be used to estimate the value of this data. In this study a particular type of stated preference technique, the Choice Experiment, is employed in order to elicit user preferences for specific attributes of hydrometric data. One of these attributes includes monetary values, which are combined with varying levels of alternative attributes in order to uncover respondents' inclinations through a series of repeated choice sequences. This analysis yields a number of useful parameters consistent with economic demand theory including respondents' Willingness-to-Pay or Willingness-to-Accept Compensation. The parameters can then be scaled over a larger population and compared with aggregate costs in order to arrive at the net quantified benefits of hydrometric data. Finally, the project also seeks to understand how data value estimations vary as a function of distance over a given catchment.

Session 4

Older worker exit transitions from employment in a recessionary era - what changes from a time of economic growth?

Jennifer Prattley, University of Manchester

[*\(jennifer.prattley@postgrad.manchester.ac.uk\)*](mailto:jennifer.prattley@postgrad.manchester.ac.uk)

The economic wellbeing and physical and mental health of the ageing population in the United Kingdom is associated with continued participation in the labour force. Encouraging later life employment is therefore a key policy issue. Research into older person's employment trajectories is concentrated on men's working patterns, and often takes an individualistic approach that does not account for the domestic context. Understanding of older women's labour force participation has been informed by small scale qualitative studies that do consider the household domain but these findings cannot be generalized to the wider population. This research investigates the factors associated with continued employment of women aged 50 to 59 using data from the nationally representative English Longitudinal Study of Ageing (ELSA). Transition rates out of employment between 1998 and 2011 will be modelled using multilevel discrete time event history methods. Women and their partners are positioned within a household structure and asymmetric effects of factors on the transition rate of each couple member considered. Particular focus will be placed on the impact of spousal health and family financial resources including the total income of the partner and private pension wealth. The effect of household private pension wealth on transition rates during the economic downturn of 2008 - 2011 will be compared with any effect observed during the preceding five years of economic growth.

Partnership Status, Health and Mortality: Protection or Selection?

Sebastien Franke, University of Liverpool

[*\(frankes@liverpool.ac.uk\)*](mailto:frankes@liverpool.ac.uk)

Research on health and mortality by marital status shows lower mortality rates and better health for married persons in comparison to single and separated individuals. Those differences, usually stronger for men than for women, persist even when controlling for socio-demographic and economic characteristics of individuals. Recent changes in England and Wales over the last 40 years -- such as the rise in cohabitation, divorce rates, lone parent families, and life expectancy; as well as a general change in household structures -- invite a re-evaluation of these differences by focusing on health and mortality by different living arrangements. The aim of the project is to analyse the trends in mortality differences by partnership status in England and Wales. It investigates the effect of partnership status on health as well as the impact of health on partnership status. Further, it will demonstrate if and how much the increase in cohabitation leads to a decrease in the mortality difference between cohabitants, cohabiting couples and married couples. By applying hazard models to data from the ONS Longitudinal Study (ONS LS) between the 2001 and the 2011 censuses, the project investigates health

and mortality by partnership and family status and examines the causes of mortality differentials. A more in-depth analysis will be undertaken using the British Household Panel Study data (BHPS). Multi-level equation survival models will be used to control for selection in and out of partnership statuses.

Map and Other Information

